

Material Safety Data Sheet

ARADUR® 3491 US

1. Product and company identification

ARADUR® 3491 US

Material uses : Not available.
MSDS # : 00067124
Validation date : 11/17/2011.
Print date : 11/17/2011.

Supplier/Manufacturer : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387

Non-Emergency phone: (800) 257-5547

E-Mail: MSDS@huntsman.com

In case of emergency : Chemtrec: (800) 424-9300 or (703) 527-3887

2. Hazards identification

Physical state : Liquid.
Color : Colorless.

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

Emergency overview : DANGER!

CAUSES EYE AND SKIN BURNS. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE.

Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

See toxicological information (Section 11)

GENERAL INFORMATION : Read the entire MSDS for a more thorough evaluation of the hazards.

3. Composition/information on ingredients

Name	CAS number	%
Polyetheramine	-	30 - 60
Polyoxypropylene diamine	9046-10-0	30 - 60
Isophorone diamine	2855-13-2	13 - 30

4 . First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Notes to physician** : Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

5 . Fire-fighting measures

- Flash point** : Closed cup: >93.33°C (>200°F)
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : 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.

6 . Accidental release measures

- Personal precautions** : 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 (see Section 8).
- 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).
- Methods for 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.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). 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. Persons with a history of skin sensitization problems 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 swallow. 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.
- Storage** : 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. 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.

8. Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. 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.
- 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.
- Personal protection**
- Respiratory** : In case of inadequate ventilation wear respiratory protection. 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.
- Hands** : 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.
- Eyes** : 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 or dusts.
- Skin** : 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.
- 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.

9 . Physical and chemical properties

General information

Appearance

- Physical state** : Liquid.
Color : Colorless.
Odor : Not available.

Important health, safety and environmental information

- pH** : Not available.
Boiling/condensation point : Not available.
Melting/freezing point : Not available.
Flash point : Closed cup: >93.33°C (>200°F)
Flammable limits : Not available.
Auto-ignition temperature : Not available.

Vapor pressure : Not available.
Specific gravity : 0.92 to 0.93
Water solubility :
Partition coefficient: n-octanol/water (log Kow) : Not available.
Density : 0.92 to 0.93 g/cm³
Vapor density : Not available.
Evaporation rate (butyl acetate = 1) : Not available.
VOC : Not available.

10 . Stability and reactivity

- Chemical stability** : The product is stable.
Under normal conditions of storage and use, hazardous reactions will not occur.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions to avoid** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Potential acute health effects

- Inhalation** : Irritating to respiratory system.
- Ingestion** : Harmful if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause burns to mouth, throat and stomach.
- Skin** : Corrosive to the skin. Causes burns. May cause sensitization by skin contact.
- Eyes** : Corrosive to eyes. Causes burns.

Product/ingredient name	Result	Species	Dose mg/kg	Exposure
Isophorone diamine	LD50 Oral	Rat	1030 mg/kg	-

Sensitizer

11 . Toxicological information

Product/ingredient name	Route of exposure	Species	Result
Isophorone diamine	skin	Guinea pig	Sensitizing

Potential chronic health effects

- Chronic effects** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Target organs** : Not available.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure

Pre-existing skin disorders may be aggravated by over-exposure to this product.

12 . Ecological information

- Environmental effects** : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
Isophorone diamine	Measured	Acute EC10 1120 mg/L	Bacteria - Pseudomonas putida	18 hours
	Not known	Acute EC50 37 mg/L	Algae - Scenedesmus subspicatus	72 hours
	202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50 23 mg/L	<i>Daphnia</i> - <i>Daphnia magna</i> Straus 1820	48 hours
	203 Fish, Acute Toxicity Test	Acute LC0 70 mg/L	Fish - Zebra fish (Brachydanio rerio)	96 hours
	203 Fish, Acute Toxicity Test	Acute LC50 110 mg/L	Fish - Zebra fish (Brachydanio rerio)	96 hours

Biodegradability

Other ecological information

Biological Oxygen Demand (BOD 5 DAY) : Not Determined

Chemical Oxygen Demand (COD) : Not Determined

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Isophorone diamine	0.99	-	low

12 . Ecological information

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

PBT : Not applicable.

Other information

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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.

14 . Transport information





Proper shipping name

DOT : Polyamines, liquid, corrosive, n.o.s. (Polyoxypropylene diamine, Aliphatic polyetheramine)

TDG : Polyamines, liquid, corrosive, n.o.s. (Polyoxypropylene diamine, Aliphatic polyetheramine)

IMDG : Polyamines, liquid, corrosive, n.o.s.(Polyoxypropylene diamine, Aliphatic polyetheramine)

IATA : Polyamines, liquid, corrosive, n.o.s.(Polyoxypropylene diamine, Aliphatic polyetheramine)

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	UN2735	8	II		-
TDG Classification	UN2735	8	II		-
IMDG Class	UN2735	8	II		Emergency schedules (EmS) F-A, S-B
IATA-DGR Class	UN2735	8	II		Passenger and Cargo Aircraft Quantity limitation: 1 L Packaging instructions: 851 Cargo Aircraft Only Quantity limitation: 30 L Packaging instructions: 855

14 . Transport information

PG* : Packing group

15 . Regulatory information

U.S. Federal regulations

- HCS Classification** : Corrosive material
Sensitizing material
- U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.
- TSCA 5(a)2 final significant new use rule (SNUR)** : None.
- TSCA 5(e) substance consent order** : None.
- TSCA 12(b) one-time export notification:** : None.
- TSCA 12(b) annual export notification** : None.
- SARA 302/304/311/312 extremely hazardous substances** : **SARA 302/304/311/312 extremely hazardous substances**: No Ingredient Listed
- SARA 311/312 hazard identification** : **SARA 311/312 MSDS distribution - chemical inventory - hazard identification**: ISO PHORONE DIAMINE: Immediate (acute) health hazard
- Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : **Product name** **CAS number** **Concentration**
No Ingredients Listed.
- 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.

CERCLA: Hazardous substances: No ingredients listed.

STATE REGULATIONS:

PENNSYLVANIA - RTK: None of the components are listed.

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.

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).
Class E: Corrosive material

CEPA DSL : All components are listed or exempted.

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.

15 . Regulatory information

- International lists** :
- Australia inventory (AICS): Not determined.
 - China inventory (IECSC): Not determined.
 - Japan inventory: Not determined.
 - Korea inventory: Not determined.
 - New Zealand Inventory of Chemicals (NZIoC): Not determined.
 - Philippines inventory (PICCS): Not determined.

16 . Other information

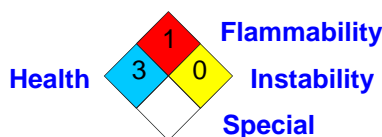
- Label requirements** : CAUSES EYE AND SKIN BURNS. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE.

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

Health	3
Flammability	1
Physical hazards	0
Personal protection	

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

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



- Date of printing** : 11/17/2011.
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 Indicates information that has changed from previously issued version.

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

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

16 . Other information

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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