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

1.1 Product identifier

Trade name : ARADUR® 917 CH

Unique Formula Identifier (UFI) : UR68-U0EX-A00N-FCTR

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

Use of the Substance/Mixture : Hardener

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
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)

Serious eye damage, Category 1	H318: Causes serious eye damage.
Respiratory sensitisation, Category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements :

Prevention:

P261	Avoid breathing mist or vapours.
P280	Wear protective gloves/ eye protection/ face protection.
P284	Wear respiratory protection.

Response:

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.

Hazardous components which must be listed on the label:

tetrahydro-4-methylphthalicanhydride
1,2,3,6-tetrahydro-3-methylphthalic anhydride
1,2,3,6-tetrahydrophthalic anhydride
hexahydro-4-methylphthalic anhydride

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

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
tetrahydro-4-methylphthalicanhydride	34090-76-1 251-823-9 607-240-00-0 01-2119513209-45	Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1; H317	>= 70 - < 90
1,2,3,6-tetrahydro-3-methylphthalic anhydride	5333-84-6 226-247-6 607-240-00-0 01-2119906338-37	Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1; H317	>= 30 - < 50
hexahydro-4-methylphthalic anhydride	19438-60-9 243-072-0 607-241-00-6 01-2119510879-29	Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1; H317	>= 10 - < 20
1,2,3,6-tetrahydrophthalic anhydride	85-43-8 201-605-4 607-099-00-5 01-2119486679-14	Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 10 - < 20

For explanation of abbreviations see section 16.

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
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	:	Call a physician or poison control centre immediately. If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	If on skin, rinse well with water.
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	:	Keep respiratory tract clear. 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 (CO2) Dry chemical
Unsuitable extinguishing media	:	Exercise caution when using a high volume water jet as it may scatter and spread fire

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

5.3 Advice for firefighters

Special protective equipment : Wear self-contained breathing apparatus for firefighting if

for firefighters		necessary.
Specific extinguishing methods	:	No data is available on the product itself.
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. Ensure adequate ventilation. Refer to protective measures listed in sections 7 and 8.

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.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Neutralize with chalk, alkali solution or ammonia. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

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. Do not breathe vapours or spray mist. 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.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Use only with adequate ventilation/personal protection.
Provide sufficient air exchange and/or exhaust in work rooms.
Keep container closed when not in use.

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. Keep in properly labelled containers.
Advice on common storage	:	Keep away from strong bases.
Recommended storage temperature	:	2 - 40 °C
Further information on storage stability	:	Stable under normal conditions.

7.3 Specific end use(s)

Specific use(s)	:	No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Personal protective equipment

Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Hand protection		
Material	:	butyl-rubber
Break through time	:	> 8 h
Material	:	Ethyl Vinyl Alcohol Laminate (EVAL)
Break through time	:	> 8 h

Material	:	Nitrile rubber
Break through time	:	10 - 480 min
Remarks	:	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
Filter type	:	Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	No data is available on the product itself.
Odour	:	slight
Odour Threshold	:	No data is available on the product itself.
pH	:	ca. 3 (20 °C) Concentration: 500 g/l
Melting point/freezing point	:	No data is available on the product itself.
Boiling point	:	> 200 °C
Flash point	:	159 °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	:	ca. 0,01 hPa (20 °C)
Relative vapour density	:	No data is available on the product itself.

Relative density	:	1,2 (25 °C)
Density	:	1,2 g/cm3 (25 °C)
Solubility(ies)		
Water solubility	:	Decomposes in contact with water.
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	:	50 - 100 mPa.s (25 °C)

9.2 Other information

No data available

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

Hazardous decomposition products : carbon dioxide
carbon monoxide

SECTION 11: Toxicological information

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

Acute toxicity

Components:

tetrahydro-4-methylphthalicanhydride:

Acute oral toxicity : LD50 (Rat, male and female): > 2 000 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat, male and female): > 2 000 mg/kg
Method: OECD Test Guideline 402

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Acute oral toxicity : (Rat, male and female): > 2 000 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : (Rat, male and female): > 2 000 mg/kg
Method: OECD Test Guideline 402

hexahydro-4-methylphthalic anhydride:

Acute oral toxicity : LD50 Oral (Rat, female): > 2 000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

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

1,2,3,6-tetrahydrophthalic anhydride:

Acute oral toxicity : LD50 Oral (Rat, male and female): ca. 3 200 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

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

Skin corrosion/irritation

Components:

tetrahydro-4-methylphthalicanhydride:

Species : Rabbit
Exposure time : 24 h
Method : Other guidelines
Result : No skin irritation

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Species	:	Rabbit
Exposure time	:	24 h
Method	:	Other guidelines
Result	:	No skin irritation

hexahydro-4-methylphthalic anhydride:

Species	:	Rabbit
Exposure time	:	24 h
Assessment	:	No skin irritation
Method	:	Other guidelines
Result	:	Mild eye irritant

1,2,3,6-tetrahydrophthalic anhydride:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Serious eye damage/eye irritation

Components:

tetrahydro-4-methylphthalicanhydride:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Risk of serious damage to eyes.

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

hexahydro-4-methylphthalic anhydride:

Result	:	Risk of serious damage to eyes.

1,2,3,6-tetrahydrophthalic anhydride:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Risk of serious damage to eyes.

Respiratory or skin sensitisation

Components:

tetrahydro-4-methylphthalicanhydride:

Result	:	May cause sensitisation by inhalation.
Result	:	May cause sensitisation by skin contact.

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Exposure routes : Respiratory Tract
Species : Humans
Result : May cause sensitisation by inhalation.

Result : May cause sensitisation by skin contact.

hexahydro-4-methylphthalic anhydride:

Assessment : May cause sensitisation by skin contact.

Assessment : May cause sensitisation by inhalation.

1,2,3,6-tetrahydrophthalic anhydride:

Species : Guinea pig
Method : OECD Test Guideline 406
Result : May cause sensitisation by skin contact.

Result : May cause sensitisation by inhalation.

Germ cell mutagenicity

Components:

tetrahydro-4-methylphthalicanhydride:

Genotoxicity in vitro : Test Type: gene mutation test
Test system: mouse lymphoma cells
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 fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: Ames test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

hexahydro-4-methylphthalic anhydride:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: Ames test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

1,2,3,6-tetrahydrophthalic anhydride:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Ames test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Reproductive toxicity

Components:

tetrahydro-4-methylphthalicanhydride:

Effects on fertility : Test Type: Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral

Dose: 0, 30, 100 and 300 mg/kg
General Toxicity - Parent: NOAEL: > 300 mg/kg body weight
General Toxicity F1: NOAEL: > 300 mg/kg body weight
Method: OECD Test Guideline 422

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Effects on fertility : Test Type: Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral
Dose: 0, 30, 10 and 300 milligram per kilogram
Frequency of Treatment: 1 daily
General Toxicity - Parent: NOAEL: 300 mg/kg body weight
General Toxicity F1: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 422

Effects on foetal development : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 30, 100 and 300 milligram per kilogram
Duration of Single Treatment: 38 - 49 d
General Toxicity Maternal: NOAEL: 100 mg/kg body weight
Developmental Toxicity: NOAEL: > 300 mg/kg body weight
Method: OECD Test Guideline 422

hexahydro-4-methylphthalic anhydride:

Effects on fertility : Test Type: Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: NOAEL: > 300 mg/kg body weight
General Toxicity F1: NOAEL: > 300 mg/kg body weight
Method: OECD Test Guideline 422

Effects on foetal development : Species: Rat
Application Route: Oral
General Toxicity Maternal: NOAEL: > 140 mg/kg body weight
Embryo-foetal toxicity: NOAEL: > 140 mg/kg body weight
Method: OECD Test Guideline 414

1,2,3,6-tetrahydrophthalic anhydride:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: NOAEL: 250 mg/kg body weight
Method: OECD Test Guideline 421

Repeated dose toxicity

Components:

tetrahydro-4-methylphthalicanhydride:

Species : Rat, male and female
NOAEL : 100 mg/kg

Application Route	:	Oral
Exposure time	:	49 days
Number of exposures	:	daily
Dose	:	0, 30, 100 and 300mg/kg/day
Control Group	:	yes
Method	:	OECD Test Guideline 422

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Species	:	Rat, male and female
NOAEL	:	100 mg/kg bw/day
Application Route	:	Oral
Exposure time	:	38 - 49 days
Number of exposures	:	Daily
Dose	:	0, 30, 100 and 300mg/kg bw
Control Group	:	yes
Method	:	OECD Test Guideline 422

hexahydro-4-methylphthalic anhydride:

Species	:	Rat, male and female
NOEL	:	50 mg/kg
NOAEL	:	450 mg/kg
Application Route	:	Oral
Method	:	OECD Test Guideline 407
Target Organs	:	Stomach

1,2,3,6-tetrahydrophthalic anhydride:

Species	:	Rat, male and female
NOAEL	:	600 mg/kg
Application Route	:	oral (gavage)
Method	:	Regulation (EC) No. 440/2008, Annex, B.7

Species	:	Rat, male and female
NOAEL	:	100 mg/kg
Application Route	:	oral (gavage)
Method	:	Regulation (EC) No. 440/2008, Annex, B.7

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

SECTION 12: Ecological information

12.1 Toxicity

Components:

tetrahydro-4-methylphthalicanhydride:

Toxicity to fish	:	LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 130 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (algae)): 64 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (algae)): 32 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (activated sludge): 69,87 mg/l Exposure time: 3 h Test Type: flow-through test Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	:	NOEC: 100 mg/l Exposure time: 14 d Species: Oryzias latipes (Japanese medaka) Test Type: flow-through test Method: OECD Test Guideline 204
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 20 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Method: OECD Test Guideline 211

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Toxicity to fish	:	LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 130 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (algae)): 75 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (algae)): 32 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (activated sludge): 69,87 mg/l Exposure time: 3 h Test Type: flow-through test Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	:	NOEC: 100 mg/l Exposure time: 14 d Species: Oryzias latipes (Japanese medaka) Test Type: flow-through test Method: OECD Test Guideline 204
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 20 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Method: OECD Test Guideline 211

hexahydro-4-methylphthalic anhydride:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 135 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (algae)): 32 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (activated sludge): 218,8 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209

1,2,3,6-tetrahydrophthalic anhydride:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: Immobilization
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Scenedesmus capricornutum (fresh water algae)): 65,3 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201

NOEC (Scenedesmus capricornutum (fresh water algae)): 50 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201

12.2 Persistence and degradability

Components:

tetrahydro-4-methylphthalicanhydride:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 100 mg/l
Result: Not readily biodegradable.
Biodegradation: 0 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Method: OECD Test Guideline 301C

Stability in water : Degradation half life (DT50): 4,3 min (5 °C)
pH: 7
Method: OECD Test Guideline 111

Degradation half life (DT50): 3,2 min (20 °C)
pH: 7
Method: OECD Test Guideline 111

Degradation half life (DT50): 2,9 min (25 °C)
pH: 7
Method: OECD Test Guideline 111

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Biodegradability : Inoculum: activated sludge
Concentration: 100 mg/l
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d

Method: OECD Test Guideline 301C

Stability in water : Degradation half life (DT50): 4,3 min (5 °C)
pH: 7
Method: OECD Test Guideline 111

Degradation half life (DT50): 3,2 min (20 °C)
pH: 7
Method: OECD Test Guideline 111

Degradation half life (DT50): 2,9 min (25 °C)
pH: 7
Method: OECD Test Guideline 111

hexahydro-4-methylphthalic anhydride:

Biodegradability : Inoculum: activated sludge
Concentration: 40 mg/l
Result: Not readily biodegradable.
Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

1,2,3,6-tetrahydrophthalic anhydride:

Biodegradability : Concentration: 11,5 mg/l
Result: Biodegradable, but failing 10-d window
Biodegradation: 99 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Kinetic:
7 d: 2 %
14 d: 17 %
21 d: 58 %
27 d: 98 %
28 d: 99 %
Method: Regulation (EC) No. 440/2008, Annex, C.4-A

Stability in water : Degradation half life (DT50): 6,92 min (20 °C)
pH: 7
Method: OECD Test Guideline 111

Degradation half life (DT50): 2,17 min (30 °C)
pH: 7
Method: OECD Test Guideline 111

Degradation half life (DT50): 1,05 min (50 °C)
pH: 7
Method: OECD Test Guideline 111

12.3 Bioaccumulative potential

Components:

tetrahydro-4-methylphthalicanhydride:

Partition coefficient: n- : log Pow: 1,88 (40 °C)

octanol/water		pH: 5,9 Method: OECD Test Guideline 117

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Bioaccumulation	:	Bioconcentration factor (BCF): 3,16
Partition coefficient: n-octanol/water	:	log Pow: 1,75 (40 °C) pH: 5,3 Method: OECD Test Guideline 117

hexahydro-4-methylphthalic anhydride:

Bioaccumulation	:	Bioconcentration factor (BCF): 3,16
Partition coefficient: n-octanol/water	:	log Pow: 0,11 (40 °C) pH: 3,3 Method: OECD Test Guideline 117

1,2,3,6-tetrahydrophthalic anhydride:

Bioaccumulation	:	Bioconcentration factor (BCF): 3,30
Partition coefficient: n-octanol/water	:	log Pow: 1,29 (40 °C) pH: 5,9 Method: OECD Test Guideline 117

12.4 Mobility in soil

Components:

1,2,3,6-tetrahydro-3-methylphthalic anhydride:

Mobility	:	Medium: Air Content: 0,19 % Method: Calculation, Mackay Level III Fugacity Model
Distribution among environmental compartments	:	Koc: 10 ml/g, log Koc: 1 Method: QSAR

hexahydro-4-methylphthalic anhydride:

Mobility	:	Medium: Air Content: 0 % Method: Calculation, Mackay Level III Fugacity Model
	:	Medium: Water Content: 19,9 % Method: Calculation, Mackay Level III Fugacity Model
	:	Medium: Soil Content: 80 % Method: Calculation, Mackay Level III Fugacity Model
	:	Medium: Sediment Content: 0,12 % Method: Calculation, Mackay Level III Fugacity Model

Distribution among environmental compartments : Koc: 130 ml/g, log Koc: 2,113
Method: QSAR

1,2,3,6-tetrahydrophthalic anhydride:

Distribution among environmental compartments : OECD Test Guideline 121
Medium: Soil
log Koc: 1,70
Method: OECD Test Guideline 121

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:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of contents/ container to an approved waste disposal plant.

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

Not regulated as dangerous goods

14.2 UN proper shipping name

Not regulated as dangerous goods

14.3 Transport hazard class(es)

Not regulated as dangerous goods

14.4 Packing group

Not regulated as dangerous goods

14.5 Environmental hazards

Not regulated as dangerous goods

14.6 Special precautions for user

Remarks : Not classified as dangerous in the meaning of transport regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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). : hexahydro-4-methylphthalic anhydride

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) : Not applicable

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 : This product contains one or several components listed in the Canadian NDSL.

AIIC : On the inventory, or in compliance with the inventory

NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	Not 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

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

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

Full text of H-Statements

H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H334	:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Aquatic Chronic	:	Chronic aquatic toxicity
Eye Dam.	:	Serious eye damage
Resp. Sens.	:	Respiratory sensitisation
Skin Sens.	:	Skin sensitisation

Further information

Classification of the mixture:		**Classification procedure:**
Eye Dam. 1	H318	Calculation method
Resp. Sens. 1	H334	Calculation method

Skin Sens. 1	H317	Calculation method

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