

**ARALDITE® 2014 B US**

Version 1.0      Revision Date: 04/12/2016      SDS Number: 400001012585      Date of last issue: -  
Date of first issue: 04/12/2016

**SECTION 1. IDENTIFICATION**

Product name : ARALDITE® 2014 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 : Hardener

**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Skin irritation : Category 2  
Serious eye damage : Category 1  
Skin sensitization : Category 1  
Reproductive toxicity : Category 2  
Chronic aquatic toxicity : Category 3

**GHS Label element**

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H361 Suspected of damaging fertility or the unborn child.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.

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P202 Do not handle until all safety precautions have been read and understood.  
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
 P264 Wash skin thoroughly after handling.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P273 Avoid release to the environment.  
 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 + 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 or doctor/ physician.  
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
 P333 + P313 If skin irritation or rash occurs: 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**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Hazardous ingredients**

Chemical Name	CAS-No.	Concentration (%)
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	68082-29-1	13 - 30
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	68410-23-1	3 - 7
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	10563-29-8	3 - 7
triethylenetetramine	112-24-3	3 - 7
Diethylenetriamine	111-40-0	3 - 7
4,4'-isopropylidenediphenol	80-05-7	1 - 3

**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.  
 Do not leave the victim unattended.

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- If inhaled : If unconscious place in recovery position and seek medical advice.  
If symptoms persist, call a physician.
- In case of skin contact : If skin irritation persists, call a physician.  
If on skin, rinse well with water.  
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Continue rinsing eyes during transport to hospital.  
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.  
Do not give milk or alcoholic beverages.  
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.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : No data is available on the product itself.
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : No data is available on the product itself.
- 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 fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
- 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 vapors/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 sensitization 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.  
Electrical installations / working materials must comply with the technological safety standards.

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

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
barium sulfate	7727-43-7	TWA (Inhalable	5 mg/m <sup>3</sup>	ACGIH

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		fraction)		
		TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
		TWA (Total dust)	10 mg/m3	OSHA PEL
		TWA (respirable dust fraction)	5 mg/m3	OSHA PEL
Diethylenetriamine	111-40-0	TWA	1 ppm	ACGIH
		TWA	1 ppm 4 mg/m3	OSHA PEL

**Personal protective equipment**

- Respiratory protection : No personal respiratory protective equipment normally required.
- Respiratory protection : In the case of vapor formation use a respirator with an approved filter.
- 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
- Color : gray
- Odor : slight
- Odor Threshold : No data is available on the product itself.
- pH : No data is available on the product itself.
- Flash point : > 93 °C  
Method: estimated, closed cup
- Evaporation rate : No data is available on the product itself.

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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 : 1.57

Density : No data is available on the product itself.

Solubility(ies)  
Water solubility : < 0.1 g/l (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.

Thermal decomposition : No data is available on the product itself.

Viscosity : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : No decomposition if stored and applied as directed.

Possibility of hazardous reactions : No decomposition if stored and applied as directed.

Conditions to avoid : No data available

**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 : Assessment: The substance or mixture has no acute inhalation toxicity

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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****Product:**

Result: Skin irritation

Remarks: Extremely corrosive and destructive to tissue.

**Serious eye damage/eye irritation****Product:**

Remarks: May cause irreversible eye damage.

**Respiratory or skin sensitization****Product:**

Remarks: Causes sensitization.

Assessment: No data available

**Germ cell mutagenicity****Ingredients:**

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

triethylenetetramine:

Genotoxicity in vitro : Concentration: 0 - 200 µg/L  
Metabolic activation: negative  
Method: OECD Test Guideline 482  
Result: negative

4,4'-isopropylidenediphenol:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Result: negative

**Ingredients:**

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triethylenetetramine:  
Genotoxicity in vivo : Application Route: Intraperitoneal injection  
Dose: 0 - 600 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

Diethylenetriamine:  
Genotoxicity in vivo : Cell type: Somatic  
Application Route: Oral  
Dose: 85 - 850 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

Application Route: Oral  
Result: negative

4,4'-isopropylidenediphenol:  
Genotoxicity in vivo : Method: OECD Test Guideline 474  
Result: negative

**Carcinogenicity****Ingredients:**

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

triethylenetetramine:  
Species: Mouse, (male)  
Application Route: Dermal  
Dose: 42 mg/kg  
Frequency of Treatment: 3 days/week  
Method: OECD Test Guideline 451  
Result: negative

Species: Mouse, (male)  
Application Route: Dermal  
Exposure time: 104 weeks  
Dose: 16.8 mg/kg  
Frequency of Treatment: 3 days/week  
Method: OECD Test Guideline 451

Diethylenetriamine:  
Species: Mouse, (male)  
Application Route: Dermal  
Dose: 56.3 mg/kg  
Frequency of Treatment: 3 daily  
Result: negative

4,4'-isopropylidenediphenol:  
Species: Rat, (male and female)  
Application Route: Oral  
Exposure time: 103 weeks



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Frequency of Treatment: 7 daily  
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:**

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:  
Effects on fertility : Species: Rat, male and female  
Application Route: Other

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.

Diethylenetriamine:  
Species: Rat, male and female  
Application Route: Oral  
General Toxicity Parent: NOAEL (No observed adverse effect level): 30 mg/kg wet weight  
Method: OECD Test Guideline 421

4,4'-isopropylidenediphenol:  
Species: Rat, male and female  
Application Route: Oral  
Method: OECD Test Guideline 416  
Result: Embryotoxic effects and adverse effects on the offspring were detected.

**Ingredients:**

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:  
Effects on fetal development : Species: Rat, male and female  
Application Route: Oral  
General Toxicity Maternal: NOAEL (No observed adverse effect level): 15 mg/kg body weight  
Developmental Toxicity: NOAEL (No observed adverse effect level): 15 mg/kg body weight  
Embryo-fetal toxicity.: NOAEL (No observed adverse effect level): 15 mg/kg body weight

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Method: OECD Test Guideline 422  
Result: No effects on fertility and early embryonic development were detected.

triethylenetetramine:

Species: Rat  
Application Route: Oral  
General Toxicity Maternal: NOAEL (No observed adverse effect level): > 750 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects.

Species: Rabbit  
Application Route: Dermal  
General Toxicity Maternal: NOAEL (No observed adverse effect level): 125 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects.

Diethylenetriamine:

Species: Rat  
Application Route: Oral  
General Toxicity Maternal: NOAEL (No observed adverse effect level): 100 mg/kg body weight  
Method: OECD Test Guideline 421

4,4'-isopropylidenediphenol:

Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: NOAEL (No observed adverse effect level): < 160 mg/kg body weight  
Method: OECD Test Guideline 416  
Result: No teratogenic effects.

**Ingredients:**

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.

4,4'-isopropylidenediphenol:

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

**STOT-single exposure****Ingredients:**

Diethylenetriamine:

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

4,4'-isopropylidenediphenol:

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

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**STOT-repeated exposure**

No data available

**Repeated dose toxicity****Ingredients:**

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Species: Rat, male and female

NOAEL (No observed adverse effect level): 1000 mg/kg

Application Route: Ingestion

Exposure time: 6 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

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

Species: Rat, male and female

NOEC: 550 ppm

Application Route: Ingestion

Test atmosphere: vapor

Exposure time: 3 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

Species: Mouse, male

NOAEL (No observed adverse effect level):  $\geq 56.3$  mg/kg/d

Application Route: Skin contact

Exposure time: 20 h

Number of exposures: 3 d

Method: Chronic toxicity

triethylenetetramine:

Species: Rat, male and female

NOAEL (No observed adverse effect level): 50 mg/kg/d

Application Route: Ingestion

Exposure time: 26 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

Diethylenetriamine:

Species: Rat, male and female

NOEC: 70 - 80 mg/m<sup>3</sup>

Application Route: Ingestion

Test atmosphere: vapor

Exposure time: 360 h

Number of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

NOAEL (No observed adverse effect level): 114 mg/kg/d

Application Route: Skin contact

Exposure time: 9,600 h

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Number of exposures: 6 d  
Method: Chronic toxicity

4,4'-isopropylidenediphenol:  
Species: Dog, male and female  
NOEC: 75 mg/kg, 10 mg/m<sup>3</sup>  
Application Route: Ingestion  
Test atmosphere: dust/mist  
Exposure time: 2,160 h  
Number of exposures: 7 d  
Method: Subchronic toxicity

Species: Rat, male and female  
LOAEL (Lowest observed adverse effect level): 600 mg/kg  
Application Route: Ingestion  
Exposure time: 672 h  
Number of exposures: 7 d  
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:**

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 7.07 mg/l  
Exposure time: 96 h  
Test substance: Fresh water  
Method: OECD Test Guideline 203

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Toxicity to fish : LC50: 7.07 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

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

triethylenetetramine:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 330 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: Fish Acute Toxicity Test

Diethylenetriamine:

Toxicity to fish : LC50: 430 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.1.

4,4'-isopropylidenediphenol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l  
Exposure time: 96 h

**Ingredients:**

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7.07 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 5.18 mg/l

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aquatic invertebrates  
 Exposure time: 1,152 h  
 Test Type: static test  
 Test substance: Fresh water  
 Method: OECD Test Guideline 202

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

triethylenetetramine:  
 Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31.1 mg/l  
 Exposure time: 48 h  
 Test Type: static test  
 Test substance: Fresh water  
 Method: Directive 67/548/EEC, Annex V, C.2.

Diethylenetriamine:  
 Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 32 mg/l  
 Exposure time: 48 h  
 Test Type: static test  
 Test substance: Fresh water

4,4'-isopropylidenediphenol:  
 Toxicity to daphnia and other aquatic invertebrates : EC50: 3.9 - 10.2 mg/l  
 Exposure time: 48 h

(Ceriodaphnia dubia (Water flea)):

**Ingredients:**

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 4.34 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Test substance: Fresh water  
 Method: OECD Test Guideline 201

EC10 (Selenastrum capricornutum (green algae)): 1.78 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Method: OECD Test Guideline 201

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:  
 Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 4.11 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

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Test substance: Fresh water  
Method: OECD Test Guideline 201

triethylenetetramine:  
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 20 mg/l  
Exposure time: 72 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Diethylenetriamine:  
Toxicity to algae : EbC50 (Selenastrum capricornutum (green algae)): 1,164 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

4,4'-isopropylidenediphenol:  
Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 2.5 - 3.1 mg/l  
Exposure time: 96 h

M-Factor (Acute aquatic toxicity) : No data available

**Ingredients:**

Diethylenetriamine:  
Toxicity to fish (Chronic toxicity) : NOEC: 10 mg/l  
Exposure time: 28 d  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 210

4,4'-isopropylidenediphenol:  
Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.016 mg/l  
Exposure time: 444 d  
Test Type: flow-through test  
Test substance: Fresh water  
Method: Fish Life Cycle Toxicity  
Remarks: Toxic to aquatic organisms.

**Ingredients:**

triethylenetetramine:  
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): 1.9 mg/l  
Exposure time: 21 d  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Diethylenetriamine:  
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 5.6 mg/l  
Exposure time: 21 d  
Test Type: semi-static test  
Test substance: Fresh water

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Method: Directive 67/548/EEC, Annex V, C.20.

M-Factor (Chronic aquatic toxicity) : No data available

**Ingredients:**

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:

Toxicity to bacteria : EC50 (activated sludge): 384 mg/l  
 Exposure time: 3 h  
 Test Type: static test  
 Test substance: Fresh water  
 Method: OECD Test Guideline 209

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Toxicity to bacteria : EC0: > 100 mg/l  
 Method: DIN 38412

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

Toxicity to bacteria : EC50 (Pseudomonas putida): 181 mg/l  
 Exposure time: 16 h  
 Test Type: static test  
 Test substance: Fresh water  
 Method: DIN 38 412 Part 8

triethylenetetramine:

Toxicity to bacteria : EC50 (activated sludge): 800 mg/l  
 Exposure time: 0.5 h  
 Test Type: static test  
 Test substance: Fresh water

**Ingredients:**

Diethylenetriamine:

Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg  
 Exposure time: 56 d  
 Method: OECD Test Guideline 222

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment

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

Chronic aquatic toxicity - Product : Harmful to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available



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Further information:  
No data available

**Persistence and degradability****Ingredients:**

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 - 70 %  
Exposure time: 74 d  
Method: OECD Test Guideline 301B

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Biodegradability : Inoculum: activated sludge  
Concentration: 9 mg/l  
Result: Inherently biodegradable.  
Biodegradation: 100 %  
Exposure time: 74 d  
Method: OECD Test Guideline 301B

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

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

triethylenetetramine:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 162 d  
Method: OECD Test Guideline 301D

Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 20 %  
Exposure time: 84 d  
Method: Inherent Biodegradability: Modified SCAS Test

Diethylenetriamine:

Biodegradability : Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: 87 %  
Exposure time: 21 d  
Method: OECD Test Guideline 301D

4,4'-isopropylidenediphenol:

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 1 - 2 %  
Exposure time: 28 d

Biochemical Oxygen Demand (BOD) : No data available

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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

**Ingredients:**

Diethylenetriamine:  
Photodegradation : Test Type: Air  
Rate constant: 500000  
Degradation (direct photolysis): 50 %

Impact on Sewage Treatment : No data available

**Bioaccumulative potential****Ingredients:**

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:  
Bioaccumulation : Bioconcentration factor (BCF): 1.85 - 2.69  
Test substance: Fresh water

Diethylenetriamine:  
Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 0.3 - 6.3  
Exposure time: 42 d  
Test substance: Fresh water  
Method: flow-through test  
Remarks: Bioaccumulation is unlikely.

**Ingredients:**

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:  
Partition coefficient: n-octanol/water : log Pow: 10.34

N<sup>1</sup>-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:  
Partition coefficient: n-octanol/water : log Pow: 0.5

log Pow: -0.56 (25 °C)  
pH: 11.6

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Method: OECD Test Guideline 107

triethylenetetramine:

Partition coefficient: n-octanol/water	:	log Pow: -2.65 (20 °C)
	:	Method: OECD Test Guideline 117

Diethylenetriamine:

Partition coefficient: n-octanol/water	:	log Pow: -1.58 (20 °C)
	:	pH: 7

**Mobility in soil**

Mobility : No data available

**Ingredients:**

triethylenetetramine:

Distribution among environmental compartments	:	Koc: 1584.9 - 5012. Method: OECD Test Guideline 106
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Diethylenetriamine:

Distribution among environmental compartments	:	Koc: 19111.
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Stability in soil	:	No data available
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**Other adverse effects**

Environmental fate and pathways	:	No data available
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Results of PBT and vPvB assessment	:	No data available
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Endocrine disrupting potential	:	No data available
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Adsorbed organic bound halogens (AOX)	:	No data available
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**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).
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Additional ecological information - Product	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.
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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.
- 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 dangerous goods

**IMDG**

Not regulated as dangerous goods

**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 dangerous goods

**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** : No SARA Hazards

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

4,4'-isopropylidenediphenol	80-05-7	1.9877 %
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**Clean Air Act**

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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**

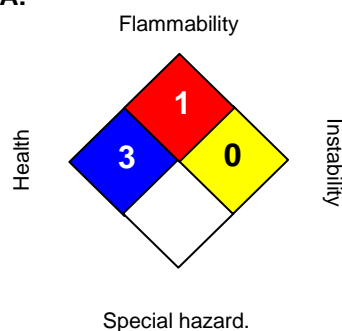
WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

4,4'-isopropylidenediphenol

80-05-7

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

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	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	Low volume exemption
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

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

<b>HEALTH</b>	<b>3*</b>
<b>FLAMMABILITY</b>	<b>1</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

0 = not significant, 1 = Slight,

2 = Moderate, 3 = High

4 = Extreme, \* = Chronic

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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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