

SAFETY DATA SHEET

ARALDITE® AY 8683 US

Section 1. Identification

GHS product identifier : ARALDITE® AY 8683 US
Product code : 00070227
Other means of identification : Not available.
Product type :
Material uses : Isocyanate for adhesive systems
Supplier's details : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387

Non-Emergency phone: (800) 257-5547

e-mail address of person responsible for this SDS : MSDS@huntsman.com

Emergency telephone number (24h/7day) : Chemtrec: (800) 424-9300 or (703) 527-3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : ACUTE TOXICITY: INHALATION - Category 3
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
AQUATIC TOXICITY (ACUTE) - Category 3

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 91.4%
Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 91.4%

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Toxic if inhaled.
Causes serious eye irritation.
Causes skin irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Harmful to aquatic life.

Section 2. Hazards identification

Precautionary statements : Wear protective gloves. Wear eye or face protection. In case of inadequate ventilation wear respiratory protection. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements :

Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
cycloaliphatic diisocyanate prepolymer	60 - 100	119185-07-8
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate	3 - 7	4098-71-9
Dicyclohexylmethane-4,4'-diisocyanate	1 - 3	5124-30-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : Toxic if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact : Causes skin irritation. May cause an allergic skin reaction.
Ingestion : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact :
Inhalation :
Skin contact :
Ingestion :

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.
Protection of first-aiders :

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Flash point : Closed cup: >149°C (>300.2°F)

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products :

Section 5. Fire-fighting measures

Decomposition products may include the following materials:
 carbon dioxide
 Carbon monoxide
 nitrogen oxides

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
- Methods and materials for containment and cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillages with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** :

Section 7. Handling and storage

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store between the following temperatures: 2 to 40°C (35.6 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate	ACGIH TLV (United States, 3/2012). TWA: 0.005 ppm 8 hours. NIOSH REL (United States, 6/2009). Absorbed through skin. TWA: 0.005 ppm 10 hours. TWA: 0.045 mg/m ³ 10 hours. STEL: 0.02 ppm 15 minutes. STEL: 0.18 mg/m ³ 15 minutes.
Dicyclohexylmethane-4,4'-diisocyanate	ACGIH TLV (United States, 3/2012). TWA: 0.005 ppm 8 hours. TWA: 0.054 mg/m ³ 8 hours. NIOSH REL (United States, 6/2009). CEIL: 0.01 ppm CEIL: 0.11 mg/m ³

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Thermal hazards** : Not available.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Clear, amber
- Odor** : Slight
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/Freezing point** : Not available.
- Boiling/condensation point** : Not available.
- Flash point** : Closed cup: >149°C (>300.2°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : >1 [Air = 1]
- Relative density** : 1.02 to 1.06
- Solubility in water** : Reacts with water
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	0.031 to 0.04 mg/l
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat	4814 mg/kg
Dicyclohexylmethane-4,4'-diisocyanate	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	0.33 to 0.434 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	>7000 mg/kg
	-	LD50 Oral	Rat - Male, Female	18200 mg/kg

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
cycloaliphatic diisocyanate prepolymer	-	Not known	Skin - Irritant
	-	Not known	Eyes - Irritant
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate	-	Rabbit	Eyes - Irritant
	-	Not known	Respiratory - Irritant
Dicyclohexylmethane-4,4'-diisocyanate	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Irritant

Conclusion/Summary

Skin :

Section 11. Toxicological information

cycloaliphatic diisocyanate prepolymer No known significant effects or critical hazards.
 3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate No known significant effects or critical hazards.
 Dicyclohexylmethane-4,4'-diisocyanate Severely irritating to the skin.

Eyes : cycloaliphatic diisocyanate prepolymer No known significant effects or critical hazards.
 3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate Irritating to eyes.
 Dicyclohexylmethane-4,4'-diisocyanate Irritating to eyes.

Respiratory : cycloaliphatic diisocyanate prepolymer No known significant effects or critical hazards.
 3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate No known significant effects or critical hazards.
 Dicyclohexylmethane-4,4'-diisocyanate Irritating to respiratory system.

Sensitization

Product/ingredient name	Test	Route of exposure	Species	Result
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate	No official guidelines	skin	Guinea pig	Sensitizing
	No official guidelines	Respiratory	Human	Sensitizing
Dicyclohexylmethane-4,4'-diisocyanate	No official guidelines	Respiratory	Guinea pig	Sensitizing
	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitizing

Mutagenicity

Product/ingredient name	Test	Result
Dicyclohexylmethane-4,4'-diisocyanate	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Negative

Conclusion/Summary : Dicyclohexylmethane-4,4'-diisocyanate Not mutagenic in a standard battery of genetic toxicological tests.

Carcinogenicity

Not available.

Reproductive toxicity

Section 11. Toxicological information

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Dicyclohexylmethane-4,4'-diisocyanate	OECD 421 Reproduction/ Developmental Toxicity Screening Test	Rat - Male, Female	Positive	Negative	Negative

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Dicyclohexylmethane-4,4'-diisocyanate	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Inhalation

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Toxic if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** :
- Inhalation** :
- Skin contact** :
- Ingestion** :

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** :
- Potential delayed effects** :

Long term exposure

Section 11. Toxicological information

Potential immediate effects :

Potential delayed effects :

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
Dicyclohexylmethane-4,4'-diisocyanate	OECD 413 Subchronic Inhalation Toxicity: 90-day Study	Sub-chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	3 mg/m ³

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information : Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate	-	Acute EC50	72 hours	Algae	118.7 mg/l
	EU EC 88/302/EC DIN 38412 (Lumistox test)	Acute EC50	3 hours	Bacteria	263 mg/l
		Acute EC50	24 hours	Daphnia	83.7 mg/l
Dicyclohexylmethane-4,4'-diisocyanate	DIN 38412 (Lumistox test)	Acute LC50	48 hours	Fish	1.8 mg/l
	OECD	Chronic NOEC	21 days	Daphnia	3 mg/l
	EU EC C.2 Acute Toxicity for Daphnia	Acute EC50	48 hours	Daphnia	>8.3 mg/l
	EU EC C.3 Algal Inhibition Test	Acute EgC50	72 hours	Algae	>5 mg/l
	EU EC C.1 Acute Toxicity for Fish	Acute LC50	96 hours	Fish	>8.1 mg/l
EU EC C.3 Algal Inhibition Test	Chronic NOECr	72 hours	Algae	0.31 mg/l	

Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Test	Period	Result
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate Dicyclohexylmethane-4,4'-diisocyanate	EU Tested according to Directive 92/69/EEC	28 days	0 %
	EU	28 days	0 %

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate Dicyclohexylmethane-4,4'-diisocyanate	-	-	Not readily
	-	-	Not readily

Bioaccumulative potential

Not available.

Mobility in soil

Not available.

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

BOD5 : Not determined.

COD : Not determined.

TOC : Not determined.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information

Proper shipping name

DOT : Not regulated.

TDG : Not regulated.

IMDG : Not regulated.

IATA : Not regulated.

Section 14. Transport information

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-		-
TDG Classification	Not regulated.	-	-		-
IMDG Classification	Not regulated.	-	-		-
IATA Classification	Not regulated.	-	-		-

PG* : Packing group

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product

United States Regulations

TSCA 8(b) inventory : All components are listed or exempted.

TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.

TSCA 5(e) substance consent order : No ingredients listed.

TSCA 12(b) export notification : No ingredients listed.

SARA 311/312 : Immediate (acute) health hazard

Clean Air Act - Ozone Depleting Substances (ODS) : This product does not contain nor is it manufactured with ozone depleting substances.

	<u>Product name</u>	<u>Concentration %</u>
SARA 313	3-isocyanatomethyl-3,5,	3 - 7
Form R - Reporting requirements	5-trimethylcyclohexylisocyanate	
	Dicyclohexylmethane-4,4'-diisocyanate	1 - 3

CERCLA Hazardous substances : No ingredients listed.

State regulations

PENNSYLVANIA - RTK : Dicyclohexylmethane-4,4'-diisocyanate, 3-isocyanatomethyl-3,5, 5-trimethylcyclohexylisocyanate

Section 15. Regulatory information

California Prop 65 : This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Canadian regulations

CEPA DSL : At least one component is not listed.

WHMIS Classes : Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Brazil Regulations

Classification system used : Norma ABNT-NBR 14725-2:2012

International lists

: **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): At least one component is not listed.
Japan inventory: All components are listed or exempted.
Korea inventory: At least one component is not listed.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): At least one component is not listed.
Philippines inventory (PICCS): At least one component is not listed.
Taiwan inventory (CSNN): Not determined.

Section 16. Other information

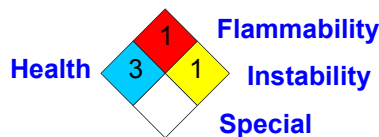
Hazardous Material Information System (U.S.A.) :

Health	3
Flammability	1
Physical hazards	1
Personal protection	

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.) :



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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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Version : 2.01

✔ Indicates information that has changed from previously issued version.

Notice to reader

*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.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT PERMISSION IN WRITING FROM HUNTSMAN. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET SHOULD BE DIRECTED TO HUNTSMAN, MANAGER, PRODUCT SAFETY AT THE ABOVE ADDRESS.

SAFETY DATA SHEET

HARDENER HY 8683 US

Section 1. Identification

GHS product identifier : **HARDENER HY 8683 US**
Product code : 00070644
Other means of identification : Not available.
Product type : Liquid.
Material uses : Adhesive Hardener
Supplier's details : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387

Non-Emergency phone: (800) 257-5547

e-mail address of person responsible for this SDS : MSDS@huntsman.com


Emergency telephone number (24h/7day) : Chemtrec: (800) 424-9300 or (703) 527-3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
SKIN SENSITIZATION - Category 1
GERM CELL MUTAGENICITY - Category 2
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Fertility) - Category 1B
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : Harmful if swallowed.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Suspected of causing genetic defects.
Suspected of causing cancer.
May cause damage to organs.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.

Section 2. Hazards identification

Precautionary statements : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Collect spillage. Get medical attention if you feel unwell. IF exposed or if you feel unwell: Call a POISON CENTER or physician. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
diethyl methylene dianiline	30 - 60	19900-65-3
benzyl butyl phthalate	30 - 60	85-68-7
TALL OIL	0.1 - 1	8002-26-4
dibutyl phthalate	0.1 - 1	84-74-2
Rosin, Colophony	0.1 - 1	8050-09-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Flash point** : Closed cup: >93°C (>199.4°F) [Estimated]
- Extinguishing media**
- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.
- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
- Methods and materials for containment and cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe the vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
dibutyl phthalate	ACGIH TLV (United States, 6/2013). TWA: 5 mg/m ³ 8 hours. OSHA PEL (United States, 2/2013). TWA: 5 mg/m ³ 8 hours.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Thermal hazards** : Not available.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Blue.
- Odor** : Slight
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/Freezing point** : Not available.
- Boiling/condensation point** : Not available.
- Flash point** : Closed cup: >93°C (>199.4°F) [Estimated]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1.035
- Solubility in water** : Slight
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
diethyl methylene dianiline	-	LC50 Inhalation Dusts and mists	Rat - Male, Female	>0.85 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	2080 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat	444 mg/kg
benzyl butyl phthalate	-	LC50 Inhalation Gas.	Rat	>6.7 mg/l
	-	LD50 Dermal	Rabbit	>10000 mg/kg
	-	LD50 Oral	Mouse	4170 mg/kg
dibutyl phthalate	-	LD50 Oral	Rat	2330 mg/kg
	No official guidelines	LC50 Inhalation Dusts and mists	Rat - Male, Female	>=15.68 mg/l
	No official guidelines	LD50 Dermal	Rabbit	>20000 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male, Female	6279 mg/kg

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
diethyl methylene dianiline	EPA OPPTS OPPTS 870.2500 Acute Dermal Irritation	Rabbit	Skin - Non-irritant.
dibutyl phthalate	EPA OPPTS EPA OTS 798.4500	Rabbit	Eyes - Non-irritant.
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Non-irritant.
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Non-irritant.

Conclusion/Summary

Skin :

Section 11. Toxicological information

	diethyl methylene dianiline	Non-irritating to the skin.
	benzyl butyl phthalate	No additional information.
	TALL OIL	No additional information.
	dibutyl phthalate	Non-irritating to the skin.
	Rosin, Colophony	No additional information.
Eyes	: diethyl methylene dianiline	Non-irritating to the eyes.
	benzyl butyl phthalate	No additional information.
	TALL OIL	No additional information.
	dibutyl phthalate	Non-irritating to the eyes.
	Rosin, Colophony	No additional information.
Respiratory	: diethyl methylene dianiline	No additional information.
	benzyl butyl phthalate	No additional information.
	TALL OIL	No additional information.
	dibutyl phthalate	No additional information.
	Rosin, Colophony	No additional information.

Sensitization

Product/ingredient name	Test	Route of exposure	Species	Result
diethyl methylene dianiline	-	skin	Human	Sensitizing
TALL OIL	-	skin	Guinea pig	Not sensitizing
dibutyl phthalate	-	skin	Guinea pig	Not sensitizing

Mutagenicity

Product/ingredient name	Test	Result
diethyl methylene dianiline	Experiment: In vitro Subject: bacteria/yeast Metabolic activation: +/-	Positive
	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Positive
dibutyl phthalate	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Yeast Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: bacteria/yeast Metabolic activation: +/-	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/Summary :

diethyl methylene dianiline	The weight of the scientific evidence indicates that this material is genotoxic.
dibutyl phthalate	Not mutagenic in a standard battery of genetic toxicological tests.

Carcinogenicity

Section 11. Toxicological information

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
diethyl methylene dianiline	OECD 451 Carcinogenicity Studies	Rat - Male, Female	9 to 10 mg/kg	103 weeks; 24 hours per day	Positive - Oral - LOAEL

Conclusion/Summary :

dibutyl phthalate

In accordance with column 2 of Annex VII - X of Regulation (EC) No 1907/2006, the test for this property of the substance does not need to be conducted.

Carcinogenic class

Product/ingredient name	IARC	OSHA
benzyl butyl phthalate	3	-

Reproductive toxicity

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
dibutyl phthalate	No official guidelines	Rat - Male, Female	Positive	Positive	Positive

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
dibutyl phthalate	No official guidelines No official guidelines	Mouse Rat - Male, Female	Positive - Oral Positive - Oral

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
3,3'-diethyl-4,4'-diaminodiphenylmethane	Category 2	Oral	liver

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
3,3'-diethyl-4,4'-diaminodiphenylmethane	Category 1 Category 2	Oral Oral	liver kidneys

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
diethyl methylene dianiline	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic LOAEL Oral	Rat - Male, Female	7.5 to 8 mg/kg/d
	-	Sub-chronic NOAEL Dermal	Rat - Male, Female	3 mg/kg/d
	-	Sub-chronic LOAEL Oral	Rat - Male, Female	8 mg/kg
dibutyl phthalate	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	152 mg/kg/d
	OECD 412 Repeated Dose Inhalation Toxicity: 28-day or 14-day Study	Sub-chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	509 mg/m ³

- General** : Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : Suspected of causing genetic defects.
- Teratogenicity** : May damage the unborn child.

Section 11. Toxicological information

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	1008 mg/kg
Dermal	5429.5 mg/kg

Other information : Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
diethyl methylene dianiline	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	48 hours Static	Daphnia	0.35 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Semi-static	Fish	20.6 mg/l
	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic NOEC	21 days Semi-static	Daphnia	0.00525 mg/l
benzyl butyl phthalate	-	Acute EC50	96 hours	Algae	0.02 to 0.25 mg/l
	-	Acute EC50	48 hours	Daphnia	1 to 10 mg/l
	-	Acute IC50	72 hours	Algae	0.92 to 4.6 mg/l
	-	Acute LC50	96 hours Flow-through	Fish	0.82 mg/l
	-	Acute LC50	96 hours Static	Fish	1 to 10 mg/l
	-	Acute LC50	96 hours Static	Fish	1 to 10 mg/l
	-	Acute LC50	96 hours	Fish	1.5 mg/l
TALL OIL	OECD 201 Alga, Growth Inhibition Test	Chronic EC50	48 hours	Daphnia	0.97 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute EC50	72 hours	Algae	2.73 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	48 hours	Daphnia	39.7 mg/l
dibutyl phthalate	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	5 to 10 mg/l
	No official guidelines	Acute EC50	10 days Static	Algae	0.75 mg/l
	No official guidelines	Acute EC50	24 hours	Bacteria	2.2 mg/l
	EPA OPPTS	Acute EC50	48 hours Static	Daphnia	2.99 mg/l
	EPA OPPTS	Acute LC50	96 hours Static	Daphnia	0.5 mg/l
	OECD 203 Fish,	Acute LC50	96 hours	Fish	0.48 mg/l

Section 12. Ecological information

	Acute Toxicity Test No official guidelines	Chronic	NOEC	Static 10 days	Algae	0.39	mg/l
	DIN DIN 38412 Part 27	Chronic	NOEC	Static 30 minutes	Bacteria	>=10	mg/l
	No official guidelines	Chronic	NOEC	Static 10 days	Daphnia	0.1	mg/l
	No official guidelines	Chronic	NOECr	99 days	Fish	0.1	mg/l

Conclusion/Summary : BIS(2-ETHYLHEXYL) ADIPATE The toxicity of the substance is above the water solubility limit.

Persistence and degradability

Product/ingredient name	Test	Period	Result
benzyl butyl phthalate TALL OIL	-	28 days	>60 %
	OECD 301F Ready Biodegradability - Manometric Respirometry Test	28 days	73 %
dibutyl phthalate	OECD 301D Ready Biodegradability - Closed Bottle Test	28 days	60 %
	EPA OPPTS	21 days	>97 %
	EU EC C.4-C Biodegradation: Determination of the "Ready" Biodegradability: Carbon Dioxide Evolution Test	28 days	81 %

Conclusion/Summary : dibutyl phthalate Readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
benzyl butyl phthalate	-	-	Readily
TALL OIL	-	-	Readily
dibutyl phthalate	Fresh water 2.7 days	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
benzyl butyl phthalate	4.91	12	low
dibutyl phthalate	4.46	<1	low

Mobility in soil

Not available.

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

BOD5 : Not determined.

COD : Not determined.

TOC : Not determined.

Section 13. Disposal considerations

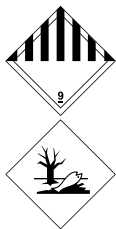
Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.



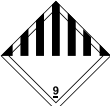

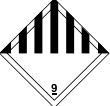

Section 14. Transport information

Proper shipping name

- DOT** : Environmentally hazardous substance, liquid, n.o.s. (Diethyl methylene dianiline , Butyl benzyl phthalate).
Marine pollutant
- TDG** : Environmentally hazardous substance, liquid, n.o.s. (Diethyl methylene dianiline , Butyl benzyl phthalate).
Marine pollutant
- IMDG** : Environmentally hazardous substance, liquid, n.o.s. (Diethyl methylene dianiline , Butyl benzyl phthalate).
Marine pollutant
- IATA** : Environmentally hazardous substance, liquid, n.o.s. (Diethyl methylene dianiline , Butyl benzyl phthalate)

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	UN3082	9	III		Marine pollutants are only regulated for bulk and vessel shipments, per 49CFR171.4 (c) Exceptions. Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft.

Section 14. Transport information

TDG Classification	UN3082	9	III	 	The product is not regulated as a dangerous good when transported by road or rail.
IMDG Classification	UN3082	9	III	 	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules (EmS) F-A S-F
IATA Classification	UN3082	9	III	 	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Passenger and Cargo Aircraft Quantity limitation: 450 L Packaging instructions: 964 Cargo Aircraft Only Quantity limitation: 450 L Packaging instructions: 964

PG* : Packing group

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product

United States Regulations

TSCA 8(b) inventory : All components are listed or exempted.

TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.

TSCA 5(e) substance consent order : No ingredients listed.

TSCA 12(b) export notification : No ingredients listed.

SARA 311/312 : Immediate (acute) health hazard
Delayed (chronic) health hazard

Section 15. Regulatory information

Clean Air Act - Ozone Depleting Substances (ODS) : This product does not contain nor is it manufactured with ozone depleting substances.

SARA 313 : No ingredients listed.

	<u>Ingredient name</u>	<u>%</u>	<u>Section 304 CERCLA Hazardous Substance</u>	<u>CERCLA Reportable Quantity (Lbs)</u>	<u>Product Reportable Quantity (Lbs)</u>
CERCLA Hazardous substances	benzyl butyl phthalate	30.3414	Listed	100	330

State regulations

PENNSYLVANIA - RTK : benzyl butyl phthalate, bis(2-ethylhexyl) adipate

California Prop 65 : **WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>
benzyl butyl phthalate	No.	Yes.
dibutyl phthalate	No.	Yes.

Canadian regulations

CEPA DSL : All components are listed or exempted.

WHMIS Classes : Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Brazil Regulations

Classification system used : Norma ABNT-NBR 14725-2:2012

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: At least one component is not listed.
Korea inventory: At least one component is not listed.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): At least one component is not listed.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Section 16. Other information

**Hazardous Material
Information System (U.S.A.)** :

Health	*	2
Flammability		1
Physical hazards		0
Personal protection		

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

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Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent

Section 16. Other information

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