

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

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

1.1 Product identifier

Trade name : EPOCAST® 1610-A2 US

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

Use of the Substance/Mixture : Epoxy constituents

1.3 Details of the supplier of the safety data sheet

Company : HUNTSMAN ADVANCED MATERIALS (UK) LIMITED
Address : Ickleton Road, Duxford, Cambridgeshire
CB22 4XQ United Kingdom
Telephone : +41 61 299 20 41
E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number : 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) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Skin irritation, Category 2	H315: Causes skin irritation.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 1B	H350: May cause cancer.
Reproductive toxicity, Category 1B	H360F: May damage fertility.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard,	H410: Very toxic to aquatic life with long lasting

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Category 1

effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H315 H317 H318 H350 H360F H410 Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause cancer. May damage fertility. Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	Prevention: P201 P273 P280 Obtain special instructions before use. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection. Response: 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. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P391 Collect spillage.

Hazardous components which must be listed on the label:

bis-[4-(2,3-epoxypropoxy)phenyl]propane

1,4-bis(2,3 epoxypropoxy)butane

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]

diuron (ISO)

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

SAFETY DATA SHEET

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Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
bis-[4-(2,3-epoxipropoxy)phenyl]propane	1675-54-3 216-823-5 603-073-00-2	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411 specific concentration limit Eye Irrit. 2; H319 ≥ 5 % Skin Irrit. 2; H315 ≥ 5 %	≥ 30 - < 50
1,4-bis(2,3 epoxypoxy)butane	2425-79-8 219-371-7 603-072-00-7	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 1B; H360F Acute toxicity estimate Acute dermal toxicity: 1,100 mg/kg	≥ 3 - < 10
4-nonylphenol, branched	84852-15-3 284-325-5 601-053-00-8	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Repr. 2; H361fd Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	≥ 2.5 - < 3
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3 Polymer	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317	≥ 1 - < 10
hexaboron dizinc undecaoxide	12767-90-7 235-804-2	Eye Irrit. 2; H319 Repr. 2; H361d Aquatic Acute 1; H400 Aquatic Chronic 2; H411	≥ 0.25 - < 1

SAFETY DATA SHEET

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		M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	
diuron (ISO)	330-54-1 206-354-4 006-015-00-9	Acute Tox. 4; H302 Carc. 1B; H350 STOT RE 2; H373 (Blood system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 100 M-Factor (Chronic aquatic toxicity): 100	>= 0.25 - < 1

For explanation of abbreviations see section 16.

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

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 : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : If skin irritation persists, call a physician.
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.

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Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Induce vomiting immediately and call a physician.
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

Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
May cause cancer.
May damage fertility.

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
Phenolics
Oxides of phosphorus

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.

SAFETY DATA SHEET

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HUNTSMAN

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
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 : 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

Technical measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Local/Total ventilation : Ensure adequate ventilation.

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.
Avoid formation of respirable particles.
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.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.

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

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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 : For incompatible materials please refer to Section 10 of this SDS.

Recommended storage temperature : 2 - 8 °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

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
diuron (ISO)	330-54-1	TWA	10 mg/m3	GB EH40

Derived No Effect Level (DNEL)

Substance name	End Use	Exposure routes	Potential health effects	Value
bis-[4-(2,3-epoxipropoxy)phenyl]p ropane	Workers	Inhalation	Long-term systemic effects	4.93 mg/m3
	Workers	Dermal	Long-term systemic effects	0.75 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.87 mg/m3
	Consumers	Dermal	Long-term systemic effects	0.0893 mg/kg bw/day
1,4-bis(2,3 epoxyp oxypropoxy)butane	Workers	Oral	Long-term systemic effects	0.5 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	4.7 mg/m3
	Workers	Dermal	Long-term systemic effects	6.66 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1.16 mg/m3
cyanoguanidine	Consumers	Dermal	Long-term systemic effects	3.33 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0.33 mg/kg bw/day
	Workers	Inhalation	Long-term systemic	15.3 mg/m3

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			effects	
	Workers	Inhalation	Acute systemic effects	76.5 mg/m3
	Workers	Dermal	Long-term systemic effects	30.1 mg/kg
	Consumers	Inhalation	Long-term local effects	11.2 mg/m3
	Consumers	Inhalation	Acute systemic effects	56 mg/m3
	Consumers	Dermal	Long-term systemic effects	6.5 mg/kg
	Consumers	Oral	Long-term systemic effects	6.5 mg/kg

Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Fresh water	0.006 mg/l
	Marine water	0.001 mg/l
	Fresh water sediment	0.341 mg/kg dry weight (d.w.)
	Marine sediment	0.034 mg/kg dry weight (d.w.)
	Soil	0.065 mg/kg dry weight (d.w.)
	Sewage treatment plant	10 mg/l
	Secondary Poisoning	11 mg/kg
1,4-bis(2,3 epoxypoxy)butane	Fresh water	0.024 mg/l
	Remarks:Assessment Factors	
	Marine water	0.002 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	100 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	0.084 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0.008 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Soil	0.003 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Oral	0.028 mg/kg
cyanoguanidine	Fresh water	2.5 mg/l
	Marine water	0.25 mg/l
	Freshwater - intermittent	10 mg/l
	Sewage treatment plant	34 mg/l
	Fresh water sediment	5.83 mg/kg
	Marine sediment	0.58 mg/kg
	Soil	3.16 mg/kg

8.2 Exposure controls

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection : Eye wash bottle with pure water

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		Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Hand protection		
Material	:	butyl-rubber
Material	:	Ethyl Vinyl Alcohol Laminate (EVAL)
Material	:	Nitrile rubber
Material	:	Neoprene
Material	:	PVC
Break through time	:	> 8 h
Remarks	:	Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. 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). The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
Skin and body protection	:	Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	W A R N I N G ! This product contains quartz, which has been classified by IARC as carcinogenic for humans (Group 1), and which can cause silicosis and lung cancer following exposure to respirable dust. It is therefore important to take particular care to avoid inhalation exposure when mechanically processing cured material (e.g. grinding, sanding, sawing).
		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	:	Combined particulates, inorganic and acidic gas/vapour, ammonia/amines and organic vapour type (ABEK-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	solid
Form	:	solid, paste
Colour	:	off-white
Odour	:	slight
Odour Threshold	:	No data is available on the product itself.

SAFETY DATA SHEET

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Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
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Melting point/freezing point	: No data is available on the product itself.
Boiling point	: > 200 °C
Flammability	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Flash point	: > 94 °C Method: closed cup
Auto-ignition temperature	: No data is available on the product itself.
Decomposition temperature	: > 200 °C
pH	: substance/mixture is non-soluble (in water)
Viscosity	: No data is available on the product itself.
Solubility(ies) Water solubility	: insoluble (20 °C)
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.
Vapour pressure	: < 1.333 hPa (20 °C)
Density	: 0.48 g/cm ³ (25 °C)
Relative density	: 0.46 - 0.5
Relative vapour density	: 1
Particle characteristics	: No data is available on the product itself.

9.2 Other information

No data is available on the product itself.

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.

SAFETY DATA SHEET

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HUNTSMAN

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EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
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10.3 Possibility of hazardous reactions

Hazardous reactions : Dust may form explosive mixture in air.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : None known.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

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

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity
Remarks: No mortality observed at this dose.

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

1,4-bis(2,3 epoxypoxy)butane:

Acute oral toxicity : LD50 (Rat, male and female): 1,163 mg/kg
Method: OECD Test Guideline 401
GLP: yes
Assessment: The component/mixture is moderately toxic after single ingestion.

SAFETY DATA SHEET

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HUNTSMAN

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Acute inhalation toxicity : LC50 (Rat): > 2.068 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Test atmosphere: dust/mist
Method: Expert judgement
Assessment: The component/mixture is moderately toxic after short term inhalation., The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations.

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg
Method: Converted acute toxicity point estimate

Assessment: The component/mixture is moderately toxic after single contact with skin.

4-nonylphenol, branched:

Acute oral toxicity : LD50 (Rat, male and female): 1,412 mg/kg

Acute dermal toxicity : LD50 (Rabbit, male): 2,031 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

diuron (ISO):

Acute oral toxicity : LD50 (Rat, male): 1,017 mg/kg

LD50 (Rat, female): 4,150 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.05 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity

LC50 (Rat): > 7.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OPPTS 870.1300

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Causes skin irritation.

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Species : Rabbit
Exposure time : 4 h

SAFETY DATA SHEET

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Assessment : Irritating to skin.
Method : OECD Test Guideline 404
Result : Irritating to skin.

1,4-bis(2,3 epoxypoxy)butane:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation
GLP : yes

4-nonylphenol, branched:

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

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:

Result : Skin irritation

diuron (ISO):

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

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Species : Rabbit
Assessment : Irritating to eyes.
Method : OECD Test Guideline 405
Result : Irritating to eyes.

1,4-bis(2,3 epoxypoxy)butane:

Species : Rabbit
Assessment : Risk of serious damage to eyes.
Method : OECD Test Guideline 405
GLP : yes

4-nonylphenol, branched:

Result : Risk of serious damage to eyes.

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:

Result : Eye irritation

SAFETY DATA SHEET

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HUNTSMAN

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hexaboron dizinc undecaoxide:

Assessment : Irritating to eyes.

diuron (ISO):

Species : Rabbit
Assessment : No eye irritation
Method : OECD Test Guideline 405
Result : No eye irritation

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin
Species : Mouse
Method : OECD Test Guideline 429
Result : The product is a skin sensitiser, sub-category 1B.

1,4-bis(2,3 epoxypropoxy)butane:

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

Assessment : Harmful if inhaled.

4-nonylphenol, branched:

Exposure routes : Skin
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:

Result : May cause sensitisation by skin contact.

diuron (ISO):

Exposure routes : Skin
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

Exposure routes : Skin

SAFETY DATA SHEET

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HUNTSMAN

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Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Species : Guinea pig
Method : OPPTS 870.2600
Result : Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Result: positive

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative

Genotoxicity in vivo : Test Type: in vivo assay
Species: Mouse (male)
Cell type: Germ
Application Route: Oral
Dose: 3333, 10000 mg/kg
Result: negative

Test Type: gene mutation test
Species: Rat (male)
Cell type: Somatic
Application Route: Oral
Dose: 50,250,500,1000 mg/kg bw/day
Method: OECD Test Guideline 488
Result: negative

1,4-bis(2,3 epoxypoxy)butane:

Genotoxicity in vitro : Test Type: reverse mutation assay
Concentration: 10 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: yes
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Concentration: 1 - 100 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

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EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Remarks: Not classified due to data which are conclusive although insufficient for classification.

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: no
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male)
Cell type: Somatic
Application Route: Oral
Exposure time: 4 d
Dose: 187.5 - 750 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Test Type: unscheduled DNA synthesis assay
Species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

Test Type: gene mutation test
Species: Rat (male)
Cell type: Somatic
Application Route: Oral
Dose: 0, 62.5, 125 and 250 mg/kg
Method: OECD Test Guideline 488
Result: negative

Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen., Animal testing did not show any mutagenic effects.

diuron (ISO):

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Concentration: 0, 90, 180 and 360 µg/mL
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

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

Test Type: reverse mutation assay

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

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EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Concentration: 2000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: Intraperitoneal injection
Dose: 700 mg/kg
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

May cause cancer.

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Species : Rat, male
Application Route : Oral
Exposure time : 24 month(s)
Dose : 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment : 7 days/week
NOAEL : 15 mg/kg bw/day
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

Species : Mouse, male
Application Route : Dermal
Exposure time : 24 month(s)
Dose : 0, 0.1, 10, 100 mg/kg bw/day
Frequency of Treatment : 3 days/week
NOEL : 0.1 mg/kg body weight
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

Species : Rat, female
Application Route : Dermal
Exposure time : 24 month(s)
Dose : 0.1, 100, 1000 mg/kg bw/day
Frequency of Treatment : 5 days/week
NOEL : 100 mg/kg body weight
Method : OECD Test Guideline 453
Result : negative

Species : Rat, female
Application Route : Oral
Exposure time : 24 month(s)
Dose : 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment : 7 days/week

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

NOAEL : 100 mg/kg bw/day
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

Species : Rat, females
Application Route : Oral
Exposure time : 24 month(s)
Dose : 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment : 7 days/week
NOEL : 2 mg/kg bw/day
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

diuron (ISO):

Species : Rat, male and female
Application Route : Oral
Exposure time : 24 month(s)
Dose : 1 - 17 mg/kg
Frequency of Treatment : 7 daily
NOAEL : 25 ppm
Method : OECD Test Guideline 453
Result : positive
Target Organs : Bladder

Species : Rat, male and female
Application Route : Oral
Dose : < 600 mg/kg
Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity

May damage fertility.

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 180, 540 or 750 milligram per kilogram
Duration of Single Treatment: 238 d
Frequency of Treatment: 1 daily
General Toxicity - Parent: NOEL: 540 mg/kg body weight
General Toxicity F1: NOEL: 750 mg/kg body weight
Symptoms: No adverse effects
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Effects on foetal development : Species: Rabbit, female
Application Route: Dermal

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Dose: 0, 30, 100 or 300 milligram per kilogram
Duration of Single Treatment: 28 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOAEL: 30 mg/kg body weight
Developmental Toxicity: NOAEL: 300 mg/kg body weight
Method: Other guidelines
Result: No teratogenic effects

Test Type: Pre-natal
Species: Rabbit, female
Application Route: Oral
Dose: 0, 20, 60 or 180 milligram per kilogram
Duration of Single Treatment: 13 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOAEL: 60 mg/kg body weight
Developmental Toxicity: NOAEL: 180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Dose: 0, 60, 180 and 540 milligram per kilogram
Duration of Single Treatment: 10 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOAEL: 180 mg/kg body weight
Developmental Toxicity: NOAEL: > 540 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

1,4-bis(2,3 epoxypropoxy)butane:

Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Oral
Dose: 0/50/200/500 mg/kg bw/day
Duration of Single Treatment: 43 d
General Toxicity - Parent: LOEL: 500 mg/kg body weight
General Toxicity F1: LOEL: 500 mg/kg body weight
Target Organs: Gastrointestinal tract
Method: OECD Test Guideline 421
GLP: yes

Test Type: Extended one-generation reproduction toxicity study
Species: Rat, male and female
Application Route: Oral
Dose: 0/10/55/300 mg/kg bw/day
General Toxicity - Parent: NOAEL: 55 mg/kg body weight
General Toxicity F1: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 443
GLP: yes

Effects on foetal development : Test Type: Pre-natal
Species: Rat, female

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

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EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	30.06.2026	400001018109	30.05.2023
			Date of first issue: 25.05.2016

Print Date 06.07.2026

Application Route: Oral
Dose: 0/30/100/300 mg/kg bw/day
Duration of Single Treatment: 17 d
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Developmental Toxicity: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Oral
Dose: 0/33/110/300 mg/kg bw/day
Duration of Single Treatment: 18 d
General Toxicity Maternal: NOAEL: 110 mg/kg body weight
Embryo-foetal toxicity: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Test Type: Pre-natal
Species: Rabbit
Application Route: Oral
Dose: 0/125/250/500 mg/kg bw/day
General Toxicity Maternal: NOAEL: 250 mg/kg body weight
Embryo-foetal toxicity: NOAEL: 250 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

4-nonylphenol, branched:

Effects on foetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL: 75 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Reproductive toxicity - Assessment : Suspected human reproductive toxicant

hexaboron dizinc undecaoxide:

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

diuron (ISO):

Effects on fertility : Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: NOAEL: 14.8 mg/kg body weight
General Toxicity F1: NOAEL: 18.9 mg/kg body weight
Method: OECD Test Guideline 416
Result: negative
GLP: yes

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Effects on foetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL: 16 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: NOAEL: 10 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL: > 125 mg/kg body weight
Result: Teratogenic effects

STOT - single exposure

Not classified due to lack of data.

STOT - repeated exposure

Not classified due to lack of data.

Components:

diuron (ISO):

Exposure routes : Inhalation
Target Organs : Blood
Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Species : Rat, male and female
NOAEL : 50 mg/kg
Application Route : oral (gavage)
Exposure time : 14 Weeks
Number of exposures : 7 d
Dose : 0, 50, 250, 1000 mg/kg/day
Method : OECD Test Guideline 408

Species : Rat, male and female
NOAEL : ≥ 10 mg/kg
Application Route : Skin contact
Exposure time : 13 Weeks
Number of exposures : 5 d
Dose : 0, 10, 100, 1000 mg/kg/day
Method : OECD Test Guideline 411

Species : Mouse, male
NOAEL : 100 mg/kg
Application Route : Skin contact

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Exposure time : 13 Weeks
Number of exposures : 3 d
Dose : 0, 1, 10, 100 mg/kg/day
Method : OECD Test Guideline 411

1,4-bis(2,3 epoxypropoxy)butane:

Species : Rat, male and female
NOAEL : 200 mg/kg
Application Route : Oral
Exposure time : 28 d
Number of exposures : daily
Dose : 25, 100, 200, 400 mg/kg
Method : Subacute toxicity

Species : Rat, male and female
NOAEL : 263 mg/kg
Application Route : Oral
Exposure time : 90 h
Number of exposures : daily
Dose : 0,30,100,300 mg/kg bw/day
Method : OECD Test Guideline 408
GLP : yes
Remarks : Information given is based on data obtained from similar substances.

Repeated dose toxicity - Assessment : Harmful if inhaled.

4-nonylphenol, branched:

Species : Rat, male and female
NOAEL : 100 mg/kg
Application Route : Ingestion
Exposure time : 672 h
Number of exposures : 7 d
Method : Subacute toxicity

Species : Rat, male and female
NOAEL : 50 mg/kg
Application Route : Ingestion
Exposure time : 2,160 h
Number of exposures : 7 d
Method : Subchronic toxicity

diuron (ISO):

Species : Rat, male and female
NOEC : 6.7 - 8.7 mg/kg, 4.1 - 37.4 mg/m3
Application Route : Inhalation
Test atmosphere : dust/mist
Exposure time : 8 Weeks
Number of exposures : 7 d
Method : OECD Test Guideline 412

Species : Dog, male and female
NOAEL : 1.8 mg/kg/d

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

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EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Application Route : Ingestion
Exposure time : 8,640 h
Number of exposures : 7 d
Dose : 0, 50, 300, 1800 ppm
Method : OECD Test Guideline 452
GLP : yes

Species : Rabbit, male and female
NOAEL : 250 mg/kg/d
Application Route : Skin contact
Exposure time : 504 h
Number of exposures : 5 d
Method : Subacute toxicity

Aspiration hazard

Not classified due to lack of data.

11.2 Information on other hazards

Endocrine disrupting properties

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Assessment : Based on available data, the classification criteria are not met.

1,4-bis(2,3 epoxypoxy)butane:

Assessment : Does not have endocrine disrupting properties.

4-nonylphenol, branched:

Assessment : Does not have endocrine disrupting properties.

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:

Assessment : Does not have endocrine disrupting properties.

hexaboron dizinc undecaoxide:

Assessment : Does not have endocrine disrupting properties.

diuron (ISO):

Assessment : Based on available data, the classification criteria are not met.

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Further information

No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
aquatic invertebrates
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 : 11 mg/l
plants
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

NOEC : 4.2 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other : NOEC: 0.3 mg/l
aquatic invertebrates
(Chronic toxicity)
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

1,4-bis(2,3 epoxypropoxy)butane:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 24 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Method: OECD Test Guideline 203
GLP: no

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 75 mg/l
End point: Immobilization
Exposure time: 24 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: no

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 160 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

NOELR (Pseudokirchneriella subcapitata (green algae)): 40 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: no

Toxicity to fish (Chronic toxicity) : NOEC: > 3.2 mg/l
Exposure time: 35 d
Species: Danio rerio (zebra fish)
Test Type: flow-through test
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 15 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

4-nonylphenol, branched:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.128 mg/l
Exposure time: 96 h

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Test Type: flow-through test
Test substance: Fresh water
Method: ASTM

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.209 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.221 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.085 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: ASTM

EC50 (Daphnia magna (Water flea)): 0.14 mg/l
Exposure time: 48 h
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic plants : EbC50 (Desmodesmus subspicatus (green algae)): 1.3 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water

ErC50 (Selenastrum capricornutum (green algae)): 0.41 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: EPA OTS 797.1050

M-Factor (Acute aquatic toxicity) : 10

Toxicity to microorganisms : EC50 (activated sludge): 950 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity) : NOEC: 0.006 mg/l
Exposure time: 91 d
Species: Oncorhynchus mykiss (rainbow trout)
Test Type: flow-through test
Test substance: Fresh water

M-Factor (Chronic aquatic toxicity) : 10

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Toxicity to soil dwelling organisms : EC10: 3.44 mg/kg
Exposure time: 504 h

EC50: 906.7 mg/kg
Exposure time: 4 Weeks
Species: Other
Test substance: Synthetic

Toxicity to terrestrial organisms : EC10: 63.2 mg/kg
Exposure time: 672 h
Test substance: Synthetic

hexaboron dizinc undecaoxide:

Toxicity to fish : LC50 : 0.169 mg/l
End point: mortality
Exposure time: 96 h

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC: 0.025 mg/l

M-Factor (Chronic aquatic toxicity) : 1

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

diuron (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 14.7 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

LC50 (Pimephales promelas (fathead minnow)): 14 mg/l
Exposure time: 96 h
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.4 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 0.0079 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 0.0032 mg/l

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Synechococcus leopoliensis (blue-green algae)):
0.000632 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 100

Toxicity to microorganisms : EC50 (activated sludge): 3,080 mg/l
Exposure time: 0.5 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity) : NOEC: 0.41 mg/l
Exposure time: 28 d
Species: Oncorhynchus mykiss (rainbow trout)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 204

NOEC: 0.001 mg/l
Exposure time: 63 d
Species: Danio rerio (zebra fish)
Test Type: flow-through test
Method: OECD Test Guideline 234

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.56 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

NOEC: >= 1 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water

M-Factor (Chronic aquatic toxicity) : 100

Toxicity to soil dwelling organisms : LC50: > 1,000 mg/kg
Exposure time: 336 h
Species: Eisenia fetida (earthworms)

Species: Eisenia fetida (earthworms)
Remarks: see user defined free text

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

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EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

12.2 Persistence and degradability

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Stability in water : Degradation half life (DT50): 4.83 d (25 °C)
pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 7.1 d (25 °C)
pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 3.58 d (25 °C)
pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

1,4-bis(2,3 epoxypoxy)butane:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 43 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

Test Type: aerobic
Inoculum: Sewage (STP effluent)
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 38 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Method: OECD Test Guideline 301E
GLP: no

4-nonylphenol, branched:

Biodegradability : Inoculum: activated sludge
Concentration: 13 mg/l
Result: Inherently biodegradable.
Biodegradation: ca. 48.2 %
Exposure time: 35 d

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Method: OECD Test Guideline 301B

Inoculum: Sediment
Concentration: 2
Result: Inherently biodegradable.
Biodegradation: 100 %
Exposure time: 63 - 84 d
Method: EPA OPPTS 835.5154

Inoculum: Marine water
Concentration: 11
Biodegradation: 50 %
Exposure time: 56 - 112 d
Method: OECD Test Guideline 309

hexaboron dizinc undecaoxide:

Biodegradability : Result: Readily biodegradable.

diuron (ISO):

Biodegradability : Inoculum: Sewage (STP effluent)
Concentration: 30 mg/l
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Result: Inherently biodegradable.

12.3 Bioaccumulative potential

Components:

bis-[4-(2,3-epoxypropoxy)phenyl]propane:

Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3.242 (25 °C)
pH: 7.1
Method: OECD Test Guideline 117

1,4-bis(2,3 epoxypropoxy)butane:

Partition coefficient: n-octanol/water : log Pow: -0.269 (25 °C)
pH: 6.7
Method: OECD Test Guideline 117
GLP: yes

4-nonylphenol, branched:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 231
Remarks: Does not bioaccumulate.

Species: Pimephales promelas (fathead minnow)

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Bioconcentration factor (BCF): 740
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 5.4 (23 °C)
pH: 5.7
Method: OECD Test Guideline 117

diuron (ISO):

Bioaccumulation : Species: Other
Bioconcentration factor (BCF): 5.2
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 2.89 (20 °C)
pH: 7.01
Method: OECD Test Guideline 107

12.4 Mobility in soil

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Distribution among environmental compartments : Koc: 445

1,4-bis(2,3 epoxypoxy)butane:

Distribution among environmental compartments : Koc: 12.59
Method: OECD Test Guideline 121

4-nonylphenol, branched:

Distribution among environmental compartments : Koc: 23000 - 489000

diuron (ISO):

Distribution among environmental compartments : Koc: 293 - 504
Method: OECD Test Guideline 106

12.5 Results of PBT and vPvB assessment

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

1,4-bis(2,3 epoxypoxy)butane:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

4-nonylphenol, branched:

Assessment : Based on available data, the classification criteria are not met.
Based on available data, the classification criteria are not met.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

hexaboron dizinc undecaoxide:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

diuron (ISO):

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects

Product:

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

Endocrine disrupting properties

Components:

bis-[4-(2,3-epoxipropoxy)phenyl]propane:

Assessment : Based on available data, the classification criteria are not met.

1,4-bis(2,3 epoxypropoxy)butane:

Assessment : Does not have endocrine disrupting properties.

4-nonylphenol, branched:

Assessment : Does not have endocrine disrupting properties.

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:

Assessment : Does not have endocrine disrupting properties.

hexaboron dizinc undecaoxide:

Assessment : Does not have endocrine disrupting properties.

diuron (ISO):

Assessment : Based on available data, the classification criteria are not met.

Global warming potential

No data available

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

ADR	:	UN 3077
RID	:	UN 3077
IMDG	:	UN 3077
IATA	:	UN 3077

14.2 UN proper shipping name

ADR	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
RID	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
IATA	:	Environmentally hazardous substance, solid, n.o.s. (NONYL PHENOL, DIURON)

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADR	:	9
RID	:	9
IMDG	:	9
IATA	:	9

14.4 Packing group

ADR	:	
Packing group	:	III
Classification Code	:	M7

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

RID

Packing group : III
Classification Code : M7
Hazard Identification Number : 90
Labels : 9

IMDG

Packing group : III
Labels : 9
EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft) : 956
Packing instruction (LQ) : Y956
Packing group : III
Labels : Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft) : 956
Packing instruction (LQ) : Y956
Packing group : III
Labels : Miscellaneous

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

Environmentally hazardous : yes

IATA (Cargo)

Environmentally hazardous : yes

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.

SECTION 15: Regulatory information

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

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	400001018109	Date of first issue: 25.05.2016

Print Date 06.07.2026

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)	: Conditions of restriction for the following entries must be considered: Number on list 40 This substance/mixture shall not be used in aerosol dispensers intended for supply to the general public for entertainment and decorative purposes. Number on list 46: 4-nonylphenol, branched Number on list 72: formaldehyde, benzene
UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation	: 4-nonylphenol, branched
UK REACH List of substances subject to authorisation (Annex XIV)	: Not applicable

Other regulations:

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to new and expectant mothers at work contained in Regulation 16 to 18) and of the Pregnant Workers Directive 92/85/EEC.

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

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

H302	: Harmful if swallowed.
H312	: Harmful in contact with skin.
H314	: Causes severe skin burns and eye damage.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H332	: Harmful if inhaled.
H350	: May cause cancer.
H360F	: May damage fertility.
H361d	: Suspected of damaging the unborn child.
H361fd	: Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	: May cause damage to organs through prolonged or repeated exposure.
H400	: Very toxic to aquatic life.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
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H410 : Very toxic to aquatic life with long lasting effects.
H411 : Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Carc.	: Carcinogenicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Repr.	: Reproductive toxicity
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
STOT RE	: Specific target organ toxicity - repeated exposure
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA	: Long-term exposure limit (8-hour TWA reference period)

Further information

Classification of the mixture:

Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Carc. 1B	H350
Repr. 1B	H360F
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

HUNTSMAN

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