

**ARALDITE® 2028-1 POLYOL**

Version 1.0      Revision Date: 06/26/2018      SDS Number: 400001013922      Date of last issue: -  
Date of first issue: 06/26/2018

**SECTION 1. IDENTIFICATION**

Product name : ARALDITE® 2028-1 POLYOL

**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 (USA)

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

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 : Component of a Polyurethane System.

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Eye irritation : Category 2A

**GHS label elements**

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements : **Prevention:**  
P264 Wash skin thoroughly after handling.  
P280 Wear eye protection/ face protection.  
**Response:**  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
**Storage:**  
Not available  
**Disposal:**  
Not available

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**Other hazards**

None known.

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

Substance / Mixture : Mixture

**Hazardous components**

Chemical name	CAS-No.	Concentration (% w/w)
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	1 - 2.5

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

**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 : Wash with water and soap as a precaution.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
Remove contact lenses.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : None known.
- Notes to physician : No information available.  
  
Treat symptomatically.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : No information available.  
No information available.
- Hazardous combustion products : No hazardous combustion products are known
- Specific extinguishing methods : No data is available on the product itself.
- Further information : No action shall be taken involving any personal risk or without suitable training.
- 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 : Ensure adequate ventilation.  
Use personal protective equipment.  
Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
- 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 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.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.  
Keep in properly labelled containers.
- Materials to avoid : Strong acids  
  
Strong bases  
  
Strong oxidizing agents

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For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

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

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

Hand protection

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

Material : Nitrile rubber  
Break through time : 10 - 480 min

Material : Neoprene gloves  
Break through time : 10 - 480 min

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water  
Tightly fitting safety goggles  
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing  
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and at the end of workday.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : liquid

Colour : colourless

Odour : slight

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

pH : No data is available on the product itself.

Melting point/freezing point : No data available

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Initial boiling point and boiling range : No data available

Flash point : > 212 °F / > 100 °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.

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 : No data is available on the product itself.

Density : 1.1 g/cm<sup>3</sup> (77 °F / 25 °C)

Solubility(ies)  
Water solubility : insoluble (68 °F / 20 °C)

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

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  
Viscosity, dynamic : 4,000 - 5,000 mPa.s (77 °F / 25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Molecular weight : No data available

Particle size : No data is available on the product itself.

**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : No dangerous reaction known under conditions of normal use.

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Chemical stability	:	No decomposition if stored and applied as directed. Stable under normal conditions.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.  No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	No data available  None known.
Hazardous decomposition products	:	Burning produces noxious and toxic fumes.  Carbon oxides  Nitrogen oxides (NOx)  No hazardous decomposition products are known.

**SECTION 11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure : No data is available on the product itself.

**Acute toxicity****Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Acute oral toxicityComponents : LD50 (Rat, male and female): 8,025 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Acute inhalation toxicity : LC50 (Rat, male and female): > 5.3 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity

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:**

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[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**Serious eye damage/eye irritation****Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Species: Rabbit  
Result: Risk of serious damage to eyes.  
Assessment: Severe eye irritation  
Method: OECD Test Guideline 405

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Exposure routes: Skin  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: Does not cause skin sensitisation.

Assessment: No data available

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: positive  
  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: positive

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Genotoxicity in vivo : Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: positive  
  
Application Route: Intraperitoneal injection  
Dose: 1600 mg/kg  
Result: negative  
  
Application Route: Oral  
Result: negative

**Carcinogenicity****Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

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Species: Mouse, male  
Application Route: Dermal  
Exposure time: 482 days  
Dose: 5 mg/kg  
Frequency of Treatment: 3 daily  
Result: negative

Carcinogenicity - Assessment : No data available

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

**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.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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

**Reproductive toxicity****Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Effects on fertility : Species: Rat, male and female  
Application Route: Oral  
Method: OECD Test Guideline 415  
Result: No effects on fertility and early embryonic development were detected.

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Effects on foetal development : Species: Rabbit, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level: 200 mg/kg body weight  
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



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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Species: Rat, male and female

: > 1000 mg/m<sup>3</sup>

Application Route: Ingestion

Test atmosphere: dust/mist

Exposure time: 672 h

Number of exposures: 5 d

Method: OECD Test Guideline 412

Species: Rat, male and female

NOAEL: 1000 mg/kg/d

Application Route: Ingestion

Exposure time: 2,160 h

Number of exposures: 7 d

Method: Subchronic toxicity

Repeated dose toxicity - : No data available  
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**

Ingestion: No data available

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 55 mg/l  
 Exposure time: 96 h  
 Test Type: semi-static test  
 Test substance: Fresh water  
 Method: Directive 67/548/EEC, Annex V, C.1.

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Toxicity to daphnia and other aquatic invertebrates : LC50: 324 mg/l  
 Exposure time: 48 h  
 Test Type: static test  
 Test substance: Fresh water

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Toxicity to algae : EC50: 119 mg/l  
 Exposure time: 168 h  
 Test Type: static test  
 Test substance: Fresh water

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

Toxicity to fish (Chronic toxicity) : No data available

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 100 mg/l  
 Exposure time: 21 d  
 Test Type: semi-static test  
 Test substance: Fresh water  
 Method: OECD Test Guideline 211

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

Toxicity to microorganisms : No data available

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial : No data available

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organisms

Ecotoxicology Assessment

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

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

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

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

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 37 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.A.

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

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Stability in water : Degradation half life(DT50): 6.5 hrs (76.1 °F / 24.5 °C) pH: 7  
Method: OECD Test Guideline 111  
Remarks: Fresh water

Degradation half life(DT50): 0.15 hrs (76.1 °F / 24.5 °C) pH: 5  
Method: OECD Test Guideline 111

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Remarks: Fresh water

Degradation half life(DT50): 0.13 hrs (76.1 °F / 24.5 °C) pH: 9  
 Method: OECD Test Guideline 111  
 Remarks: Fresh water

Photodegradation : No data available

Impact on Sewage Treatment : No data available

**Bioaccumulative potential**

Bioaccumulation : No data available

**Components:**

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Partition coefficient: n-octanol/water : log Pow: -2.6 (77 °F / 25 °C)

**Mobility in soil**

Mobility : No data available

Distribution among environmental compartments : No data available

Stability in soil : No data available

**Other adverse effects**

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

**Hazardous to the ozone layer**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
 Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

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Global warming potential (GWP) : No data available

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

Waste from residues : Do not dispose of waste into sewer.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
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****IATA**

Not regulated as dangerous goods

**IMDG**

Not regulated as dangerous goods

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

Not applicable for product as supplied.

**National Regulations****DOT Classification**

Not regulated as dangerous goods

**SECTION 15. REGULATORY INFORMATION****EPCRA - Emergency Planning and Community Right-to-Know Act****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 311/312 Hazards** : Serious eye damage or eye irritation

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**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

**California Prop. 65**

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

**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	: This product contains one or several components listed in the Canadian NDSL.
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
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)

**TSCA - 5(a) Significant New Use Rule List of Chemicals**

No substances are subject to a Significant New Use Rule.

**US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)**

No substances are subject to TSCA 12(b) export notification requirements.



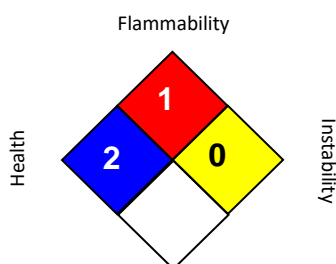
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**SECTION 16. OTHER INFORMATION****Further information****NFPA 704:****HMIS® IV:**

<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 "/" represents the absence of a chronic hazard.

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

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

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