

SAFETY DATA SHEET

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Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02/16/2018	400001013256	Date of first issue: 02/16/2018

SECTION 1. IDENTIFICATION

Product name : ARALDITE® 2010-1 A US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : Non-Emergency: (800) 257-5547
E-mail address of person responsible for the SDS : MSDS@huntsman.com
Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy constituents



SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitisation : Category 1
Acute aquatic toxicity : Category 2
Chronic aquatic toxicity : Category 2

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.

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P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

Storage:

Not available

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Bisphenol A epoxy resin	25068-38-6	70 - 90
Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	9003-36-5	2.5 - 5
Bisphenol A/epichlorohydrin resin	25085-99-8	2.5 - 5
Terphenyl, hydrogenated	61788-32-7	1 - 2.5
Silicon, amorphous	112945-52-5	1 - 5
terphenyl	26140-60-3	0.1 - 0.25

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

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- | | |
|---|---|
| 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 | : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
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. |
| Most important symptoms and effects, both acute and delayed | : None known. |
| Notes to physician | : Treat symptomatically. |

SECTION 5. FIREFIGHTING MEASURES

- | | |
|---|---|
| Suitable extinguishing media | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | : High volume water jet |
| Specific hazards during firefighting | : Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : Carbon oxides
Halogenated compounds |
| 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. |
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus for firefighting if necessary. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | |
|---|--|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8. |
| Environmental precautions | : Prevent product from entering drains. |

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Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

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

Advice on safe handling : 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.
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.

Conditions for safe storage : 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.

Materials to avoid : Strong acids

Strong bases

Strong oxidizing agents

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

Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Terphenyl, hydrogenated	61788-32-7	TWA	0.5 ppm	ACGIH
Silicon, amorphous	112945-52-5	TWA (Dust)	20 Million particles per cubic	OSHA Z-3

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			foot (Silica)	
		TWA (Dust)	80 mg/m3 / %SiO2 (Silica)	OSHA Z-3
		TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m3 / %SiO2 (Silica)	OSHA Z-3
terphenyl	26140-60-3	C	1 ppm 9 mg/m3	OSHA Z-1
		C	5 mg/m3	ACGIH

Personal protective equipment

Hand protection

Material : butyl-rubber
Break through time : > 8 h

Material : Solvent-resistant gloves (butyl-rubber)
Material : Nitrile rubber
Material : Neoprene gloves
Material : PVC
Material : butyl-rubber
Break through time : 10 - 480 min

Material : Solvent-resistant gloves (butyl-rubber)
Material : Nitrile rubber
Material : Neoprene gloves
Material : PVC

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

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

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

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : paste

Colour : light cream

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Odour	: slight
Odour Threshold	: No data is available on the product itself.
pH	: ca. 7 (68 °F / 20 °C) Concentration: 500 g/l
Freezing point	: No data is available on the product itself.
Melting point	: No data is available on the product itself.
Boiling point	: No data is available on the product itself.
Flash point	: > 300 °F / > 149 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: 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	: No data is available on the product itself.
Relative vapour density	: No data is available on the product itself.
Relative density	: 1.17
Density	: 1.17 g/cm ³ (77 °F / 25 °C)
Solubility(ies)	
Water solubility	: practically insoluble (68 °F / 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.
Auto-ignition temperature	: No data is available on the product itself.
Thermal decomposition	: No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.
Viscosity	
Viscosity, dynamic	: > 100,000 mPa.s (77 °F / 25 °C) Method: estimated
Explosive properties	: No data is available on the product itself.

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Oxidizing properties : No data is available on the product itself.

Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions : No hazards to be specially mentioned.
Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : Carbon oxides
Burning produces noxious and toxic fumes.
No hazardous decomposition products are known.

Hazardous decomposition products : carbon dioxide
carbon monoxide
Halogenated compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : LD50 (Rat): > 5,000 mg/kg

Components:

Terphenyl, hydrogenated:

Acute inhalation toxicity : LC50 (Rat, male and female): > 4.7 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

Silicon, amorphous:

Acute inhalation toxicity : LC50 (Rat, male and female): > 58.8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

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terphenyl:

Acute inhalation toxicity : LC50 (Rat, male and female): > 3.8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity - : Acute toxicity estimate : > 5,000 mg/kg
Product Method: Calculation method

Acute toxicity (other routes of : No data available
administration)

Skin corrosion/irritation**Components:**

Bisphenol A epoxy resin:
Species: Rabbit
Assessment: Mild skin irritant
Method: OECD Test Guideline 404
Result: Irritating to skin.

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Irritating to skin.

Bisphenol A/epichlorohydrin resin:
Assessment: Severe skin irritation

Terphenyl, hydrogenated:
Species: Rabbit
Exposure time: 24 h
Assessment: No skin irritation
Method: No information available.
Result: No skin irritation

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

Serious eye damage/eye irritation**Components:**

Bisphenol A epoxy resin:
Species: Rabbit
Result: Irritating to eyes.
Assessment: Mild eye irritant
Method: OECD Test Guideline 405

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Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Species: Rabbit

Result: No eye irritation

Method: OECD Test Guideline 405

Bisphenol A/epichlorohydrin resin:

Assessment: Irritating to eyes.

Terphenyl, hydrogenated:

Species: Rabbit

Result: No eye irritation

Assessment: No eye irritation

Method: Draize Test

GLP: no

Silicon, amorphous:

Species: Rabbit

Result: No eye irritation

Assessment: No eye irritation

Method: OECD Test Guideline 405

Respiratory or skin sensitisation**Product:**

Exposure routes: Skin

Species: Guinea pig

Result: Causes sensitisation.

Components:

Terphenyl, hydrogenated:

Assessment:

Does not cause skin sensitisation.

Germ cell mutagenicity**Components:**

Bisphenol A epoxy resin:

Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: positive

Concentration: 0 - 5000 ug/plate

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: positive

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: positive

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: positive

Metabolic activation: with and without metabolic activation

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Method: OECD Test Guideline 476
Result: positive

Terphenyl, hydrogenated:
Genotoxicity in vitro

: Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Concentration: 0.1 - 1000 µg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 482
Result: negative
GLP: yes

Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: 0.01 - 10.0 µl/plate
Metabolic activation: with and without metabolic activation
Method: see user defined free text
Result: negative
GLP: no

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: In vitro mammalian cell gene mutation test
Result: negative
GLP: yes

Silicon, amorphous:
Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

terphenyl:
Genotoxicity in vitro

: Test Type: unscheduled DNA synthesis assay
Test system: mammalian liver cells
Concentration: 0.1 - 2ug/ml
Method: OECD Test Guideline 482
Result: negative
GLP: yes
Remarks: In vitro tests did not show mutagenic effects

Components:

Bisphenol A epoxy resin:
Genotoxicity in vivo

: Cell type: Germ
Application Route: Oral
Method: OECD Test Guideline 478
Result: negative

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Cell type: Somatic
Application Route: Oral
Dose: 0 - 5000 mg/kg
Method: OPPTS 870.5395
Result: negative

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Genotoxicity in vivo : Cell type: Somatic
Application Route: Oral
Exposure time: 48 h
Dose: 2000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Cell type: Somatic
Application Route: Oral
Dose: 2000 mg/kg
Method: OECD Test Guideline 486
Result: negative

Terphenyl, hydrogenated:
Genotoxicity in vivo

: Test Type: in vivo assay
Species: Rat (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Exposure time: Single administration
Dose: 250, 1250, 2500 mg/kg bw
Method: OECD Test Guideline 475
Result: negative
GLP: yes

Silicon, amorphous:
Genotoxicity in vivo

: Application Route: Inhalation
Dose: 50 mg/m³
Result: negative

terphenyl:
Genotoxicity in vivo

: Test Type: in vivo assay
Species: Rat (male and female)
Cell type: Bone marrow
Application Route: Subcutaneous
Exposure time: 6-24 h
Dose: 0-500 mg/kg bw
Method: OECD Test Guideline 475
Result: In vivo tests did not show any chromosomal changes.
GLP: yes

Components:

Terphenyl, hydrogenated:
Germ cell mutagenicity-
Assessment

: Animal testing did not show any mutagenic effects.

Germ cell mutagenicity-
Assessment

: No data available

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Carcinogenicity

Components:

Bisphenol A epoxy resin:

Species: Rat, male and female

Application Route: Oral

Exposure time: 24 month(s)

Dose: 15 mg/kg

Frequency of Treatment: 7 days/week

Method: OECD Test Guideline 453

Result: negative

Species: Mouse, male

Application Route: Dermal

Exposure time: 24 month(s)

Dose: 0.1 mg/kg

Frequency of Treatment: 3 days/week

Method: OECD Test Guideline 453

Result: negative

Species: Rat, female

Application Route: Dermal

Exposure time: 24 month(s)

Dose: 1 mg/kg

Frequency of Treatment: 5 days/week

Method: OECD Test Guideline 453

Result: negative

Silicon, amorphous:

Species: Rat, male and female

Application Route: Oral

Exposure time: 103 weeks

Dose: 1800 - 3200 mg/kg

Frequency of Treatment: 7 daily

Method: OECD Test Guideline 453

Result: negative

Carcinogenicity - Assessment : No data available

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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Reproductive toxicity**Components:**

Bisphenol A epoxy resin:
Effects on fertility

: Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: >750 milligram per kilogram
General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight
General Toxicity F1: No-observed-effect level: 540 mg/kg body weight
Symptoms: No adverse effects
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Terphenyl, hydrogenated:

Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Frequency of Treatment: 7 days/week
General Toxicity - Parent: No observed adverse effect level: 1,000 ppm
General Toxicity F1: No observed adverse effect level: 300 ppm
Method: OECD Test Guideline 416
Result: Animal testing did not show any effects on fertility.
GLP: yes

Components:

Bisphenol A epoxy resin:
Effects on foetal development

: Species: Rabbit, female
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight
Method: Other guidelines
Result: No teratogenic effects

Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 60 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:

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180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Species: Rabbit, female
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level:
30 mg/kg body weight
Result: No teratogenic effects

Terphenyl, hydrogenated:

Species: Rat, female
Application Route: Oral
Dose: 125, 500, 1500 mg/kg bw/d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level:
125 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 500
mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Silicon, amorphous:

Species: Mouse
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
1,340 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
1,600 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
1,350 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Components:

Terphenyl, hydrogenated:
Reproductive toxicity -
Assessment

: No evidence of adverse effects on sexual function and fertility,
or on development, based on animal experiments.

STOT - single exposure

No data available

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STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

Bisphenol A epoxy resin:
Species: Rat, male and female
NOAEL: 50 mg/kg
Application Route: Ingestion
Exposure time: 14 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOEL: 10 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 5 d
Method: Subchronic toxicity

Species: Mouse, male
NOAEL: 100 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 3 d
Method: Subchronic toxicity

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Species: Rat, male and female
NOAEL: 250 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

Terphenyl, hydrogenated:
Species: Rat, male and female
NOAEL: 12 mg/kg
LOAEL: 120 mg/kg
Application Route: oral (feed)
Exposure time: 14 weeks
Number of exposures: 7 days/week
Method: OECD Test Guideline 408
GLP: yes

Species: Rat, male and female
NOAEL: 0.1 mg/l
LOAEL: 0.5 mg/l
Application Route: Inhalation
Exposure time: 90 days
Number of exposures: 6 hours/day, 5 days/week (67 h)
Dose: 0, 10, 100, 500 mg/m³
Method: OECD Test Guideline 413

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GLP: yes

Species: Rabbit, male and female
NOAEL: 2,000 mg/kg
Application Route: Dermal
Exposure time: 21 days
Number of exposures: 6 hours/day, 5 days/week
Dose: 125, 500, 2000 mg/kg bw/d
Method: Subacute toxicity
GLP: yes
Target Organs: Skin

Silicon, amorphous:
Species: Rat, male and female
NOAEL: 7950 - 8980 mg/kg
Application Route: Ingestion
Exposure time: 4,320 h
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
: 4000 - 4500 mg/m³
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: OECD Test Guideline 413

Components:

Terphenyl, hydrogenated:
Repeated dose toxicity - Assessment : No adverse effect has been observed in chronic toxicity tests.

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

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Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

Bisphenol A epoxy resin:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.5 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.55 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Terphenyl, hydrogenated:

Toxicity to fish : LC50: > 100 mg/l
Exposure time: 96 h

Silicon, amorphous:

Toxicity to fish : LL50 (Brachydanio rerio (zebrafish)): > 10,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

terphenyl:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 27 mg/l
Exposure time: 96 h
Test Type: static test
GLP: yes

NOEC (Oncorhynchus mykiss (rainbow trout)): 10 mg/l
Exposure time: 96 h
Test Type: static test
GLP: yes

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Components:

Bisphenol A epoxy resin:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.7 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.6 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Silicon, amorphous:

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): >= 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

terphenyl:

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.27 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Components:

Bisphenol A epoxy resin:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 1.8 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Terphenyl, hydrogenated:

Toxicity to algae : EC50: 56 mg/l
Exposure time: 96 h

Silicon, amorphous:

Toxicity to algae : EL50 (Desmodesmus subspicatus (green algae)): > 10,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

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terphenyl:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 15-29 µg/l
Exposure time: 96 h
Test Type: Growth inhibition
GLP: no

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

M-Factor (Acute aquatic toxicity) : 1

Components:

terphenyl:

Toxicity to fish (Chronic toxicity) : see user defined free text (Pimephales promelas (fathead minnow)): 0.049 mg/l
Exposure time: 34 d
GLP: yes

Components:

Bisphenol A epoxy resin:

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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

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

Terphenyl, hydrogenated:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR (Daphnia magna (Water flea)): < 1 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

terphenyl:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : see user defined free text (Daphnia magna (Water flea)): 0.0048 - 0.0070 mg/L
Exposure time: 21 d
Test Type: flow-through test
GLP: yes

Components:

terphenyl:

M-Factor (Chronic aquatic toxicity) : 10

Components:

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Bisphenol A epoxy resin:

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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

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

Terphenyl, hydrogenated:

Toxicity to microorganisms : NOEC (activated sludge): 103 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Terphenyl, hydrogenated:

Acute aquatic toxicity : This product has no known ecotoxicological effects.

terphenyl:

Acute aquatic toxicity : Very toxic to aquatic life.

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

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

Bisphenol A/epichlorohydrin resin:

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

Terphenyl, hydrogenated:

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

terphenyl:

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Other organisms relevant to : No data available

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the environment

Persistence and degradability**Components:**

Bisphenol A epoxy resin:

Biodegradability : Inoculum: Sewage (STP effluent)
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Biodegradability : Inoculum: activated sludge
Concentration: 3 mg/l
Result: Not readily biodegradable.
Biodegradation: ca. 0 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.E.

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Components:

Bisphenol A epoxy resin:

Stability in water : Degradation half life(DT50): 4.83 d (77 °F / 25 °C) pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 7.1 d (77 °F / 25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 3.58 d (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

Photodegradation : No data available

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Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

Bisphenol A epoxy resin:

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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 150
Remarks: Does not bioaccumulate.

Components:

Bisphenol A epoxy resin:

Partition coefficient: n-octanol/water : log Pow: 3.242 (77 °F / 25 °C)
pH: 7.1
Method: OECD Test Guideline 117

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Partition coefficient: n-octanol/water : log Pow: 2.7 - 3.6
Method: OECD Test Guideline 117

Terphenyl, hydrogenated:

Partition coefficient: n-octanol/water : log Pow: 6.5

Mobility in soil

Mobility : No data available

Components:

Bisphenol A epoxy resin:

Distribution among environmental compartments : Koc: 445

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol:

Distribution among environmental compartments : Koc: 4460
Method: OECD Test Guideline 121

Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

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Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : 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

International Regulations

IATA

UN/ID No.	: UN 3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN, BISPHENOL F EPOXY RESIN)
Class	: 9
Packing group	: III
Labels	: Miscellaneous
Packing instruction (cargo)	: 964

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aircraft)
Packing instruction : 964
(passenger aircraft)

IMDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, BISPHENOL F EPOXY RESIN)
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

DOT Classification

UN/ID/NA number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, BISPHENOL F EPOXY RESIN)
Class : 9
Packing group : III
Labels : CLASS 9
ERG Code : 171
Marine pollutant : yes(BISPHENOL A EPOXY RESIN, BISPHENOL F EPOXY RESIN)

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.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

SARA 311/312 Hazards : Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean

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Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

CH INV	: The formulation contains substances listed on the Swiss Inventory, Not in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

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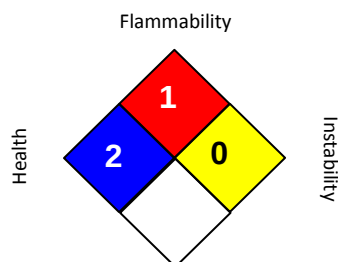
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SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH		2
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Revision Date	: 02/16/2018
ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1	: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	: USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / C	: Ceiling limit
OSHA Z-1 / C	: Ceiling
OSHA Z-3 / TWA	: 8-hour time weighted average

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

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

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

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SECTION 1. IDENTIFICATION

Product name : ARALDITE® 2010-1 B US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : Non-Emergency: (800) 257-5547
E-mail address of person responsible for the SDS : MSDS@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy curing agent

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin corrosion : Category 1C
Serious eye damage : Category 1
Skin sensitisation : Category 1
Acute aquatic toxicity : Category 3
Chronic aquatic toxicity : Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H402 Harmful to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.

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P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

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.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse.

P391 Collect spillage.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Terphenyl, hydrogenated	61788-32-7	5 - 10
2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol)	14970-87-7	5 - 10
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	3 - 5
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	10563-29-8	2.5 - 3
terphenyl	26140-60-3	0.25 - 1

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.

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Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

If inhaled	: If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	: Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	: Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	: Keep respiratory tract clear. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	: None known.
Notes to physician	: Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	: High volume water jet
Specific hazards during firefighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	: No hazardous combustion products are known
Specific extinguishing methods	: No data is available on the product itself.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8.
- 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.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
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.
- Conditions for safe storage : 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.
- Materials to avoid : Keep away from oxidizing agents.
Keep away from strong acids.
- For incompatible materials please refer to Section 10 of this SDS.

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Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Terphenyl, hydrogenated	61788-32-7	TWA	0.5 ppm	ACGIH
terphenyl	26140-60-3	C	1 ppm 9 mg/m3	OSHA Z-1
		C	5 mg/m3	ACGIH

Personal protective equipment

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection

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

Skin and body protection

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

Hygiene measures

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: paste
Colour	: light yellow
Odour	: rotten-egg like
Odour Threshold	: No data is available on the product itself.
pH	: No data is available on the product itself.
Freezing point	: No data is available on the product itself.
Melting point	: No data is available on the product itself.
Boiling point	: No data is available on the product itself.
Flash point	: 212 °F / 100 °C Method: Pensky-Martens closed cup, closed cup

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Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: 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	: No data is available on the product itself.
Relative vapour density	: No data is available on the product itself.
Relative density	: 1.14
Density	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: No data is available on the product itself.
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.
Thermal decomposition	: No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.
Viscosity	: No data is available on the product itself.
Explosive properties	: No data is available on the product itself.
Oxidizing properties	: No data is available on the product itself.
Particle size	: No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions. Stable under normal conditions.
Possibility of hazardous reactions	: Stable under normal conditions. No hazards to be specially mentioned.
Conditions to avoid	: None known.

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Incompatible materials : None known.

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: > 200 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation**Components:**

Terphenyl, hydrogenated:

Species: Rabbit

Exposure time: 24 h

Assessment: No skin irritation

Method: No information available.

Result: No skin irritation

2,4,6-tris(dimethylaminomethyl)phenol:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Corrosive after 1 to 4 hours of exposure

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Species: Rabbit

Assessment: Corrosive

Method: OECD Test Guideline 404

Result: Corrosive

Serious eye damage/eye irritation**Components:**

Terphenyl, hydrogenated:

Species: Rabbit

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Result: No eye irritation
Assessment: No eye irritation
Method: Draize Test
GLP: no

2,4,6-tris(dimethylaminomethyl)phenol:
Species: Rabbit
Result: Corrosive
Assessment: Corrosive

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Result: Corrosive
Assessment: Severe eye irritation

Respiratory or skin sensitisation**Components:**

Terphenyl, hydrogenated:
Test Type: see user defined free text
Species: Humans
Assessment: Does not cause skin sensitisation.
Method: Patch Test 24 Hrs.
Result: Does not cause skin sensitisation.

2,4,6-tris(dimethylaminomethyl)phenol:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Assessment: The product is a skin sensitiser, sub-category 1B.
Result: The product is a skin sensitiser, sub-category 1B.

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: The product is a skin sensitiser, sub-category 1B.

Components:

Terphenyl, hydrogenated:
Assessment: Does not cause skin sensitisation.

Germ cell mutagenicity**Components:**

Terphenyl, hydrogenated:
Genotoxicity in vitro : Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Concentration: 0.1 - 1000 µg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 482
Result: negative
GLP: yes

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Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: 0.01 - 10.0 µl/plate
Metabolic activation: with and without metabolic activation
Method: see user defined free text
Result: negative
GLP: no

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: In vitro mammalian cell gene mutation test
Result: negative
GLP: yes

2,4,6-tris(dimethylaminomethyl)phenol:

Genotoxicity in vitro : Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Concentration: 2500 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

terphenyl:

Genotoxicity in vitro : Test Type: unscheduled DNA synthesis assay
Test system: mammalian liver cells
Concentration: 0.1 - 2ug/ml
Method: OECD Test Guideline 482
Result: negative
GLP: yes
Remarks: In vitro tests did not show mutagenic effects

Components:

Terphenyl, hydrogenated:
Genotoxicity in vivo : Test Type: in vivo assay

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Species: Rat (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Exposure time: Single administration
Dose: 250, 1250, 2500 mg/kg bw
Method: OECD Test Guideline 475
Result: negative
GLP: yes

terphenyl:

Genotoxicity in vivo

: Test Type: in vivo assay
Species: Rat (male and female)
Cell type: Bone marrow
Application Route: Subcutaneous
Exposure time: 6-24 h
Dose: 0-500 mg/kg bw
Method: OECD Test Guideline 475
Result: In vivo tests did not show any chromosomal changes.
GLP: yes

Components:

Terphenyl, hydrogenated:
Germ cell mutagenicity-
Assessment

: Animal testing did not show any mutagenic effects.

Germ cell mutagenicity-
Assessment

: No data available

Carcinogenicity**Components:**

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Species: Mouse, male
Application Route: Dermal
Exposure time: 20 month(s)
Frequency of Treatment: 3 daily
Result: negative

Carcinogenicity -
Assessment

: No data available

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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Reproductive toxicity**Components:**

Terphenyl, hydrogenated:
Effects on fertility

: Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Frequency of Treatment: 7 days/week
General Toxicity - Parent: No observed adverse effect level:
1,000 ppm
General Toxicity F1: No observed adverse effect level: 300
ppm
Method: OECD Test Guideline 416
Result: Animal testing did not show any effects on fertility.
GLP: yes

2,4,6-tris(dimethylaminomethyl)phenol:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Remarks: No significant adverse effects were reported

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Result: Animal testing did not show any effects on fertility.

Components:

Terphenyl, hydrogenated:
Effects on foetal
development

: Species: Rat, female
Application Route: Oral
Dose: 125, 500, 1500 mg/kg bw/d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level:
125 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 500
mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
15 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 15
mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 15
mg/kg body weight
Method: OECD Test Guideline 422
Result: No effects on fertility and early embryonic
development were detected.

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Components:

Terphenyl, hydrogenated:

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

Terphenyl, hydrogenated:

Species: Rat, male and female

NOAEL: 12 mg/kg

LOAEL: 120 mg/kg

Application Route: oral (feed)

Exposure time: 14 weeks

Number of exposures: 7 days/week

Method: OECD Test Guideline 408

GLP: yes

Species: Rat, male and female

NOAEL: 0.1 mg/l

LOAEL: 0.5 mg/l

Application Route: Inhalation

Exposure time: 90 days

Number of exposures: 6 hours/day, 5 days/week (67 n

Dose: 0, 10, 100, 500 mg/m³

Method: OECD Test Guideline 413

GLP: yes

Species: Rabbit, male and female

NOAEL: 2,000 mg/kg

Application Route: Dermal

Exposure time: 21 days

Number of exposures: 6 hours/day, 5 days/week

Dose: 125, 500, 2000 mg/kg bw/d

Method: Subacute toxicity

GLP: yes

Target Organs: Skin

2,4,6-tris(dimethylaminomethyl)phenol:

Species: Rat, male and female

NOEL: 15 mg/kg

Application Route: Ingestion

Exposure time: 1,032 h

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Number of exposures: 7 d
Method: Subacute toxicity

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Species: Rat, male and female
: 550 ppm
Application Route: Ingestion
Test atmosphere: vapour
Exposure time: 3 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Mouse, male
NOAEL: ≥ 56.3 mg/kg/d
Application Route: Skin contact
Exposure time: 20 h
Number of exposures: 3 d
Method: Chronic toxicity

Components:

Terphenyl, hydrogenated:
Repeated dose toxicity - Assessment : No adverse effect has been observed in chronic toxicity tests.

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

Terphenyl, hydrogenated:

Toxicity to fish : LC50: > 100 mg/l
Exposure time: 96 h

2,4,6-tris(dimethylaminomethyl)phenol:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 175 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

terphenyl:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 27 mg/l
Exposure time: 96 h
Test Type: static test
GLP: yes

NOEC (Oncorhynchus mykiss (rainbow trout)): 10 mg/l
Exposure time: 96 h
Test Type: static test
GLP: yes

Components:

2,4,6-tris(dimethylaminomethyl)phenol:

Toxicity to daphnia and other aquatic invertebrates : LC50: 718 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Marine water

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 9.2 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

terphenyl:

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.27 mg/l
Exposure time: 48 h
Test Type: static test

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Method: OECD Test Guideline 202
GLP: yes

Components:

Terphenyl, hydrogenated:

Toxicity to algae : EC50: 56 mg/l
Exposure time: 96 h

2,4,6-tris(dimethylaminomethyl)phenol:

Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): 84 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 6.25 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 21 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

terphenyl:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 15-29 µg/l
Exposure time: 96 h
Test Type: Growth inhibition
GLP: no

M-Factor (Acute aquatic toxicity)

: No data available

Components:

terphenyl:

Toxicity to fish (Chronic toxicity) : see user defined free text (Pimephales promelas (fathead minnow)): 0.049 mg/l
Exposure time: 34 d
GLP: yes

Components:

Terphenyl, hydrogenated:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR (Daphnia magna (Water flea)): < 1 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

terphenyl:

Toxicity to daphnia and other : see user defined free text (Daphnia magna (Water flea)):

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aquatic invertebrates
(Chronic toxicity) : 0.0048 - 0.0070 mg/L
Exposure time: 21 d
Test Type: flow-through test
GLP: yes

Components:

terphenyl:
M-Factor (Chronic aquatic toxicity) : 10

Components:

Terphenyl, hydrogenated:
Toxicity to microorganisms : NOEC (activated sludge): 103 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Toxicity to microorganisms : EC50 (Pseudomonas putida): 181 mg/l
Exposure time: 16 h
Test Type: static test
Test substance: Fresh water
Method: DIN 38 412 Part 8

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment

Components:

Terphenyl, hydrogenated:
Acute aquatic toxicity : This product has no known ecotoxicological effects.

terphenyl:
Acute aquatic toxicity : Very toxic to aquatic life.

Components:

Terphenyl, hydrogenated:
Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol):
Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

2,4,6-tris(dimethylaminomethyl)phenol:
Chronic aquatic toxicity : This product has no known ecotoxicological effects.

terphenyl:
Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

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Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability**Components:**

2,4,6-tris(dimethylaminomethyl)phenol:

Biodegradability : Inoculum: activated sludge
Concentration: 2 mg/l
Result: Not readily biodegradable.
Biodegradation: 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: ISO Method, other

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Bioaccumulation : No data available

Components:

Terphenyl, hydrogenated:

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Partition coefficient: n-octanol/water : log Pow: 6.5

2,4,6-tris(dimethylaminomethyl)phenol:

Partition coefficient: n-octanol/water : log Pow: 0.219 (70.7 °F / 21.5 °C)
Method: OPPTS 830.7550

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Partition coefficient: n-octanol/water : log Pow: 0.5

log Pow: -0.56 (77 °F / 25 °C)

pH: 11.6

Method: OECD Test Guideline 107

Mobility in soil

Mobility : No data available

Distribution among environmental compartments : No data available

Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82
Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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

Global warming potential (GWP) : No data available

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SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

- Waste from residues : 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**International Regulations****IATA**

- UN/ID No. : UN 2735
- Proper shipping name : Polyamines, liquid, corrosive, n.o.s.
(2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL,
DIMETHYL DIPROPYL TRIAMINE)
- Class : 8
- Packing group : III
- Labels : Corrosive
- Packing instruction (cargo aircraft) : 856
- Packing instruction (passenger aircraft) : 852

IMDG

- UN number : UN 2735
- Proper shipping name : POLYAMINES, LIQUID, CORROSIVE, N.O.S.
(2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL,
DIMETHYL DIPROPYL TRIAMINE)
- Class : 8
- Packing group : III
- Labels : 8
- EmS Code : F-A, S-B
- Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

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DOT Classification

UN/ID/NA number	: UN 2735
Proper shipping name	: POLYAMINES, LIQUID, CORROSIVE, N.O.S. (2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL, DIMETHYL DIPROPYL TRIAMINE)
Class	: 8
Packing group	: III
Labels	: CORROSIVE
ERG Code	: 153
Marine pollutant	: yes(Terphenyl, TRIETHYLENEGLYCOL-DIMERCAPTANE)

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.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

SARA 311/312 Hazards	: Skin corrosion or irritation Serious eye damage or eye irritation Respiratory or skin sensitisation
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SARA 313	: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
-----------------	---

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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

CH INV	: The formulation contains substances listed on the Swiss Inventory, On the inventory, or in compliance with the inventory
DSL	: This product contains one or several components listed in the Canadian NDSL.
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: Low volume exemption, On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: Not in compliance with the inventory
TSCA	: On the inventory, or in compliance with the inventory

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Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

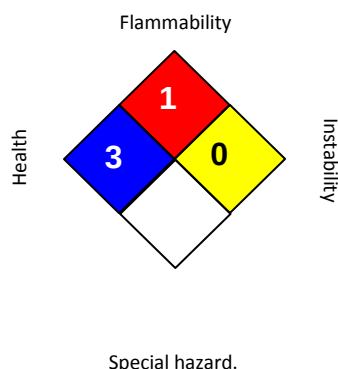
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH		3
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Revision Date : 03/13/2018

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1
Limits for Air Contaminants
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / C : Ceiling limit
OSHA Z-1 / C : Ceiling

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SAFETY DATA SHEET

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