

**ARALDITE® AY 8683 US**

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	08/26/2015	400001012691	Date of first issue: 08/26/2015

**SECTION 1. IDENTIFICATION**

Product name : ARALDITE® AY 8683 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 : Adhesives

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

Acute toxicity (Inhalation) : Category 3  
 Respiratory sensitization : Category 1  
 Skin sensitization : Category 1  
 Chronic aquatic toxicity : Category 3

**GHS Label element**

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H317 May cause an allergic skin reaction.  
 H331 Toxic if inhaled.  
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**  
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
 P271 Use only outdoors or in a well-ventilated area.  
 P272 Contaminated work clothing must not be allowed out of



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the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P285 In case of inadequate ventilation wear respiratory protection.

**Response:**

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

P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician.

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

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

P363 Wash contaminated clothing before reuse.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

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 : Substance

**Hazardous ingredients**

Chemical Name	CAS-No.	Concentration (%)
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	4098-71-9	3 - 7
4,4'-methylenedicyclohexyl diisocyanate	5124-30-1	1 - 3

**SECTION 4. FIRST AID MEASURES**

General advice : No hazards which require special first aid measures.

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.

In case of eye contact : Flush eyes with water as a precaution.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.

If swallowed : Clean mouth with water and drink afterwards plenty of water.

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Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.

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 : Not applicable for product as supplied.

Environmental precautions : No special environmental precautions required.

Methods and materials for containment and cleaning up : Wipe up with absorbent material (e.g. cloth, fleece).  
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 : For personal protection see section 8.  
No special handling advice required.

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

Materials to avoid : No special restrictions on storage with other products.

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

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Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	4098-71-9	TWA	0.005 ppm	ACGIH
		TWA	0.005 ppm 0.045 mg/m3	NIOSH REL
		ST	0.02 ppm 0.18 mg/m3	NIOSH REL
		TWA	0.005 ppm	OSHA P0
		STEL	0.02 ppm	OSHA P0
4,4'-methylenedicyclohexyl diisocyanate	5124-30-1	TWA	0.005 ppm	ACGIH
		C	0.01 ppm 0.11 mg/m3	NIOSH REL
		C	0.01 ppm 0.11 mg/m3	OSHA P0

**Personal protective equipment**

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection  
Remarks : For prolonged or repeated contact use protective gloves.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : General industrial hygiene practice.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : liquid

Color : amber, clear

Odor : slight

Odor Threshold : No data is available on the product itself.

pH : No data is available on the product itself.

Flash point : > 149 °C  
Method: 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.

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Vapor pressure : No data is available on the product itself.

Relative vapor density : 1

Relative density : 1.02 - 1.06

Density : No data is available on the product itself.

**Solubility(ies)**

Water solubility : Water reactive

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 : Stable under recommended storage conditions.

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

Possibility of hazardous reactions : No hazards to be specially mentioned.

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****Ingredients:**

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Acute oral toxicityIngredients : LD50 (Rat): 4,814 mg/kg  
Method: OECD Test Guideline 401

4,4'-methylenedicyclohexyl diisocyanate:

Acute oral toxicityIngredients : LD50 (Rat, male and female): 18,200 mg/kg

**Ingredients:**

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Acute inhalation toxicity : LC50 (Rat, male and female): 0.04 mg/l

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Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

4,4'-methylenedicyclohexyl diisocyanate:

Acute inhalation toxicity : LC50 (Rat, male and female): 0.43 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

**Ingredients:**

4,4'-methylenedicyclohexyl diisocyanate:

Acute dermal toxicity : LD50 (Rat, male and female): > 7,000 mg/kg  
Method: OECD Test Guideline 402

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

**Skin corrosion/irritation****Product:**

Remarks: According to the classification criteria of the European Union, the product is not considered as being a skin irritant.

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

Remarks: According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

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

Remarks: No data available

Assessment: No data available

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

4,4'-methylenedicyclohexyl diisocyanate:

Genotoxicity in vitro : Concentration: 50 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

Concentration: 28 µg/L  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

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Concentration: 96 µg/L  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo : No data available

**Carcinogenicity**

No data available

Carcinogenicity - Assessment : No data available

**Reproductive toxicity****Ingredients:**

4,4'-methylenedicyclohexyl diisocyanate:

Effects on fertility : Species: Rat, male and female  
Application Route: Inhalation  
Target Organs: Respiratory Tract  
Method: OECD Test Guideline 421

**Ingredients:**

4,4'-methylenedicyclohexyl diisocyanate:

Effects on fetal development : Species: Rat, female  
Application Route: Inhalation  
General Toxicity Maternal: NOAEL (No observed adverse effect level): 1 mg/m<sup>3</sup>  
Method: OECD Test Guideline 414  
Result: No teratogenic effects.

Reproductive toxicity - Assessment : No data available

**STOT-single exposure**

No data available

**STOT-repeated exposure**

No data available

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

4,4'-methylenedicyclohexyl diisocyanate:

Species: Rat, male and female  
NOEC: 3 mg/m<sup>3</sup>  
Test atmosphere: dust/mist  
Exposure time: 13 Weeks  
Number of exposures: 6 h  
Method: OECD Test Guideline 413

Repeated dose toxicity - : No data available

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Assessment

**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

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

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Toxicity to fish : LC50: 1.8 mg/l  
Exposure time: 48 h  
Method: DIN 38412

4,4'-methylenedicyclohexyl diisocyanate:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 8.1 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.1.

**Ingredients:**

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Toxicity to daphnia and other : EC50: 83.7 mg/l



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aquatic invertebrates                      Exposure time: 24 h  
Method: DIN 38412

4,4'-methylenedicyclohexyl diisocyanate:

Toxicity to daphnia and other            : EC50 (Daphnia magna (Water flea)): > 8.3 mg/l  
aquatic invertebrates                      Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.2.

**Ingredients:**

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Toxicity to algae                            : EC50: 118.7 mg/l  
Exposure time: 72 h

4,4'-methylenedicyclohexyl diisocyanate:

Toxicity to algae                            : EgC50 (Desmodesmus subspicatus (Scenedesmus  
subspicatus)): > 5 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                    : No data available  
toxicity)

Toxicity to fish (Chronic                    : No data available  
toxicity)

**Ingredients:**

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Toxicity to daphnia and other            : NOEC (Daphnia magna (Water flea)): 3 mg/l  
aquatic invertebrates                      Exposure time: 21 d  
(Chronic toxicity)

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

**Ingredients:**

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Toxicity to bacteria                        : EC50: 263 mg/l  
Exposure time: 3 h  
Method: Directive 67/548/EEC, Annex V, B.15.

Toxicity to soil dwelling                    : No data available  
organisms

Plant toxicity                                : No data available

Sediment toxicity                          : No data available

Toxicity to terrestrial                        : No data available  
organisms

Ecotoxicology Assessment

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Acute aquatic toxicity : No data available

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information:  
No data available

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

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: Tested according to Directive 92/69/EEC.

4,4'-methylenedicyclohexyl diisocyanate:

Biodegradability : Inoculum: activated sludge  
Concentration: 30 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.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

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**Bioaccumulative potential**

Bioaccumulation : No data available

Partition coefficient: n-octanol/water : No data available

**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 : Not applicable

Additional ecological information - Product : There is no data available for this product.

Global warming potential (GWP) : No data available

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging : Empty remaining contents.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.**SECTION 14. TRANSPORT INFORMATION**

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**International Regulation****TDG**

Not regulated as a dangerous good

**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****SECTION 15. REGULATORY INFORMATION**

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

**WHMIS Classification** : D2B: Toxic Material Causing Other Toxic Effects  
D2A: Very Toxic Material Causing Other Toxic Effects

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

CH INV : The mixture contains substances listed on the Swiss Inventory  
: benzoyl chloride

TSCA : On TSCA Inventory  
DSL : This product contains the following components listed on the Canadian NDSL. All other components are on the Canadian DSL.  
: Oxirane, methyl-, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,4-butanediyl), 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimet

AICS : On the inventory, or in compliance with the inventory  
NZIoC : Not in compliance with the inventory  
: Oxirane, methyl-, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,4-butanediyl), 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimet

ENCS : On the inventory, or in compliance with the inventory  
ISHL : On the inventory, or in compliance with the inventory  
KECI : Not in compliance with the inventory  
: Oxirane, methyl-, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy-1,4-butanediyl), 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimet

PICCS : Not in compliance with the inventory

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: Oxirane, methyl-, polymer with .alpha.-hydro.-omega.-hydroxypoly(oxy-1,4-butanediyl), 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimet

IECSC : Low volume exemption  
 : Oxirane, methyl-, polymer with .alpha.-hydro.-omega.-hydroxypoly(oxy-1,4-butanediyl), 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimet

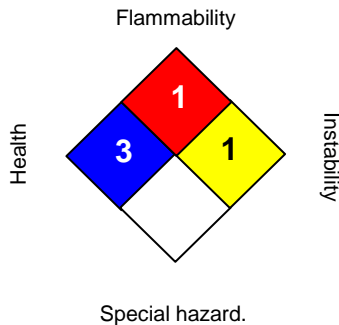
**Inventories**

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

**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>1</b>

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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**HARDENER HY 8683 US**

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**SECTION 1. IDENTIFICATION**

Product name : HARDENER HY 8683 US

**Manufacturer or supplier's details**

Company name of supplier : Huntsman Advanced Materials Americas LLC  
Address : 2795 Slough Avenue  
Mississauga, ON L4T 1G2,  
Canada  
Telephone : +1 905 678 9150  
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 : Hardener

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with the Hazardous Products Regulations**

Acute toxicity (Oral) : Category 4  
Acute toxicity (Inhalation) : Category 4  
Skin sensitisation : Sub-category 1A  
Germ cell mutagenicity : Category 2  
Carcinogenicity : Category 2  
Reproductive toxicity : Category 1B  
Specific target organ toxicity - single exposure (Oral) : Category 2 (Liver)  
Specific target organ toxicity - repeated exposure (Oral) : Category 1 (Liver)  
Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Kidney)  
Short-term (acute) aquatic hazard : Category 1  
Chronic aquatic toxicity : Category 1

**GHS label elements**

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Hazard pictograms



Signal word

: Danger

Hazard statements

: H302 + H332 Harmful if swallowed or if inhaled.  
 H317 May cause an allergic skin reaction.  
 H341 Suspected of causing genetic defects.  
 H351 Suspected of causing cancer.  
 H360 May damage fertility or the unborn child.  
 H371 May cause damage to organs (Liver) if swallowed.  
 H372 Causes damage to organs (Liver) through prolonged or repeated exposure if swallowed.  
 H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.  
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

: **Prevention:**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P271 Use only outdoors or in a well-ventilated area.  
 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 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.  
 P302 + P352 IF ON SKIN: Wash with plenty of water.  
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.  
 P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
 P362 + P364 Take off contaminated clothing and wash it 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.



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

Substance / Mixture : Mixture

**Hazardous components**

Chemical name	CAS-No.	Concentration (% w/w)
4,4'-methylenebis(2-ethylaniline)	19900-65-3	30 - 40
benzyl butyl phthalate	85-68-7	30 - 40

**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.
- In case of skin contact : If on skin, rinse well with water.
- In case of eye contact : Flush eyes with water as a precaution.  
 Remove contact lenses.  
 Keep eye wide open while rinsing.  
 If eye irritation persists, consult a specialist.
- If swallowed : Induce vomiting immediately and call a physician.  
 Keep respiratory tract clear.  
 Never give anything by mouth to an unconscious person.  
 If symptoms persist, call a physician.  
 Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.
- Notes to physician : Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.  
 Treat symptomatically.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing : High volume water jet

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media

- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides  
Nitrogen oxides (NOx)
- 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.  
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

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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.

Recommended storage temperature : 2 - 40 °C

Further information on storage stability : No decomposition if stored and applied as directed.

Stable under normal conditions.

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

Contains no substances with occupational exposure limit values.

**Engineering measures** : Maintain air concentrations below occupational exposure standards.

**Personal protective equipment**

Respiratory protection : In the case of vapour 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

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 : liquid

Colour : blue

Odour : slight

Odour Threshold : No data is available on the product itself.

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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	:	> 93 °C Method: estimated, 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	:	1.035
Density	:	No data is available on the product itself.
Solubility(ies)		
Water solubility	:	slightly soluble
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.

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**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 dioxide carbon monoxide Nitrogen 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 : 1,001 mg/kg  
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: 3.89 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
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:**

4,4'-methylenebis(2-ethylaniline):  
Species: Rabbit  
Assessment: No skin irritation  
Method: OPPTS 870.2500  
Result: No skin irritation

**Serious eye damage/eye Irritation****Components:**

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4,4'-methylenebis(2-ethylaniline):  
Species: Rabbit  
Result: No eye irritation  
Assessment: No eye irritation  
Method: Acute Eye Irritation

**Respiratory or skin sensitisation****Components:**

4,4'-methylenebis(2-ethylaniline):  
Exposure routes: Skin  
Species: Humans  
Result: The product is a skin sensitizer, sub-category 1A.

Assessment: No data available

**Germ cell mutagenicity****Components:**

4,4'-methylenebis(2-ethylaniline):  
Genotoxicity in vitro : Test Type: Ames test  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)  
Result: positive

**Components:**

4,4'-methylenebis(2-ethylaniline):  
Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Species: Mouse  
Cell type: Somatic  
Application Route: Intraperitoneal injection  
Exposure time: 72 h  
Dose: 56 - 140 mg/kg  
Method: OECD Test Guideline 474  
Result: Not classified due to inconclusive data.

Test Type: In vivo micronucleus test  
Species: Mouse  
Cell type: Somatic  
Application Route: Intraperitoneal injection  
Dose: 9.3 - 37 mg/kg  
Method: OECD Test Guideline 474  
Result: positive

**Components:**

4,4'-methylenebis(2-ethylaniline):  
Germ cell mutagenicity-  
Assessment : Positive result(s) from in vivo somatic cell mutagenicity tests supported by positive results from in vitro mutagenicity assays or chemical structure activity relationship to known germ cell mutagens

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Germ cell mutagenicity-  
Assessment : No data available

**Carcinogenicity****Components:**

4,4'-methylenebis(2-ethylaniline):  
Species: Rat, male and female  
Application Route: Oral  
Exposure time: 103 weeks  
Dose: 9 - 10 mg/kg  
Frequency of Treatment: 24 hour  
Method: OECD Test Guideline 451  
Result: positive

**Components:**

4,4'-methylenebis(2-ethylaniline):  
Carcinogenicity -  
Assessment : Limited evidence of carcinogenicity in animal studies

**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.

**Reproductive toxicity**

Effects on fertility : No data available

Effects on foetal  
development : No data available

**Components:**

benzyl butyl phthalate:  
Reproductive toxicity -  
Assessment : Presumed human reproductive toxicant

**STOT - single exposure****Components:**

4,4'-methylenebis(2-ethylaniline):  
Exposure routes: Ingestion  
Target Organs: Liver  
Assessment: May cause damage to organs.

**STOT - repeated exposure****Components:**

4,4'-methylenebis(2-ethylaniline):  
Exposure routes: Ingestion  
Target Organs: Liver  
Assessment: Causes damage to organs through prolonged or repeated exposure.

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

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**Repeated dose toxicity****Components:**

4,4'-methylenebis(2-ethylaniline):

Species: Rat, male and female

LOAEL: 7.5 - 8 mg/kg/d

Application Route: Ingestion

Exposure time: 2,160 h

Number of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

NOAEL: 90 mg/kg/d

Application Route: Skin contact

Exposure time: 2,160 h

Number of exposures: 5 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**

Ingestion: No data available



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**Other health hazards**

No data available

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****4,4'-methylenebis(2-ethylaniline):**

Toxicity to fish : LC50 (*Oryzias latipes* (Orange-red killifish)): 20.6 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

**benzyl butyl phthalate:**

Toxicity to fish : LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 1 - 10 mg/l  
Exposure time: 96 h  
Test Type: static test

LC50 (*Oncorhynchus mykiss* (rainbow trout)): 1 - 10 mg/l  
Exposure time: 96 h  
Test Type: static test

LC50 (*Oncorhynchus mykiss* (rainbow trout)): 0.82 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

LC50: 1.5 mg/l  
Exposure time: 96 h

**Components:****4,4'-methylenebis(2-ethylaniline):**

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 0.35 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202

**benzyl butyl phthalate:**

Toxicity to daphnia and other aquatic invertebrates : EC50: 1 - 10 mg/l  
Exposure time: 48 h

**Components:****benzyl butyl phthalate:**

Toxicity to algae : EC50 (*Selenastrum capricornutum* (green algae)): 0.02 - 0.25 mg/l  
Exposure time: 96 h  
Test substance: Fresh water

IC50: 0.92 - 4.6 mg/l  
Exposure time: 72 h

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**Components:**

4,4'-methylenebis(2-ethylaniline):  
M-Factor (Acute aquatic toxicity) : 1

benzyl butyl phthalate:  
M-Factor (Acute aquatic toxicity) : 10

**Components:**

benzyl butyl phthalate:  
Toxicity to fish (Chronic toxicity) : NOEC: 0.14 - 0.74 mg/l

**Components:**

4,4'-methylenebis(2-ethylaniline):  
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.00525 mg/l  
Exposure time: 21 d  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 211

benzyl butyl phthalate:  
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): 0.97 mg/l  
Exposure time: 48 hrs

**Components:**

4,4'-methylenebis(2-ethylaniline):  
M-Factor (Chronic aquatic toxicity) : 10

**Components:**

benzyl butyl phthalate:  
Toxicity to microorganisms : IC50: > 2.8 mg/l

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

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

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**Persistence and degradability****Components:**

benzyl butyl phthalate:  
Biodegradability : Result: 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****Components:**

benzyl butyl phthalate:  
Bioaccumulation : Bioconcentration factor (BCF): 12

**Components:**

benzyl butyl phthalate:  
Partition coefficient: n-octanol/water : log Pow: 4.91

**Mobility in soil**

Mobility : No data available

**Components:**

benzyl butyl phthalate:  
Distribution among environmental compartments : Koc: 4.7  
Stability in soil : No data available

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**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 Not applicable

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very 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****TDG**

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(DIETHYL METHYLENE DIANILINE, BENZYL BUTYL

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Class : PHTHALATE)  
 : 9  
 Packing group : III  
 Labels : 9

**IATA**

UN/ID No. : UN 3082  
 Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
 (DIETHYL METHYLENE DIANILINE, BENZYL BUTYL  
 PHTHALATE)

Class : 9  
 Packing group : III  
 Labels : Miscellaneous  
 Packing instruction (cargo  
 aircraft) : 964  
 Packing instruction  
 (passenger aircraft) : 964

**IMDG**

UN number : UN 3082  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
 N.O.S.  
 (DIETHYL METHYLENE DIANILINE, BENZYL BUTYL  
 PHTHALATE)

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****TDG**

UN number : UN 3082  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
 N.O.S.  
 (DIETHYL METHYLENE DIANILINE, BENZYL BUTYL  
 PHTHALATE)

Class : 9  
 Packing group : III  
 Labels : 9  
 ERG Code : 171  
 Marine pollutant : yes(BENZYL BUTYL PHTHALATE, DIETHYL METHYLENE  
 DIANILINE)

**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.

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**SECTION 15. REGULATORY INFORMATION**

**The components of this product are reported in the following Inventories:**

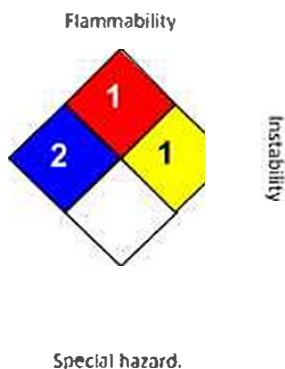
CH INV	The formulation contains substances listed on the Swiss Inventory, On the inventory, or in compliance with the inventory
DSL	All components of this product are on the Canadian DSL
AICS	On the inventory, or in compliance with the inventory
NZIoC	Not in compliance with the inventory
ENCS	Not in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

**Canada. CEPA 1999 Significant New Activity (SNAc) List**

No substances are subject to a Significant New Activity Notification.

**SECTION 16. OTHER INFORMATION****Further information****NFPA 704:****HMIS® IV:**

<b>HEALTH</b>	*	<b>2</b>
<b>FLAMMABILITY</b>		<b>1</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

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 "1" represents the absence of a chronic hazard.

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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.

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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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