

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARADUR® 22962

Version	Revision Date:	SDS Number:	Date of last issue: 09.07.2022
1.2	18.07.2022	400001010100	Date of first issue: 03.07.2017

Print Date 20.04.2026

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : ARADUR® 22962

REACH Registration Number : 01-2119514687-32

Substance name : 3-Aminomethyl-3,5,5-trimethylcyclohexylamine

CAS-No. : 2855-13-2

Index-No. : 612-067-00-9

EC-No. : 220-666-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Hardener

ES1: Manufacture of substance
ES2: Formulation Industrial
ES3: Formulation Professional
ES4: Use as an intermediate and use as monomer
ES5: Use as laboratory reagent, Industrial
ES6: Use as laboratory reagent, Professional
ES7: Monomer use / other reactant use for PU, Epoxy etc., Industrial
ES8: Monomer use / other reactant use for PU, Epoxy etc., Professional, Indoor
ES9: Flooring/duct relining, Professional, Outdoor
ES10: Flooring/duct relining, Professional, Indoor
ES11: Monomer use / other reactant use for PU, Epoxy etc., Professional, Outdoor

Recommended restrictions on use : For industrial use only.

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe)BVBA
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40
E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number : Centres Antipoison et de Toxicovigilance:
ANGERS: 02 41 48 21 21
BORDEAUX: 05 56 96 40 80
LILLE: 0 825 812 822
LYON: 04 72 11 69 11
MARSEILLE 04 91 75 25 25

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NANCY: 03 83 32 36 36
PARIS: 01 40 05 48 48
RENNES: 02 99 59 22 22
STRASBOURG: 03 88 37 37 37
TOULOUSE: 05 61 77 74 47
EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1 800-424-9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 4	H312: Harmful in contact with skin.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H302 + H312 Harmful if swallowed or in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P261 Avoid breathing mist or vapours.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine
Index-No.	: 612-067-00-9
EC-No.	: 220-666-8

Hazardous components

Chemical name	CAS-No. EC-No.	Concentration (%) w/w)	M-Factor, SCL, ATE
3-aminomethyl-3,5,5-trimethylcyclohexylamine	2855-13-2 220-666-8	>= 90 - <= 100	specific concentration limit Skin Sens. 1A; H317 >= 0,001 %

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	: Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance. Treat symptomatically. Get medical attention if symptoms occur.
Protection of first-aiders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing

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If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

- | | | |
|-------------------------|---|--|
| If inhaled | : | If inhaled, remove to fresh air.
Get medical attention if symptoms occur. |
| In case of skin contact | : | Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes. |
| In case of eye contact | : | Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist. |
| If swallowed | : | Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital. |

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- | | | |
|--------------------------------|---|--|
| Suitable extinguishing media | : | Water spray
Alcohol-resistant foam
Carbon dioxide (CO ₂)
Dry chemical |
| Unsuitable extinguishing media | : | Exercise caution when using a high volume water jet as it may scatter and spread fire |

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5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NOx)

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
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6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
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6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Neutralise with acid. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.
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6.4 Reference to other sections

For disposal considerations see section 13., See Section 1 for emergency contact information., For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
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Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : When using do not eat or drink. When using do not smoke.
Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Keep in properly labelled containers.

Advice on common storage : Do not store near acids.

Further information on storage stability : Stable under normal conditions.

7.3 Specific end use(s)

Specific use(s) : See Annex to the Safety data sheet for additional information in the Exposure Scenario(s).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
3-aminomethyl-3,5,5-trimethylcyclohexylamine	Workers	Inhalation	Long-term local effects	0,073 mg/m3
	Workers	Inhalation	Acute local effects	0,073 mg/m3
	Consumers	Oral	Long-term systemic effects	0,526 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
3-aminomethyl-3,5,5-trimethylcyclohexylamine	Fresh water	0,06 mg/l
	Remarks:Assessment Factors	
	Marine water	0,006 mg/l
	Remarks:Assessment Factors	

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	Sewage treatment plant	3,18 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	5,784 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,578 mg/kg dry weight (d.w.)
	Soil	1,121 mg/kg dry weight (d.w.)

8.2 Exposure controls

Personal protective equipment

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Hand protection
Material : Nitrile rubber
Break through time : > 480 min
Glove thickness : 0,35 mm

Material : butyl-rubber
Break through time : > 480 min
Glove thickness : 0,5 mm

Material : PVC
Break through time : > 480 min
Glove thickness : 0,5 mm

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines
Equipment should conform to EN 14387

Filter type : Organic vapour type (A)

Protective measures : See Annex to the Safety data sheet for additional information in the Exposure Scenario(s).

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: liquid
Colour	: colourless
Odour	: slight
Odour Threshold	: No data is available on the product itself.
pH	: ca. 13 (20 °C) Concentration: 500 g/l
Melting point/freezing point	: No data is available on the product itself.
Boiling point	: > 200 °C
Flash point	: 110 °C Method: Pensky-Martens closed cup
Flammability (solid, gas)	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Vapour pressure	: < 0,02 hPa (20 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: 0,92 (25 °C)
Density	: 0,92 g/cm ³ (25 °C)
Solubility(ies)	
Water solubility	: completely miscible
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Auto-ignition temperature	: No data is available on the product itself.
Decomposition temperature	: > 200 °C
Viscosity	
Viscosity, dynamic	: 5 - 20 mPa.s (25 °C)

9.2 Other information

No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Strong acids
Strong bases
Strong oxidizing agents

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

Hazardous decomposition products : carbon dioxide
carbon monoxide
Nitrogen oxides (NO_x)

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Acute oral toxicity : LD50 (Rat, male): 1 030 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : (Rat, male and female): > 5,01 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: Breathing difficulties

Acute dermal toxicity : LD50 (Rat, male and female): > 2 000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

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Skin corrosion/irritation

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Species	:	Rabbit
Assessment	:	Causes burns.
Result	:	Causes burns.

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Exposure routes	:	Skin
Species	:	Guinea pig
Assessment	:	May cause sensitisation by skin contact.
Method	:	OECD Test Guideline 406
Result	:	Causes sensitisation.

Germ cell mutagenicity

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Concentration: 2 mg/ml Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Concentration: 1375 µg/L Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative Test Type: reverse mutation assay Test system: Salmonella typhimurium Concentration: 5000 µg/plate Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	:	Test Type: In vivo micronucleus test Species: Mouse (male and female) Cell type: Bone marrow Application Route: Oral Dose: 500 mg/kg Method: Directive 67/548/EEC, Annex V, B.12. Result: negative

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Carcinogenicity

No data available

Reproductive toxicity

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Effects on foetal development	:	Species: Rat, female
	:	Application Route: Oral
	:	Dose: 10/50/250 milligram per kilogram
	:	General Toxicity Maternal: NOEL: 50 mg/kg body weight
	:	Method: OECD Test Guideline 414
	:	Result: No teratogenic effects

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Species	:	Rat, male and female
NOAEL	:	60 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 d
Dose	:	20, 60, 160 mg/kg
Method	:	OECD Test Guideline 408
Target Organs	:	Kidney

Species	:	Rat, male and female
NOEC	:	200 mg/m3
Application Route	:	Inhalation
Test atmosphere	:	dust/mist
Exposure time	:	216 h
Number of exposures	:	6h
Method	:	Subacute toxicity
Target Organs	:	respiratory tract irritation

Aspiration toxicity

No data available

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher
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Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

- | | | |
|--|---|--|
| Toxicity to fish | : | LC50 (Leuciscus idus (Golden orfe)): 110 mg/l
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1. |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 23 mg/l
End point: mortality
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 202 |
| Toxicity to algae/aquatic plants | : | EC50 (Desmodesmus subspicatus (green algae)): 37 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.

EC10 (Desmodesmus subspicatus (green algae)): 11,2 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3. |
| Toxicity to microorganisms | : | EC10 (Pseudomonas putida): 1 120 mg/l
Exposure time: 18 h
Test Type: static test
Method: Measured |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: 3 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea) |

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Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 202
Remarks: No-observed-effect level

12.2 Persistence and degradability

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 6,9 mg/l
Result: Not readily biodegradable.
Biodegradation: 8 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.A.

12.3 Bioaccumulative potential

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Partition coefficient: n- : log Pow: 0,99 (23 °C)
octanol/water pH: 6,34
Method: OECD Test Guideline 107

12.4 Mobility in soil

Components:

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Distribution among : Koc: 928
environmental compartments

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

12.7 Other adverse effects

Product:

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Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.
Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : UN 2289
ADR : UN 2289
RID : UN 2289
IMDG : UN 2289
IATA : UN 2289

14.2 UN proper shipping name

ADN : ISOPHORONEDIAMINE
ADR : ISOPHORONEDIAMINE
RID : ISOPHORONEDIAMINE
IMDG : ISOPHORONEDIAMINE
IATA : Isophoronediamine

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADN	: 8	
ADR	: 8	
RID	: 8	
IMDG	: 8	
IATA	: 8	

14.4 Packing group

ADN

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Packing group : III
Classification Code : C7
Hazard Identification Number : 80
Labels : 8

ADR

Packing group : III
Classification Code : C7
Hazard Identification Number : 80
Labels : 8
Tunnel restriction code : (E)

RID

Packing group : III
Classification Code : C7
Hazard Identification Number : 80
Labels : 8

IMDG

Packing group : III
Labels : 8
EmS Code : F-A, S-B

IATA (Cargo)

Packing instruction (cargo aircraft) : 856
Packing instruction (LQ) : Y841
Packing group : III
Labels : Corrosive

IATA (Passenger)

Packing instruction (passenger aircraft) : 852
Packing instruction (LQ) : Y841
Packing group : III
Labels : Corrosive

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - List of substances subject to authorisation (Annex XIV)	: Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	: This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	: Conditions of restriction for the following entries should be considered: Number on list 3
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	Not applicable
Occupational Illnesses (R-461-3, France)	: 49 bis

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
NZIoC	: Not in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory

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Inventories

AICS (Australia), AIIC (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.
For further information see eSDS.

SECTION 16: Other information

Further information

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

The trademarks above are the property of Huntsman Corporation or an affiliate thereof.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

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Annex to the Safety Data Sheet (eSDS)

ES 1	Manufacture of substance
ES 2	Formulation Industrial
ES 3	Formulation Professional
ES 4	Use as an intermediate and use as monomer
ES 5	Use as laboratory reagent, Industrial
ES 6	Use as laboratory reagent, Professional
ES 7	Monomer use / other reactant use for PU, Epoxy etc., Industrial
ES 8	Monomer use / other reactant use for PU, Epoxy etc., Professional, Indoor
ES 9	Flooring/duct relining, Professional, Outdoor
ES 10	Flooring/duct relining, Professional, Indoor
ES 11	Monomer use / other reactant use for PU, Epoxy etc., Professional, Outdoor

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ES 1: Manufacture of substance

1.1. Title section

Exposure Scenario name	: Manufacture of substance
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Manufacture of substance	ERC1
Worker		
CS 2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS 3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 4	Use in closed batch process (synthesis or formulation)	PROC3
CS 5	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC9
CS 6	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 7	Use as laboratory reagent	PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Manufacture of substances (ERC1)

Product (article) characteristics	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: > 1000 t
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant

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STP effluent	: 367 200 m3/d
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter
Waste treatment	: Wet scrubber for the elimination of volatile components from waste gases
Waste treatment	: During waste treatment exposure of the environment is not expected.
Waste treatment	: Sludge must be disposed of to a waste incineration plant.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 1 175 000 m3/d

1.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Covers daily exposures up to 8 hours
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Inhalation - minimum efficiency of 70 %	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday.	

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Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor use
Temperature	:	Assumes use at not more than 20°C above ambient temperature. 20 °C

1.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear suitable respiratory protection.
Inhalation - minimum efficiency of 90 %

Wear personal protective equipment.
Keep working clothes separately.

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Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed	:	Palms of both hands (480 cm ²)
Indoor or outdoor use	:	Indoor use
Temperature	:	Assumes use at not more than 20°C above ambient temperature. 20 °C

1.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Inhalation - minimum efficiency of 70 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

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Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor use
Temperature	:	Assumes use at not more than 20°C above ambient temperature. 20 °C

1.2.5. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 97 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Semi-closed system
Inhalation - minimum efficiency of 70 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

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Dermal - minimum efficiency of 95 %	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
Wear personal protective equipment.	
Keep working clothes separately.	
Wash hands before breaks and at the end of workday.	
Keep away from tobacco products.	
Keep away from food and drink.	
Use barrier cream regularly.	
Take off all contaminated clothing immediately.	
Observe the rules usually applicable when handling chemicals.	
Do not inhale vapours and aerosols.	
Other conditions affecting workers exposure	
Body parts exposed	: Both hands (960 cm ²)
Indoor or outdoor use	: Indoor use
Temperature	: Assumes use at not more than 20°C above ambient temperature. 20 °C

1.2.6. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Covers daily exposures up to 8 hours
Technical and organisational conditions and measures	
Local exhaust ventilation	
Inhalation - minimum efficiency of 90 %	
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).	
Training for staff on good practice	
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.	
Control staff entry to working area.	
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.	
Ensure all equipment is well maintained.	
Regular cleaning of equipment and work area.	
Use extraction equipment if emissions occur.	
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Semi-closed system	
Inhalation - minimum efficiency of 70 %	

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 99 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed : Palms of both hands (480 cm²)

Indoor or outdoor use : Indoor use

Temperature : Assumes use at not more than 20°C above ambient temperature. 20 °C

1.2.7. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

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Inhalation - minimum efficiency of 70 %	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.	
Dermal - minimum efficiency of 95 %	
Wear a full face respirator conforming to EN136.	
Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment.	
Keep working clothes separately.	
Wash hands before breaks and at the end of workday.	
Keep away from tobacco products.	
Keep away from food and drink.	
Use barrier cream regularly.	
Take off all contaminated clothing immediately.	
Observe the rules usually applicable when handling chemicals.	
Do not inhale vapours and aerosols.	
Other conditions affecting workers exposure	
Body parts exposed	: Palm of one hand
Indoor or outdoor use	: Indoor use
Temperature	: Assumes use at not more than 20°C above ambient temperature. 20 °C

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Manufacture of substances (ERC1)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,011mg/L (EUSES)	< 0,01
Freshwater	0,004mg/L (EUSES)	0,071
Marine water	0,047mg/L (EUSES)	0,047
Freshwater sediment	0,409mg/kg dry weight (EUSES)	0,071
Marine sediment	0,027mg/kg dry weight (EUSES)	0,047
Soil	0,084mg/kg dry weight (EUSES)	0,075
Man via the environment	0,0006083mg/kg bw/day (EUSES)	< 0,01

1.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,021mg/m ³ (ECETOC TRA	0,292

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			worker v3)	
inhalative	local	short-term	0,021mg/m ³ (ECETOC TRA worker v3)	0,292

1.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,021mg/m ³ (ECETOC TRA worker v3)	0,292
inhalative	local	short-term	0,021mg/m ³ (ECETOC TRA worker v3)	0,292

1.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,064mg/m ³ (ECETOC TRA worker v3)	0,875
inhalative	local	short-term	0,064mg/m ³ (ECETOC TRA worker v3)	0,875

1.3.5. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,027mg/m ³ (ECETOC TRA worker v3)	0,365
inhalative	local	short-term	0,054mg/m ³ (ECETOC TRA worker v3)	0,74

1.3.6. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,032mg/m ³ (ECETOC TRA worker v3)	0,437
inhalative	local	short-term	0,064mg/m ³ (ECETOC TRA worker v3)	0,877

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1.3.7. Worker exposure: Use as laboratory reagent (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,053mg/m ³ (ECETOC TRA worker v3)	0,729
inhalative	local	short-term	0,053mg/m ³ (ECETOC TRA worker v3)	0,729

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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ES 2: Formulation

2.1. Title section

Exposure Scenario name	: Formulation
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine EC-No.: 220-666-8 Registration number: 01-2119514687-32

Environment		
CS 1	Formulation of preparations	ERC2, ESVOC 4
Worker		
CS 2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS 3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 4	Use in closed batch process (synthesis or formulation)	PROC3
CS 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 6	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 7	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 8	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 9	Use as laboratory reagent	PROC15

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Formulation of preparations (ERC2) / Formulation & packing of preparations and mixtures: Industrial (SU10) (ESVOC 4)

Product (article) characteristics

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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: 2200000 kg
Daily amount per site	: 10000 kg
Fraction of EU tonnage used in region:	: 10
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter Waste gases treated in scrubbers.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 8 640 m3/d

2.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Covers daily exposures up to 8 hours
Technical and organisational conditions and measures	
Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Handle substance within a closed system. Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing	

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operations), a very high level of containment (e.g. housing) is required.

Inhalation - minimum efficiency of 70 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed : Palm of one hand

Indoor or outdoor use : Indoor use

Temperature : Assumes use at not more than 20°C above ambient temperature. 20 °C

2.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Inhalation - minimum efficiency of 70 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

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Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Local exhaust ventilation

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Take off all contaminated clothing immediately.

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Avoid contact with skin and eyes.

Use barrier cream regularly.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed : Palms of both hands (480 cm²)

Indoor or outdoor use : Indoor use

Temperature : Assumes use at not more than 20°C above ambient temperature. 20 °C

2.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

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Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Take off all contaminated clothing immediately.

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Avoid contact with skin and eyes.

Use barrier cream regularly.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

2.2.5. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Inhalation - minimum efficiency of 70 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

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Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Local exhaust ventilation

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Take off all contaminated clothing immediately.

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Avoid contact with skin and eyes.

Use barrier cream regularly.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed : Palms of both hands (480 cm²)

Indoor or outdoor use : Indoor

Temperature : Assumes use at not more than 20°C above ambient temperature. 20 °C

2.2.6. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Inhalation - minimum efficiency of 70 %

Training for staff on good practice

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Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Local exhaust ventilation

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear a full face respirator conforming to EN136.

Inhalation - minimum efficiency of 95 %

Take off all contaminated clothing immediately.

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Avoid contact with skin and eyes.

Use barrier cream regularly.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed : Both hands (960 cm²)

Indoor or outdoor use : Indoor use

Temperature : Assumes use at not more than 20°C above ambient temperature. 20 °C

2.2.7. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

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Local exhaust ventilation
Inhalation - minimum efficiency of 95 %

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Inhalation - minimum efficiency of 70 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Semi-closed system

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 95 %

Wear a full face respirator conforming to EN136.

Inhalation - minimum efficiency of 95 %

Take off all contaminated clothing immediately.
Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Avoid contact with skin and eyes.
Use barrier cream regularly.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Body parts exposed : Both hands (960 cm²)

Indoor or outdoor use : Indoor use

Temperature : Assumes use at not more than 20°C above ambient temperature. 20 °C

2.2.8. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

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Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Covers daily exposures up to 8 hours
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 95 %	
Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Inhalation - minimum efficiency of 70 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required. Semi-closed system	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 95 %	
Wear a full face respirator conforming to EN136. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor use
Temperature	: Assumes use at not more than 20°C above ambient temperature. 20 °C

2.2.9. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Covers daily exposures up to 8 hours
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 95 %	
Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Inhalation - minimum efficiency of 70 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 95 %	
Wear a full face respirator conforming to EN136. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	
Other conditions affecting workers exposure	
Body parts exposed	: Palm of one hand
Indoor or outdoor use	: Indoor use
Temperature	: Assumes use at not more than 20°C above ambient temperature. 20 °C

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2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Formulation of preparations (ERC2) / Formulation & packing of preparations and mixtures: Industrial (SU10) (ESVOC 4)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,519mg/L (EUSES)	0,163
Freshwater	0,49mg/L (EUSES)	0,814
Marine water	0,005mg/L (EUSES)	0,893
Freshwater sediment	4,709mg/kg dry weight (EUSES)	0,814
Marine sediment	0,516mg/kg dry weight (EUSES)	0,893
Soil	0,084mg/kg dry weight (EUSES)	0,893
Man via the environment	0,001mg/kg bw/day (EUSES)	< 0,01

2.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,021mg/m ³ (ECETOC TRA worker v3)	0,292
inhalative	local	short-term	0,021mg/m ³ (ECETOC TRA worker v3)	0,292

2.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,021mg/m ³ (ECETOC TRA worker v3)	0,292
inhalative	local	short-term	0,021mg/m ³ (ECETOC TRA worker v3)	0,292

2.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,032mg/m ³ (ECETOC TRA worker v3)	0,437
inhalative	local	short-term	0,065mg/m ³ (ECETOC TRA worker v3)	0,89

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2.3.5. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,053mg/m ³ (ECETOC TRA worker v3)	0,729
inhalative	local	short-term	0,053mg/m ³ (ECETOC TRA worker v3)	0,729

2.3.6. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,064mg/m ³ (ECETOC TRA worker v3)	0,875
inhalative	local	short-term	0,064mg/m ³ (ECETOC TRA worker v3)	0,875

2.3.7. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,016mg/m ³ (ECETOC TRA worker v3)	0,219
inhalative	local	short-term	0,032mg/m ³ (ECETOC TRA worker v3)	0,438

2.3.8. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,032mg/m ³ (ECETOC TRA worker v3)	0,437
inhalative	local	short-term	0,064mg/m ³ (ECETOC TRA worker v3)	0,877

2.3.9. Worker exposure: Use as laboratory reagent (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	local	long-term	0,053mg/m ³	0,729

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			(ECETOC TRA worker v3)	
inhalative	local	short-term	0,053mg/m ³ (ECETOC TRA worker v3)	0,729

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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ES 3: Formulation

3.1. Title section

Exposure Scenario name	: Formulation
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine EC-No.: 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Formulation	ERC2, ESVOC 4
Worker		
CS 2	Use in closed batch process (synthesis or formulation)	PROC3
CS 3	Use in closed batch process (synthesis or formulation)	PROC3
CS 4	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 6	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 7	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 8	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 10	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 11	Use as laboratory reagent	PROC15
CS 12	Use as laboratory reagent	PROC15

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3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Formulation of preparations (ERC2) / Formulation & packing of preparations and mixtures: Industrial (SU10) (ESVOC 4)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: 1800 t
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter Waste gases treated in scrubbers.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 1 m3/s

3.2.2. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure	

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during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

3.2.3. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing

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operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

3.2.4. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 80 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

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Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection.
Inhalation - minimum efficiency of 95 %
Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

3.2.5. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 1 hrs
Use frequency	: Covers exposure up to 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.	
Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment.	
Keep working clothes separately.	
Wash hands before breaks and at the end of workday.	
Keep away from tobacco products.	
Keep away from food and drink.	
Use barrier cream regularly.	

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Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

3.2.6. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 1 hrs
Use frequency : Covers exposure up to 240 days/year
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 80 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.

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3.2.7. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

3.2.8. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics

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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 1 hrs
Use frequency	: Covers exposure up to 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

3.2.9. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to 240 days/year

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Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.
Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

3.2.10. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 1 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

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Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

3.2.11. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 80 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing

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operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

3.2.12. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

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Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Formulation of preparations (ERC2) / Formulation & packing of preparations and mixtures: Industrial (SU10) (ESVOC 4)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,328mg/L (ECETOC TRA environment v2.0)	
Freshwater	0,0303mg/L (ECETOC TRA environment v2.0)	
Marine water	0,00351mg/L (ECETOC TRA environment v2.0)	
Freshwater sediment	2,92mg/kg dry weight (ECETOC TRA environment v2.0)	
Marine sediment	0,339mg/kg dry weight (ECETOC TRA environment v2.0)	
Soil	0,03mg/kg dry weight (ECETOC TRA environment v2.0)	

3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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ES 4: Use as an intermediate and use as monomer

4.1. Title section

Exposure Scenario name	: Use as an intermediate and use as monomer
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Use as an intermediate	ERC6a, Use as a isolated intermediate not under strictly controlled conditions
Worker		
CS 2	Use in closed process, no likelihood of exposure	PROC1
CS 3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 4	Use in closed batch process (synthesis or formulation)	PROC3
CS 5	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS 6	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 7	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 8	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8a
CS 9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 10	Use as laboratory reagent	PROC15

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4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a) / Use as a isolated intermediate not under strictly controlled conditions

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: < 1000 t
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter Waste gases treated in scrubbers.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 0,21 m3/s

4.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure	

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during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.
Dermal - minimum efficiency of 98 %
Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

4.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.
Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection.
Inhalation - minimum efficiency of 90 %
Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

4.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.
Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection.
Inhalation - minimum efficiency of 90 %
Wear personal protective equipment.

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Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

4.2.5. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.

4.2.6. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

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Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.

4.2.7. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure

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during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.
Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection.
Inhalation - minimum efficiency of 90 %
Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

4.2.8. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 97 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

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Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection.
Inhalation - minimum efficiency of 90 %
Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

4.2.9. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.

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4.2.10. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: Industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a) / Use as a isolated intermediate not under strictly controlled conditions

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,492mg/L (ECETOC TRA environment v2.0)	
Freshwater	0,0497mg/L (ECETOC TRA	

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	environment v2.0)	
Marine water	0,00524mg/L (ECETOC TRA environment v2.0)	
Freshwater sediment	4,79mg/kg dry weight (ECETOC TRA environment v2.0)	
Marine sediment	0,506mg/kg dry weight (ECETOC TRA environment v2.0)	
Soil	0,0189mg/kg dry weight (ECETOC TRA environment v2.0)	

4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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ES 5: Use as laboratory reagent, Industrial

5.1. Title section

Exposure Scenario name	: Use as laboratory reagent, Industrial
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4, ESVOC 38
Worker		
CS 2	Use as laboratory reagent	PROC15

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4) / Laboratory reagents: Industrial (SU3) (ESVOC 38)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid substance
Conditions and measures related to sewage treatment plant	
STP type	: Municipal sewage treatment plant
STP sludge treatment	: No application of sewage sludge to soil
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter Waste gases treated in scrubbers.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
Prevent environmental discharge consistent with regulatory requirements.	

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Good housekeeping- e.g. inspection procedures will ensure that there are no leaks to soil.
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
When not in use, keep containers tightly closed.
Sealing of all relevant soil surfaces in the facility is required
Use isolated drainage to prevent discharge to soil

5.2.2. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Use frequency <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.	
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %	
Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes.	

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5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4) / Laboratory reagents: Industrial (SU3) (ESVOC 38)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,0568mg/L	
Freshwater	0,00618mg/L	
Marine water	0,000651mg/L	
Freshwater sediment	0,596mg/kg dry weight	
Marine sediment	0,0628mg/kg dry weight	
Soil	0,0189mg/kg dry weight	

5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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ES 6: Use as laboratory reagent, Professional

6.1. Title section

Exposure Scenario name	: Use as laboratory reagent, Professional
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Wide dispersive indoor use of processing aids in open systems	ERC8a, ESVOC 39
Worker		
CS 2	Use as laboratory reagent	PROC15

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Laboratory reagents: Professional (SU22) (ESVOC 39)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: 10 t
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter Waste gases treated in scrubbers.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 0,21 m3/s
Indoor or outdoor use	: Indoor use

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6.2.2. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Amount per Use	: 10 t
Duration	: Exposure duration
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

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6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Laboratory reagents: Professional (SU22) (ESVOC 39)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,0389mg/m ³ (ECETOC TRA environment v2.0)	
Freshwater	0,511mg/m ³ (ECETOC TRA environment v2.0)	
Marine water	0,0525mg/m ³ (ECETOC TRA environment v2.0)	
Freshwater sediment	0,0492mg/kg dry weight (ECETOC TRA environment v2.0)	
Marine sediment	0,00506mg/kg dry weight (ECETOC TRA environment v2.0)	
Soil	0,0189mg/kg dry weight (ECETOC TRA environment v2.0)	

6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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ES 7: Monomer use / other reactant use for PU, Epoxy etc., Industrial

7.1. Title section

Exposure Scenario name	: Monomer use / other reactant use for PU, Epoxy etc., Industrial
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Industrial use of monomers for manufacture of thermoplastics	ERC6c, FEICA 7
Worker		
CS 2	Use in closed process, no likelihood of exposure	PROC1
CS 3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 4	Use in closed batch process (synthesis or formulation)	PROC3
CS 5	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS 6	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 7	Industrial spraying	PROC7
CS 8	Industrial spraying	PROC7
CS 9	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 10	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 11	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 12	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9

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CS 13	Roller application or brushing	PROC10
CS 14	Treatment of articles by dipping and pouring	PROC13
CS 15	Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC14
CS 16	Use as laboratory reagent	PROC15

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: Industrial use of monomers for manufacture of thermoplastics (ERC6c) / Industrial Use of Substances other than Solvents in Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction Adhesives (FEICA 7)

Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: > 1000000 kg
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter Waste gases treated in scrubbers.
Waste treatment	: Ensure all waste water is collected and treated via a waste water treatment plant.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 0,21 m3/s

7.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics	
Physical form of product	: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: > 4 hrs
Technical and organisational conditions and measures	

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Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

7.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics

Physical form of product : Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : > 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

7.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Physical form of product : Liquid

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

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Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

7.2.5. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Product (article) characteristics
Physical form of product : Liquid
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.

7.2.6. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics
Physical form of product : Liquid
Technical and organisational conditions and measures

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Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

7.2.7. Control of worker exposure: Industrial spraying (PROC7)

Product (article) characteristics

Physical form of product : Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : 60 min

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 95 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

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Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

7.2.8. Control of worker exposure: Industrial spraying (PROC7)

Product (article) characteristics

Physical form of product : Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : > 4 hrs

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 95 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

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Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection.
Inhalation - minimum efficiency of 95 %
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

7.2.9. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics
Physical form of product : Liquid
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.

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7.2.10. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics
Physical form of product : Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : > 4 hrs
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 97 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.

7.2.11. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics
Physical form of product : Liquid

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Amount used (or contained in articles), frequency and duration of use/exposure

Duration : 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

7.2.12. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Physical form of product : Liquid

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing

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operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

7.2.13. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product : Liquid

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 90 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

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Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

7.2.14. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics
Physical form of product : Liquid
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 90 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.

7.2.15. Control of worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Product (article) characteristics
Physical form of product : Liquid

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Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

7.2.16. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

Physical form of product : Liquid

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

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Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Industrial use of monomers for manufacture of thermoplastics (ERC6c) / Industrial Use of Substances other than Solvents in Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction Adhesives (FEICA 7)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0	
Freshwater	0,000507mg/L	
Marine water	0,000052mg/L	
Freshwater sediment	0,0488mg/kg dry weight	
Marine sediment	0,00502mg/kg dry weight	
Soil	0,0937mg/kg dry weight	

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7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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ES 8: Monomer use / other reactant use for PU, Epoxy etc., Professional, Indoor

8.1. Title section

Exposure Scenario name	: Monomer use / other reactant use for PU, Epoxy etc., Professional, Indoor
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC8c, FEICA 10
Worker		
CS 2	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 3	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS 4	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 5	Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC14
CS 6	Use as laboratory reagent	PROC15
CS 7	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 8	Treatment of articles by dipping and pouring	PROC13
CS 9	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 10	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS 11	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 12	Transfer of substance or preparation (charging/ discharging) from/ to	PROC8b

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vessels/ large containers at dedicated facilities		
CS 13	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 14	Use in closed batch process (synthesis or formulation)	PROC3
CS 15	Use in closed batch process (synthesis or formulation)	PROC3
CS 16	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 17	Roller application or brushing	PROC10
CS 18	Hand-mixing with intimate contact and only PPE available	PROC19
CS 19	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 20	Non industrial spraying	PROC11
CS 21	Use as laboratory reagent	PROC15
CS 22	Non industrial spraying	PROC11

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c) / Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for indoor application (FEICA 10)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: 1000 t
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter

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Waste gases treated in scrubbers.	
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 0,21 m3/s

8.2.2. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink.	

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Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

8.2.3. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

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8.2.4. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

8.2.5. Control of worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Product (article) characteristics

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Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration > 4 hrs
Use frequency : Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 80 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.

8.2.6. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration > 4 hrs

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Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

8.2.7. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	

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Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

8.2.8. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 80 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

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In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

8.2.9. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 1 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

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Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

8.2.10. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 1 hrs
Use frequency : Covers exposure up to 240 days/year
Technical and organisational conditions and measures
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.

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8.2.11. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 1 hrs
Use frequency	: Covers exposure up to 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

8.2.12. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance

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Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 1 hrs
Use frequency	: Covers exposure up to 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

8.2.13. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 1 hrs
Use frequency	: Covers exposure up to 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure	

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during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

8.2.14. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 80 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing

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operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

8.2.15. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

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Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

8.2.16. Control of worker exposure: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 4 hrs
Use frequency : Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures
Local exhaust ventilation Inhalation - minimum efficiency of 80 %
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals.

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Do not inhale vapours and aerosols.

8.2.17. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

8.2.18. Control of worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

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Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

8.2.19. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year

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Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

8.2.20. Control of worker exposure: Non industrial spraying (PROC11)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 1 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.

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Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

8.2.21. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

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Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

8.2.22. Control of worker exposure: Non industrial spraying (PROC11)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 1 hrs

Use frequency : Covers exposure up to 240 days/year

Technical and organisational conditions and measures

Local exhaust ventilation

Inhalation - minimum efficiency of 80 %

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

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Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c) / Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for indoor application (FEICA 10)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,00131mg/L (ECETOC TRA environment v2.0)	
Freshwater	0,000638mg/L (ECETOC TRA environment v2.0)	
Marine water	0,000066mg/L (ECETOC TRA environment v2.0)	
Freshwater sediment	0,0615mg/kg dry weight (ECETOC TRA environment v2.0)	
Marine sediment	0,00636mg/kg dry weight (ECETOC TRA environment v2.0)	
Soil	0,0241mg/kg dry weight (ECETOC TRA environment v2.0)	

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8.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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ES 9: Flooring/duct relining, Professional, Outdoor

9.1. Title section

Exposure Scenario name	: Flooring/duct relining, Professional, Outdoor
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC8f
Worker		
CS 2	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 4	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 5	Roller application or brushing	PROC10
CS 6	Treatment of articles by dipping and pouring	PROC13
CS 7	Hand-mixing with intimate contact and only PPE available	PROC19

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: 100 t

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Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: During waste treatment exposure of the environment is not expected.
Waste treatment	: Sludge must be disposed of to a waste incineration plant.
Waste treatment	: Wet scrubber for the elimination of volatile components from waste gases
Other conditions affecting environmental exposure	
Receiving surface water flow	: 0,21 m3/s

9.2.2. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately.	

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Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

9.2.3. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 % Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

9.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics
Covers concentrations up to 80 %

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Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

9.2.5. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure	

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during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

9.2.6. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

Covers concentrations up to 80 %

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

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Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

9.2.7. Control of worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals.	

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Do not inhale vapours and aerosols.

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,000327mg/L (ECETOC TRA environment v2.0)	
Freshwater	0,000539mg/L (ECETOC TRA environment v2.0)	
Marine water	0,000055mg/L (ECETOC TRA environment v2.0)	
Freshwater sediment	0,0520mg/kg dry weight (ECETOC TRA environment v2.0)	
Marine sediment	0,00536mg/kg dry weight (ECETOC TRA environment v2.0)	
Soil	0,0202mg/kg dry weight (ECETOC TRA environment v2.0)	

9.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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ES 10: Flooring/duct relining, Professional, Indoor

10.1. Title section

Exposure Scenario name	: Flooring/duct relining, Professional, Indoor
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Wide dispersive indoor use resulting in inclusion into or onto a matrix	ERC8c, FEICA 10
Worker		
CS 2	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 4	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 5	Roller application or brushing	PROC10
CS 6	Treatment of articles by dipping and pouring	PROC13
CS 7	Hand-mixing with intimate contact and only PPE available	PROC19
CS 8	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 9	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 10	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 11	Roller application or brushing	PROC10
CS 12	Treatment of articles by dipping and pouring	PROC13

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CS 13 Hand-mixing with intimate contact and only PPE available

PROC19

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c) / Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for indoor application (FEICA 10)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %. 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual amount per site	: > 1000 t
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Waste gases are treated by incineration or by an activated carbon filter Waste gases treated in scrubbers.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 1 m ³ /s

10.2.2. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	: > 1000 t
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	

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Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

10.2.3. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics

Covers concentrations up to 80 %

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Amounts used : > 1000 t

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.

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In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep working clothes separately.

Wash hands before breaks and at the end of workday.

Keep away from tobacco products.

Keep away from food and drink.

Use barrier cream regularly.

Take off all contaminated clothing immediately.

Observe the rules usually applicable when handling chemicals.

Do not inhale vapours and aerosols.

10.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics

Covers concentrations up to 80 %

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Amounts used : > 1000 t

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Control staff entry to working area.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

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Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

10.2.5. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	: > 1000 t
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

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10.2.6. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	: > 1000 t
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

10.2.7. Control of worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance

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Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	: > 1000 t
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

10.2.8. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	: > 1000 t
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	

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Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

10.2.9. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics

Covers concentrations up to 80 %

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Amounts used : > 1000 t

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

10.2.10. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics

Covers concentrations up to 80 %

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Amounts used : > 1000 t

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

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10.2.11. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	: > 1000 t
Duration	: Exposure duration > 4 hrs
Use frequency	: Covers exposure up to <= 240 days/year
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Control staff entry to working area. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area. Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear personal protective equipment. Keep working clothes separately. Wash hands before breaks and at the end of workday. Keep away from tobacco products. Keep away from food and drink. Use barrier cream regularly. Take off all contaminated clothing immediately. Observe the rules usually applicable when handling chemicals. Do not inhale vapours and aerosols.	

10.2.12. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics	
Covers concentrations up to 80 %	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	: > 1000 t
Duration	: Exposure duration > 4 hrs

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Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

10.2.13. Control of worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)

Product (article) characteristics

Covers concentrations up to 80 %

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Amounts used : > 1000 t

Duration : Exposure duration > 4 hrs

Use frequency : Covers exposure up to <= 240 days/year

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Control staff entry to working area.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

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Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear personal protective equipment.
Keep working clothes separately.
Wash hands before breaks and at the end of workday.
Keep away from tobacco products.
Keep away from food and drink.
Use barrier cream regularly.
Take off all contaminated clothing immediately.
Observe the rules usually applicable when handling chemicals.
Do not inhale vapours and aerosols.

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c) / Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for indoor application (FEICA 10)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,0mg/L (ECETOC TRA environment v2.0)	
Freshwater	0,000507mg/L (ECETOC TRA environment v2.0)	
Marine water	0,000052mg/L (ECETOC TRA environment v2.0)	
Freshwater sediment	0,0488mg/kg dry weight (ECETOC TRA environment v2.0)	
Marine sediment	0,00502mg/kg dry weight (ECETOC TRA environment v2.0)	

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10.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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ES 11: Monomer use / other reactant use for PU, Epoxy etc., Professional, Outdoor

11.1. Title section

Exposure Scenario name	: Monomer use / other reactant use for PU, Epoxy etc., Professional, Outdoor
Substance	: 3-aminomethyl-3,5,5-trimethylcyclohexylamine <u>EC-No.:</u> 220-666-8 <u>Registration number:</u> 01-2119514687-32

Environment		
CS 1	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC8f, FEICA 14
Worker		
CS 2	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS 4	Use in closed batch process (synthesis or formulation)	PROC3
CS 5	Use in closed batch process (synthesis or formulation)	PROC3
CS 6	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS 7	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS 8	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 9	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 10	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS 11	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 12	Transfer of substance or preparation (charging/ discharging) from/ to	PROC8a

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vessels/ large containers at non-dedicated facilities		
CS 13	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS 14	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 15	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 16	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS 17	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 18	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS 19	Roller application or brushing	PROC10
CS 20	Roller application or brushing	PROC10
CS 21	Roller application or brushing	PROC10
CS 22	Non industrial spraying	PROC11
CS 23	Non industrial spraying	PROC11
CS 24	Non industrial spraying	PROC11
CS 25	Treatment of articles by dipping and pouring	PROC13
CS 26	Treatment of articles by dipping and pouring	PROC13
CS 27	Treatment of articles by dipping and pouring	PROC13
CS 28	Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC14
CS 29	Production of preparations or articles by tableting, compression,	PROC14

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extrusion, pelletisation		
CS 30	Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC14
CS 31	Use as laboratory reagent	PROC15
CS 32	Hand-mixing with intimate contact and only PPE available	PROC19

11.2. Conditions of use affecting exposure

11.2.1. Control of environmental exposure: Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f) / Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for outdoor application (FEICA 14)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Ensure all waste water is collected and treated via a waste water treatment plant.
Waste treatment	: Liquid and/or solid waste is treated by incineration.
Waste treatment	: Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 0,21 m3/s

11.2.2. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics	
Covers percentage substance in the product up to 25 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration > 4 hrs
Use frequency	: <= 240 days/year

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Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice

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Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

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Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.5. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration > 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Dermal - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.6. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 1 hrs

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

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Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment.	
Keep away from food and drink.	
Keep away from tobacco products.	
Wash hands before breaks and at the end of workday.	
Use barrier cream regularly.	
Keep working clothes separately.	
Observe the rules usually applicable when handling chemicals.	
Avoid contact with skin and eyes.	
Take off all contaminated clothing immediately.	
Do not inhale vapours and aerosols.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor
Professional or industrial settings	: Professional use

11.2.7. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 4 hrs
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.	
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.	
Dermal - minimum efficiency of 98 %	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 95 %	
Wear personal protective equipment.	

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Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use	: Outdoor
Professional or industrial settings	: Professional use

11.2.8. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product	: Liquid substance
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Amount used (or contained in articles), frequency and duration of use/exposure

Duration	: Exposure duration < 1 hrs
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Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.
Dermal - minimum efficiency of 98 %
Wear suitable respiratory protection.
Inhalation - minimum efficiency of 95 %
Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.

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Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.9. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

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Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.10. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

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Professional or industrial settings	: Professional use

11.2.11. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 1 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

11.2.12. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

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Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 1 hrs
Technical and organisational conditions and measures	
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.	
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %	
Wear personal protective equipment. Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor
Professional or industrial settings	: Professional use

11.2.13. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics	
Covers percentage substance in the product up to 25 %.	
Physical form of product	: Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure	
Duration	: Exposure duration < 15 min

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Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.14. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

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Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.15. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

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Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.16. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

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Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.17. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.

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Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.18. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

11.2.19. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics

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Covers percentage substance in the product up to 25 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 1 hrs
Technical and organisational conditions and measures
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear personal protective equipment. Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.

11.2.20. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 1 hrs
Technical and organisational conditions and measures
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

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Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.21. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 15 min

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing

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operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.22. Control of worker exposure: Non industrial spraying (PROC11)

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 15 min

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

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Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.23. Control of worker exposure: Non industrial spraying (PROC11)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 15 min

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

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Indoor or outdoor use	: Outdoor
Professional or industrial settings	: Professional use

11.2.24. Control of worker exposure: Non industrial spraying (PROC11)

Product (article) characteristics
Covers percentage substance in the product up to 5%.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 15 min
Technical and organisational conditions and measures
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear personal protective equipment. Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.
Other conditions affecting workers exposure
Indoor or outdoor use : Outdoor
Professional or industrial settings : Professional use

11.2.25. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

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Product (article) characteristics
Covers percentage substance in the product up to 25 %.
Physical form of product : Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 1 hrs
Technical and organisational conditions and measures
Training for staff on good practice Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures. Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product. Ensure all equipment is well maintained. Regular cleaning of equipment and work area.
Use extraction equipment if emissions occur. In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %
Wear personal protective equipment. Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday. Use barrier cream regularly. Keep working clothes separately. Observe the rules usually applicable when handling chemicals. Avoid contact with skin and eyes. Take off all contaminated clothing immediately. Do not inhale vapours and aerosols.
Other conditions affecting workers exposure
Indoor or outdoor use : Outdoor
Professional or industrial settings : Professional use

11.2.26. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Amount used (or contained in articles), frequency and duration of use/exposure
Duration : Exposure duration < 4 hrs
Technical and organisational conditions and measures

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Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.27. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

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Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.28. Control of worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 1 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

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Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.29. Control of worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

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Version	Revision Date:	SDS Number:	Date of last issue: 09.07.2022
1.2	18.07.2022	400001010100	Date of first issue: 03.07.2017

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Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

Wash hands before breaks and at the end of workday.

Use barrier cream regularly.

Keep working clothes separately.

Observe the rules usually applicable when handling chemicals.

Avoid contact with skin and eyes.

Take off all contaminated clothing immediately.

Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.30. Control of worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice

Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.

Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.

Ensure all equipment is well maintained.

Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.

In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 95 %

Wear personal protective equipment.

Keep away from food and drink.

Keep away from tobacco products.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use : Outdoor

Professional or industrial settings : Professional use

11.2.31. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid substance

Amount used (or contained in articles), frequency and duration of use/exposure

Duration : Exposure duration < 4 hrs

Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

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Other conditions affecting workers exposure

Indoor or outdoor use	: Outdoor
Professional or industrial settings	: Professional use

11.2.32. Control of worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)

Product (article) characteristics

Covers percentage substance in the product up to 25 %.

Physical form of product	: Liquid substance
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Amount used (or contained in articles), frequency and duration of use/exposure

Duration	: Exposure duration < 1 hrs
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Technical and organisational conditions and measures

Training for staff on good practice
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during purification or cleaning and maintenance procedures.
Persons who suffer from skin complaints or hypersensitivity reactions of skin should not work with this product.
Ensure all equipment is well maintained.
Regular cleaning of equipment and work area.

Use extraction equipment if emissions occur.
In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), a very high level of containment (e.g. housing) is required.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Dermal - minimum efficiency of 98 %

Wear personal protective equipment.
Keep away from food and drink.
Keep away from tobacco products.
Wash hands before breaks and at the end of workday.
Use barrier cream regularly.
Keep working clothes separately.
Observe the rules usually applicable when handling chemicals.
Avoid contact with skin and eyes.
Take off all contaminated clothing immediately.
Do not inhale vapours and aerosols.

Other conditions affecting workers exposure

Indoor or outdoor use	: Outdoor
Professional or industrial settings	: Professional use

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11.3. Exposure estimation and reference to its source

11.3.1. Environmental release and exposure: Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f) / Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for outdoor application (FEICA 14)

Protection Target	Exposure estimate	RCR
Sewage treatment plant	0,000327mg/L	
Freshwater	0,000539mg/L	
Marine water	0,000055mg/L	
Freshwater - intermittent	0,0520mg/kg dry weight	
Marine sediment	0,00536mg/kg dry weight	
Soil	0,0202mg/kg dry weight	

11.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are

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implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.