



SAFETY DATA SHEET

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2028 B US

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/04/2016	400001010434	Date of first issue: 03/04/2016

SECTION 1. IDENTIFICATION

Product name : ARALDITE® 2028 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

Telephone : Non-Emergency: (800) 257-5547

E-mail address of person responsible for the SDS : MSDS@huntsman.com

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

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitization : Category 1

Reproductive toxicity : Category 2

GHS Label element

Hazard pictograms



Signal Word : Warning

Hazard Statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H361 Suspected of damaging fertility or the unborn child

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapour

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P264 Wash skin thoroughly after handling.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ 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.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 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.
Storage:
 P405 Store locked up.
Disposal:
 P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity:
 84.86 %

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Alkoxylated amine	102-60-3	7 - 13
propylene carbonate	108-32-7	3 - 7
3-aminopropyltriethoxysilane	919-30-2	1 - 3
dimethylbis[(1-oxoneodecyl)oxy]stannane	68928-76-7	0.1 - 1

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
 Consult a physician.
 Show this material safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.
 If symptoms persist, call a physician.

In case of skin contact : Take off contaminated clothing and shoes immediately.
 Wash off with soap and plenty of water.
 If symptoms persist, call a physician.

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- 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 : Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Obtain medical attention.
- Most important symptoms and effects, both acute and delayed : None known.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : No data is available on the product itself.
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Standard procedure for chemical fires.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
- Environmental precautions : Try to prevent the material from entering drains or water courses.
- 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 : Avoid contact with skin and eyes.
For personal protection see section 8.
Persons with a history of skin sensitization problems or

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asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Smoking, eating and drinking should be prohibited in the application area.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.

Materials to avoid : Strong acids
Strong bases
Strong oxidizing agents

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

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection : In the case of vapor formation use a respirator with an approved filter.

Respiratory protection : No personal respiratory protective equipment normally required.

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

Solvent-resistant gloves (butyl-rubber)
Nitrile rubber
10 - 480 min

Remarks : Polyvinyl alcohol or nitrile- butyl-rubber gloves
The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it.
Before removing gloves clean them with soap and water.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles.

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 : Handle in accordance with good industrial hygiene and safety practice.
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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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Color	: translucent
Odor	: slight
Odor Threshold	: No data is available on the product itself.
pH	: No data is available on the product itself.
Flash point	: > 100 °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.
Upper explosion limit	: No data is available on the product itself.
Lower explosion limit	: No data is available on the product itself.
Vapor pressure	: No data is available on the product itself.
Relative vapor density	: No data is available on the product itself.
Relative density	: No data is available on the product itself.
Density	: 1.12 g/cm ³ (25 °C)
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.
Autoignition temperature	: No data is available on the product itself.
Decomposition temperature	: > 200 °C
Viscosity	
Viscosity, dynamic	: 1,000 - 1,500 mPa.s (25 °C) Method: ISO 2555
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

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Reactivity	: Stable under recommended storage conditions.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: Stable under recommended storage conditions. No decomposition if used as directed.
Conditions to avoid	: No data available
Hazardous decomposition products	: Burning produces obnoxious and toxic fumes. Carbon oxides

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 : 2,236 mg/kg
Method: Calculation method

Ingredients:

3-aminopropyltriethoxysilane:

Acute inhalation toxicity : LC50 (Rat, male): > 5 ppm
Exposure time: 6 h
Test atmosphere: vapor
Method: OECD Test Guideline 403

dimethylbis[(1-oxoneodecyl)oxy]stannane:

Acute inhalation toxicity : LC50 (Rat):

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**Ingredients:**

propylene carbonate:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

3-aminopropyltriethoxysilane:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Causes burns.

dimethylbis[(1-oxoneodecyl)oxy]stannane:

Species: Rabbit

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Assessment: Mild skin irritant
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation**Ingredients:**

Alkoxylated amine:
Species: Rabbit
Result: Irritating to eyes.
Assessment: Irritant

propylene carbonate:
Species: Rabbit
Result: Eye irritation
Method: OPPTS 870.2400

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

dimethylbis[(1-oxoneodecyl)oxy]stannane:
Species: Rabbit
Result: No eye irritation
Assessment: Mild eye irritant
Method: OECD Test Guideline 405

Respiratory or skin sensitization**Ingredients:**

propylene carbonate:
Routes of exposure: Skin
Species: Humans
Result: Does not cause skin sensitization.

3-aminopropyltriethoxysilane:
Routes of exposure: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: The product is a skin sensitizer, sub-category 1B.

Assessment: No data available

Germ cell mutagenicity**Ingredients:**

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

Metabolic activation: negative
Method: OECD Test Guideline 482

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Result: negative

dimethylbis[(1-oxoneodecyl)oxy]stannane:

Genotoxicity in vitro : Method: OECD Test Guideline 471
Result: negative

Ingredients:

propylene carbonate:

Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 1666 mg/kg
Method: OECD Test Guideline 474
Result: negative

3-aminopropyltriethoxysilane:

Genotoxicity in vivo : Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity**Ingredients:**

propylene carbonate:

Species: Mouse, (male)
Application Route: Dermal
Exposure time: 104 weeks
Dose: 1500 - 2000 mg/kg
Frequency of Treatment: 2 daily
Method: OECD Test Guideline 451
Result: negative

Carcinogenicity - Assessment : No data available

IARC

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

OSHA

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

NTP

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

Reproductive toxicity**Ingredients:**

Alkoxyated amine:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422

propylene carbonate:

Species: Rat

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Application Route: Oral
Method: OECD Test Guideline 414

Ingredients:

Alkoxylated amine:

Effects on fetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 400 mg/kg body weight
Result: No teratogenic effects.

propylene carbonate:

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 1,000 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.

dimethylbis[(1-oxoneodecyl)oxy]stannane:

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 10 mg/kg body weight
Method: OECD Test Guideline 414
Result: Teratogenic effects.

Reproductive toxicity - Assessment : No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Repeated dose toxicity**Ingredients:**

Alkoxylated amine:

Species: Rat, male and female
NOAEL (No observed adverse effect level): 1000 mg/kg/d
Application Route: Ingestion
Exposure time: 1,176 h
Number of exposures: 7 d
Method: Subacute toxicity

Species: Rat, male and female
NOAEL (No observed adverse effect level): 300 mg/kg/d
Application Route: Ingestion
Exposure time: 1,176 h
Number of exposures: 7 d
Method: Subacute toxicity

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propylene carbonate:
Species: Rat, male and female
NOEC: > 5000 mg/kg, 100 mg/m³
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 2,232 h
Number of exposures: 6 h
Method: OECD Test Guideline 413

3-aminopropyltriethoxysilane:
Species: Rat, male and female
NOAEL (No observed adverse effect level): 200 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h
Method: Subchronic toxicity

Repeated dose toxicity - Assessment : No data available

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**Product:**

Remarks: No data available

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Alkoxylated amine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 4,600 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: DIN 38412

LC50 (Leuciscus idus (Golden orfe)): 2,700 mg/l
Exposure time: 48 h
Test Type: static test
Method: DIN 38412

propylene carbonate:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 1,000 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.
Remarks: No-observed-effect level

3-aminopropyltriethoxysilane:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 934 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Ingredients:

Alkoxylated amine:

Toxicity to daphnia and other aquatic invertebrates : IC0 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.

propylene carbonate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
Remarks: No-observed-effect level

3-aminopropyltriethoxysilane:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 331 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

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Ingredients:

Alkoxylated amine:

Toxicity to algae : EC50 (Other): 150.67 mg/l
Exposure time: 72 h
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.

propylene carbonate:

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): > 929 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 900 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

3-aminopropyltriethoxysilane:

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.

M-Factor (Acute aquatic toxicity)

: No data available

Ingredients:

Alkoxylated amine:

Toxicity to fish (Chronic toxicity) : GLP: yes

Ingredients:

Alkoxylated amine:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity)

: No data available

Ingredients:

propylene carbonate:

Toxicity to bacteria : EC50 (Pseudomonas putida): 25,619 mg/l
Exposure time: 16 h
Test Type: static test
Test substance: Fresh water
Method: DIN 38 412 Part 8

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3-aminopropyltriethoxysilane:
 Toxicity to bacteria : EC50 (Pseudomonas putida): 43 mg/l
 Exposure time: 5.75 h
 Test Type: static test
 Test substance: Fresh water

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
 Acute aquatic toxicity : No data available

Ingredients:

dimethylbis[(1-oxoneodecyl)oxy]stannane:
 Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 84.86 %

Persistence and degradability**Ingredients:**

Alkoxylated amine:
 Biodegradability : Inoculum: activated sludge
 Concentration: 107 mg/l
 Result: Inherently biodegradable.
 Biodegradation: 36 %
 Exposure time: 28 d
 Method: OECD Test Guideline 302B

Inoculum: Domestic sewage
 Concentration: 30 mg/l
 Result: Not readily biodegradable.
 Biodegradation: 9 %
 Exposure time: 28 d
 Method: Directive 67/548/EEC Annex V, C.4.D.

propylene carbonate:
 Biodegradability : Concentration: 20 mg/l
 Result: Readily biodegradable.
 Biodegradation: 83.5 %
 Exposure time: 29 d

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Method: OECD Test Guideline 301B

3-aminopropyltriethoxysilane:
Biodegradability

: Inoculum: activated sludge
Concentration: 8.95 mg/l
Result: Not readily biodegradable.
Biodegradation: 67 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.A.

dimethylbis[(1-oxoneodecyl)oxy]stannane:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: < 60 %
Exposure time: 28 d

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**Ingredients:**

3-aminopropyltriethoxysilane:
Bioaccumulation

: Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 3.4
Remarks: Does not bioaccumulate.

Ingredients:

Alkoxylated amine:
Partition coefficient: n-
octanol/water

: log Pow: -2.08 (25 °C)

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propylene carbonate:
Partition coefficient: n-
octanol/water : log Pow: -0.5 (20 °C)

3-aminopropyltriethoxysilane:
Partition coefficient: n-
octanol/water : log Pow: 1.7 (20 °C)
pH: 7

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 : There is no data available for this product.

information - Product
Global warming potential : No data available
(GWP)

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with
chemical or used container.
Offer surplus and non-recyclable solutions to a licensed
disposal company.

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

SECTION 14. TRANSPORT INFORMATION**International Regulation****IATA**

Not regulated as a dangerous good

IMDG

Not regulated as a dangerous good

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

Not applicable for product as supplied.

Domestic regulation**DOT Classification**

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

TSCA - 5(a) Significant New Use Rule List of Chemicals : Not relevant

EPCRA - Emergency Planning and Community Right-to-Know

SARA 311/312 Hazards : Acute Health Hazard

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.

Clean Air Act

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).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

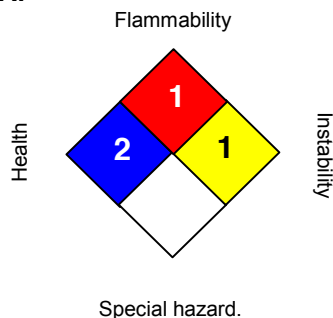
California Prop 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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

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CH INV : The mixture contains substances listed on the Swiss Inventory
 TSCA : On TSCA Inventory
 DSL : All components of this product are on the Canadian DSL.
 AICS : Not in compliance with the inventory
 NZIoC : Not in compliance with the inventory
 ENCS : Not in compliance with the inventory
 ISHL : Not 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

SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARD	1

0 = not significant, 1 = Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

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

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE. THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

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

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