

SAFETY DATA SHEET

SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's name and address:



ARDEX Engineered Cements
400 Ardex Park Dr.
Aliquippa, PA 15001 USA

Supplier's name and address:

Refer to Manufacturer

Information Telephone No. : (724) 203-5000
Website Address : <http://www.ardexamericas.com>
24 Hr Emergency Telephone # : CHEM-TEL: 1-800-255-3924 OR 1-813-248-0585 (call collect)
Product Identifier : **ARDEX PANDOMO PS® PART A POLYOL**
Chemical Name : N/Ap Chemical Family : Mixture
Chemical Formula : N/Ap Trade Name/Synonyms : ARDEX PANDOMO PS Part A
Molecular Weight : N/Ap Material Use : Polyol side in floor coating.
Product Code Number : 70048721 Uses Advised Against : No information available.

SECTION 2 – HAZARDS IDENTIFICATION

GHS Classification per 29 CFR 1910.1200 (OSHA HCS 2012) and HPR (WHMIS 2015)

Not classified as hazardous.

GHS Pictograms

None.

Signal Word

None.

Hazard Statements

None.

Safe Handling Instructions

Avoid eye and skin contact. It is recommended to use safety glasses and gloves during handling. Adequate ventilation of the work area should be maintained. Although the product is low VOC, persons who are sensitive to odors or chemicals should avoid the work area during installation. Keep container closed.

Hazards Not Otherwise Classified

None.

% With Unknown Acute Toxicity

Less than 1% by weight of this product consists of ingredients with unknown acute toxicity.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	% (by weight)
No hazardous ingredients	N/Ap	N/Ap

Other Ingredients:

Ammonia

7664-41-7

< 0.1%

Minor concentrations of Ammonia vapors may be released if this product is heated.

SECTION 4 – FIRST AID MEASURES

General	: Call a doctor if you feel unwell.
Inhalation	: If a worker develops breathing problems while working with this material, remove the worker to fresh air and keep at rest in a position comfortable for breathing.
Skin contact	: Wash with plenty of soap and water. If irritations or symptoms develop, seek medical attention/advice.
Eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
Ingestion	: Rinse mouth. Do NOT induce vomiting. Call a doctor/physician if you feel unwell.
Notes for Physician	: Treat symptomatically.
Signs and symptoms of short-term (acute) exposure	
<i>Inhalation</i>	: None known.
<i>Skin</i>	: Symptoms may include mild redness or itching.
<i>Eyes</i>	: Symptoms may include mild redness, itching, or pain.
<i>Ingestion</i>	: None known.
Effects of long-term (chronic) exposure	
	: None known.
Indication of need for immediate medical attention or special treatment	
	: Difficulty breathing persists after removing the person to fresh air. Any exposure to the eye which causes irritation.

SECTION 5 – FIRE FIGHTING MEASURES

Suitable extinguishing media	: Carbon dioxide, dry chemical powder, or alcohol foam. Water spray for larger fires.
Unsuitable extinguishing media	: Water jet may spread the burning material.
Hazardous combustion products	: Carbon monoxide, carbon dioxide, nitrogen oxides, as well as other toxic vapors and gases which are common to thermal degradation of organic compounds.
Special fire-fighting procedures/equipment	
	: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. After fires have been extinguished, carefully clean all equipment and surfaces exposed to fumes.
Environmental precautions	: Do not allow material to enter drains or contaminate ground water system.
Fire hazards/conditions of flammability	
	: Not flammable under normal conditions of use. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.
Flammability classification (OSHA 29 CFR 1910.1200, WHMIS 2015)	
	: Not flammable.
NFPA Rating	: 0 - Minimal 1 – Slight 2 – Moderate 3 – Serious 4 – Severe <i>Health: 1 Flammability 1 Instability 0 Special Hazards: None</i>

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions	: Restrict access to area until completion of clean-up. All persons dealing with clean-up should wear the appropriate chemically protective equipment.
Protective equipment	: Refer to Section 8 on this Safety Data Sheet, EXPOSURE CONTROLS / PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.
Emergency Procedures	: If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8002). US CERCLA Reportable quantity (RQ): None reported.
Methods and materials for containment and cleaning up	

- : Ventilate area of release. Stop spill or leak at source if safely possible. Contain product with inert absorbent material, preventing it from entering sewer lines or waterways. Gather up spilled material and place in suitable container for later disposal (see Section 13). Residual of product, while still wet, can be cleaned up with warm soapy water. Notify the appropriate authorities as required.
- Prohibited materials** : None known.
- Environmental precautions** : Do not allow product to enter drains or waterways. Do not allow material to contaminate ground water system.
- Reference to other sections** : See Section 13 for disposal information.

SECTION 7 – HANDLING AND STORAGE

- Safe handling procedures** : Wear suitable protective equipment during handling. (See Section 8.) Observe good hygiene standards. Use only with adequate ventilation. Wash thoroughly after handling. Avoid contact with eyes, skin, or clothing. Keep container tightly closed.
- Storage requirements** : Store in a cool, dry, well-ventilated area. Store away from heat and open flame. Avoid storing in direct sunlight. Avoid freezing temperatures. Store in original container. Keep tightly closed when not in use. Do not reuse empty container without commercial cleaning or reconditioning.
- Incompatible materials** : See Section 10.
- Special packaging materials** : Always keep in containers made of the same materials as the supply container.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

- Permissible Exposure Limits** : No exposure limits have been established for the product itself. Below are exposure limits for the components in the product.

Ingredients	CAS #	ACGIH TLV		OSHA PEL	
		TWA	STEL	PEL	STEL
Ammonia	7664-41-7	25 ppm	35 ppm	35 mg/m ³	N/Ap

- Engineering Controls** : Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits. Ventilation should effectively remove and prevent buildup of any vapor generated from the handling of this product.
- Personal Protection Equipment**
 - Eye / face protection** : Chemical goggles or safety glasses, as appropriate for the job.
 - Skin protection** : Wear gloves which are impervious to the material. Materials such as nitrile rubber or Viton (fluorocarbon rubber) are recommended.
 - Body protection** : Where extensive exposure to product is possible, use resistant coveralls, apron and boots to prevent contact.
 - Respiratory protection** : Under normal conditions of use with adequate ventilation, respiratory protection should not be necessary for this product. Review the Safety Data Sheets for all other materials in the work area. If work process generates excessive quantities of vapor or dust, or exposures in excess of any PEL, wear an appropriate organic vapor respirator.
- Site safety equipment** : An eyewash station and safety shower should be made available in the immediate working area.
- General hygiene considerations** : Avoid contact with eyes, skin and clothing. Avoid breathing vapors/dust. Do not eat, drink or smoke when using this product. Upon completion of work, wash hands thoroughly. Remove soiled clothing and wash it thoroughly before reuse. Clean all equipment and clothing at end of each work shift.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- Physical state** : Liquid **Appearance** : Milky white
- Odor** : Mild **Odor threshold** : N/Av
- pH** : 7.5 – 8.5 **Specific gravity** : 1.04
- Boiling point** : 250°F (121°C) **Coefficient of water/oil distribution** : N/Av

Melting/Freezing point	: N/Av	Solubility in water	: Miscible
Vapor pressure (mm Hg @ 20°C / 68°F)	: N/Av	Evaporation rate (<i>n</i>-Butyl acetate = 1)	: N/Av
Vapor density (Air = 1)	: N/Av	Volatiles (% by weight)	: N/Av
Volatile organic compounds (VOCs)	: 78 g/L A+B per ASTM D2369		
Particle size	: N/Av	Flammability classification	: Not flammable
Flash point	: >121°C (>250°F)	Lower flammable limit (% by vol)	: Not available
Flash point method	: Setflash closed	Upper flammable limit (% by vol)	: Not available
Auto-ignition temperature	: N/Av	Decomposition temperature	: Not available
Viscosity	: N/Av	Oxidizing properties	: Not available
Explosion data: Sensitivity to mechanical impact / static discharge			
	: Not expected to be sensitive to mechanical impact or static discharge.		

SECTION 10 – REACTIVITY AND STABILITY INFORMATION

Reactivity	: Not reactive.
Stability	: Stable under the recommended storage and handling conditions prescribed.
Hazardous reactions	: Hazardous polymerization does not occur.
Conditions to avoid	: Extreme heat. Protect from freezing.
Materials to avoid and incompatibility	: Strong oxidizing agents.
Hazardous decomposition products	: None known, refer to hazardous combustion products in Section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

Routes of exposure	: <i>Inhalation</i> : YES <i>Skin Absorption</i> : NO <i>Skin and Eyes</i> : Yes <i>Ingestion</i> : YES
Symptoms of exposure	: See Section 4.
Calculated Acute Toxicity Estimates for the Product	
<i>Inhalation</i>	: Not Available
<i>Oral</i>	: Not Available
<i>Dermal</i>	: Not Available
Toxicological data	: There are no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

Ingredients	LC50 (4 hr)	LD50	
	Inhalation, rat	Oral, rat	Dermal, rabbit
No hazardous ingredients.	N/Av	N/Av	N/Av

Skin corrosion or irritation	: May cause mild irritation to skin.
Serious eye damage / eye irritation	: May cause mild, temporary irritation to eyes.
Respiratory or skin sensitization	: None known.
Germ cell mutagenicity	: None known.
Carcinogenic status	: No components are classified as carcinogenic by IARC, ACGIH, NTP, and OSHA.
Reproductive toxicity	: None known.
Specific Target Organ Toxicity, Single Exposure	: None known.
Specific Target Organ Toxicity, Repeated Exposure	: None known.
Aspiration hazard	: None known.
Additional information	: N/Av

SECTION 12 – ECOLOGICAL INFORMATION

Environmental effects	: The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.
Ecotoxicity	: No data available.
Biodegradability	: No data available.
Bioaccumulative potential	: No data available.
Mobility in soil	: No data available.
PBT and vPvB assessment	: No data available.
Other adverse effects	: No data available.

SECTION 13 – DISPOSAL CONSIDERATION

Handling for disposal	: Handle waste according to recommendations in Section 7.
Methods of disposal	: You must test your waste using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes. Dispose in accordance with all applicable federal, state, provincial and local regulations. Contact your local, state, provincial or federal environmental agency for specific rules.
Packaging	: Handle contaminated packaging in the same manner as the product.
RCRA	: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14 – TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	None	This product is not regulated according to Canadian TDG regulations.	None	None	None
TDG Additional Information	None				
49 CFR/DOT	None	This product is not regulated according to US DOT regulations.	None	None	None
49 CFR/DOT Additional Information	None				

SECTION 15 – REGULATORY INFORMATION

Canadian Information:

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR). This SDS contains all of the information required by the HPR.

Canadian Environmental Protection Act (CEPA) information: All ingredients appear on the Domestic Substances List (DSL).

US Federal Information:

TSCA: All ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

CERCLA Reportable Quantity (RQ) (40 CFR 117.302): None reported.

SARA TITLE III: Sec. 302, Extremely Hazardous Substances, 40 CFR 355: No Extremely Hazardous Substances are present in this material.

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Not Hazardous.

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This product is not subject to SARA notification requirements, since it does not contain any Toxic Chemical constituents above *de minimus* concentrations.

U.S. State Right To Know Laws

California Proposition 65: Warning! This product contains a chemical known to the State of California to cause developmental harm. It contains less than 0.0001% Methanol CAS No. 67-56-1.

Other State Right to Know Laws:

Component	CAS	CA	MA	MN	NJ	NY	PA	RI
Water	7732-18-5	No	Yes	No	Yes	No	Yes	No
Ammonia	7664-41-7	No	Yes	No	No	No	No	No

SECTION 16 – OTHER INFORMATION

HMIS Rating : * - Chronic Hazard 0 - Minimal 1 – Slight 2 – Moderate 3 – Serious 4 – Severe
Health: 1 Flammability 1 Physical Hazard 0 PPE: Gloves, safety glasses

Legend :

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
DOT: Department of Transportation
DSL: Domestic Substances List
EPA: Environmental Protection Agency
GHS: Globally Harmonized System
HPR: Hazardous Products Regulations
IARC: International Agency for Research on Cancer
Inh: Inhalation
N/Av: Not Available
N/Ap: Not Applicable
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

Disclaimer of Liability

The Information presented herein is supplied as a guide to those who handle or use this product and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive. The manner and conditions of use and handling may involve other and additional considerations. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

No warranty of any kind is given or implied. ARDEX Engineered Cements will not be liable for any damages, losses, injuries or consequential damages which may result from the use or reliance on any information contained herein.

Prepared By:
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Visit our Website: <http://www.ardexamericas.com>

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SAFETY DATA SHEET

SECTION 1 – IDENTIFICATION

Product Identifiers

Product Name : **ARDEX PANDOMO® PS Part B Crosslinker**
Code No. : 50050241
Trade Name/Synonyms : ARDEX PANDOMO PS Part B
Material Use : Polyurethane crosslinker for PANDOMO systems
Restrictions on Use : Use only as recommended in the product's Technical Data Sheet
Details of the Supplier

Manufacturer's name and address:

Supplier's name and address:



Refer to Manufacturer

ARDEX Engineered Cements
400 Ardex Park Dr.
Aliquippa, PA 15001 USA

Information Telephone No. : (724) 203-5000

Website Address : <http://www.ardexamericas.com>

24 Hr Emergency Telephone #

: **CHEM-TEL: 1-800-255-3924 OR 1-813-248-0585 (call collect)**

SECTION 2 – HAZARDS IDENTIFICATION

GHS Classification per 29 CFR 1910.1200 (OSHA HCS 2012) and HPR (WHMIS 2015)

: Acute Toxicity, Inhalation; Category 4
Sensitization, Dermal; Category 1
Specific Target Organ Toxicity, Single Exposure; Respiratory Tract Irritation;
Category 3

GHS Pictograms



Signal Word

: Warning

Hazard Statements

: Harmful if inhaled.
May cause an allergic skin reaction.
May cause respiratory irritation.

Precautionary Statements

: Avoid breathing dust/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/protective clothing/eye protection. Wash hands and exposed skin thoroughly after handling. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. Call a doctor or emergency medical facility (i.e. 911) if you feel unwell. If skin irritation or rash occurs: Get medical attention. Contaminated work clothing must not be allowed out of the workplace. Wash contaminated clothing before reuse. Store in

a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents / container in accordance with federal, state, and local laws. Do not allow product to enter drains.

Hazards Not Otherwise Classified: None.

% Composition with unknown acute toxicity data

: Less than 1% of this product consists of ingredients with unknown acute toxicity.

Special Instructions

: Contains Isocyanates. Use according to the directions. Do not spray or heat.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	% (by weight)
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	60 - 100
Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate	666723-27-9	10 - 30
Hexamethylene-1,6-Diisocyanate	822-06-0	< 0.23

The exact percentages of the ingredients are withheld as trade secrets.

SECTION 4 – FIRST AID MEASURES

Most Important Symptom(s)/Effect(s)

Acute

: Isocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g. fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

May cause skin irritation with symptoms of reddening, itching, and swelling. Can cause sensitization. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove.

May cause eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Delayed

: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

First Aid

Eye Contact

: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.

Skin Contact

: If direct skin contact with isocyanates occurs, immediately remove contaminated clothing and shoes. Wipe off the isocyanate product from the skin using dry towels or other similar absorbent fabric. Wash with soap and warm water for 15 minutes and pat dry. Get medical attention if irritation develops. Discard or wash contaminated clothing before reuse.

- Inhalation* : Move to an area free from further exposure. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.
- Ingestion* : Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.
- Notes to Physician* : *Eyes*: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.
Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.
Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound.
Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

SECTION 5 – FIRE FIGHTING MEASURES

- Suitable extinguishing media** : Dry chemical, carbon dioxide, foam. Water spray for large fires.
- Unsuitable extinguishing media** : High pressure water jet may spread the fire. Isocyanates react with water to produce heat and evolve (non-flammable) gases.
- Hazardous combustion products** : Carbon monoxide carbon dioxide, nitrogen oxides, hydrogen cyanide, and/or low molecular weight hydrocarbons. Vapors/fumes are toxic.
- Fire hazards/conditions of flammability** : Vapors will ignite at high temperatures. In a fire, this product will generate toxic vapors. High temperatures may cause closed containers to rupture. Chemical reaction of this product with water will generate CO₂ gas, which can also cause containers to rupture. Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.
- Special fire-fighting procedures/equipment** : Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.
- Flammability classification (OSHA 29 CFR 1910.1200, WHMIS 2015)** : Not classified as flammable.
- | | | | |
|----------------------------------|--------------------------|---|-----------------|
| Flash point | : 383°F (195°C) | Lower flammable limit (% by vol) | : Not available |
| Flash point method | : Setaf flash closed cup | Upper flammable limit (% by vol) | : Not available |
| Auto-ignition temperature | : 806°F (430°C) | Oxidizing properties | : None |
| Flame projection length | : Not available | Flashback observed | : Not available |
- Explosion data: Sensitivity to mechanical impact / static discharge** : Not expected to be sensitive to mechanical impact or static discharge.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- Personal precautions** : See Section 7 for safe handling procedures. Wear chemically resistant personal protective equipment during cleanup. Restrict access to area until completion of clean-up. All persons dealing with clean-up must be properly trained and wear the appropriate chemically protective equipment. Refer to Section 8 on this Safety Data Sheet, EXPOSURE CONTROLS / PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.
- Environmental precautions** : Do not allow product to enter waterways. Do not allow material to contaminate ground water system.

- Spill response / clean-up** : Ventilate area of release. Stop spill or leak at source if safely possible. Contain product with inert absorbent material, preventing it from entering sewer lines or waterways. Cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc.). Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat application of absorbent material until all liquid has been removed from the surface.
- After removing spilled material as described above, decontaminate surfaces involved with the spill using a neutralization solution (mix detergent floor cleaner [if a concentrate, dilute 1 part concentrate into 9 parts water] and about 10% household ammonia); scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Use caution, as the surface may be slippery. Wait at least 15 minutes after first application of the neutralization solution. Cover the area with absorbent material and shovel this into an approved metal container. Note: Always wear proper PPE when cleaning up an isocyanate spill and using a neutralization solution. It may take two or more applications of the neutralization solution to decontaminate the surface. Clean up any detergent residue with fresh water.
- With the lid still loosely in place, move the container holding the isocyanate waste and decontamination solution waste to an isolated, well-ventilated area to allow release of carbon dioxide. After 72 hours, seal the container, and properly dispose of the waste material in accordance with existing federal, state and local regulations.
- Prohibited materials** : Avoid strong oxidizing agents. Do not allow spilled material to mix with alcohols, amines (including polyols and polyamines), and water. Chemical reaction with these materials causes polymerization and release of heat energy.
- Special spill response procedures** : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8002). Outside of the U.S. call the emergency number listed in Section 1.
- US CERCLA Reportable quantity (RQ): hexamethylene-1,6-diisocyanate: 100 lbs (45.45 kg).
Reportable Quantity (RQ) for the product: 43497 lbs (19730 kg)

SECTION 7 – HANDLING AND STORAGE

- Safe handling procedures** : Do NOT get into eyes, on skin or on clothing. Do NOT breathe vapor, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Do not eat, drink or smoke in the work area. Wash thoroughly after handling. Promptly remove any clothing that becomes contaminated. Clean or discard contaminated clothing before reuse. Keep container tightly closed.
- Storage requirements** : Store in a cool, dry, well-ventilated area. Store away from heat and open flame. Avoid storing in direct sunlight. Keep from freezing. Recommended storage temperature range is between 18 °C and 29 °C (65 °F and 85 °F). DO NOT EXCEED 49 °C/120 °F. Store in original container. Keep tightly closed when not in use. Do not reuse empty container without commercial cleaning or reconditioning.
- Incompatible materials** : Water, Amines, Strong bases, Alcohols, Copper alloys.
- Special packaging materials** : Always keep in containers made of the same materials as the supply container.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

The recommendations in this section should not be a substitute for a Personal Protective Equipment (PPE) assessment performed by the employer as required by 29 CFR 1910 Subpart I.

Ventilation and engineering measures: Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits. Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product. Good industrial hygiene practice dictates that worker protection should be achieved through engineering controls, such as ventilation, whenever feasible. When such controls are not feasible to achieve full protection, the use of respirators and other personal protective equipment is mandated. See "Respiratory protection" below.

Respiratory protection : If a work process (e.g. spraying, heating) generates excessive quantities of vapor, or exposures in excess of any PEL, wear a NIOSH approved organic vapor cartridge respirator.

Skin protection : Wear chemical resistant protective clothing and impervious gloves. Proper protective clothing includes long sleeves and pants. Glove materials such as Nitrile rubber, Butyl rubber, Neoprene, or Viton (fluorocarbon rubber) are recommended.

Eye / face protection : Chemical goggles must be worn when using this product. A face shield is recommended if splashing is possible.

Other protective equipment : Where extensive exposure to product is possible, use resistant coveralls, apron and boots to prevent contact. An eyewash station and safety shower must be made available in the immediate working area.

General hygiene considerations : Avoid contact with eyes, skin and clothing. Do not breathe vapors/dust. Do not eat, drink or smoke when using this product. Clean all equipment and clothing at end of each work shift. Contaminated work clothing should not be allowed out of the workplace.

Medical surveillance : All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted.

Permissible exposure levels :

Component	CAS #	ACGIH TLV		OSHA PEL		Manufacturer's Recommended Exposure Limits	
		TLV	STEL	PEL	STEL	TWA	STEL
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	N/Av	N/Av	N/Av	N/Av	0.5 mg/m ³	1.0 mg/m ³
Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate	666723-27-9	N/Av	N/Av	N/Av	N/Av	0.5 mg/m ³	1.0 mg/m ³
Hexamethylene-1,6-Diisocyanate	822-06-0	0.005 ppm	N/Av	N/Av	N/Av	N/Av	N/Av

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid	Appearance	: Yellow-brown
Odor	: Earthy, musty	Odor threshold	: N/Av
pH	: N/Av	Specific gravity	: 1.15
Boiling point	: N/Av (decomp.)	Coefficient of water/oil distribution	: N/Av
Melting/Freezing point	: N/Av	Solubility in water	: Insoluble
Vapor pressure (mm Hg @ 20°C / 68°F)	: N/Av	Decomposition temperature	: 150°C
Vapor density (Air = 1)	: N/Av	Evaporation rate (n-Butyl acetate = 1)	: N/Av
Volatile organic compounds (VOCs)	: 78 g/L A+B per ASTM D2369		
General information	: N/Av	Volatiles (% by weight)	: N/Av
Particle size	: N/Av	Flammability properties	: See Section 5.

Dynamic Viscosity

: 1000 mPA.s 20°C Kinematic Viscosity

: N/Av

SECTION 10 – REACTIVITY AND STABILITY INFORMATION

Stability and reactivity : Stable under the recommended storage and handling conditions prescribed.

Hazardous polymerization : When handled according to the directions in the Technical Data Sheet, this product chemically reacts with PANDOMO PS Part A to form a polymer, generating low levels of heat. This product is capable of reacting with polyols, amines, and water. Heating to temperatures above 350°F (177°C) may also cause polymerization. Only use this product according to the directions on the Technical Data Sheet.

Conditions to avoid : Avoid exposure to excessive heat, flames, or sparks. Protect from freezing.

Materials to avoid and incompatibility : Water, Amines, Strong bases, Alcohols, Copper alloys.

Hazardous decomposition products

: Refer to hazardous combustion products in Section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

Routes of Exposure : *Inhalation:* YES *Skin Absorption:* No *Skin and Eyes:* Yes *Ingestion:* No

Health Effects and Symptoms

Acute

: Isocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g. fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

May cause skin irritation with symptoms of reddening, itching, and swelling. Can cause sensitization. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove.

May cause eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Chronic

: As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to isocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to isocyanates at levels well below the exposure limits or guidelines. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent.

Prolonged contact with skin can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with isocyanates can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

Prolonged vapor contact with the eyes may cause conjunctivitis.

Delayed : Symptoms affecting the respiratory tract can also occur several hours after overexposure.

Toxicity Data

Calculated Acute Toxicity Estimates for the Product

Inhalation : > 0.38 mg/L*
Oral : > 4000 mg/kg
Dermal : > 2000 mg/kg

*ATE values are calculated based on test results on the individual components. In the inhalation tests on individual components, the test atmosphere generated in the animal study is not representative of workplace environments, and how it can reasonably be expected to be used in the workplace. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Toxicological data : See below for individual ingredient acute toxicity data.

Ingredients	CAS No.	LC50 (4 hr) Inhalation, rat mg/L, dust/mist	LD50 Oral, rat mg/kg	LD50 Dermal, rabbit mg/kg
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	0.39	> 5000	> 2000
Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate	666723-27-9	0.39	> 2000	> 2000
Hexamethylene-1,6-Diisocyanate	822-06-0	0.124	746	> 7000

Repeated Dose Effects : Chronic overexposure to diisocyanates has been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

Carcinogenic status : No components are listed as carcinogens by ACGIH, IARC, OSHA, NIOSH or NTP.

Reproductive effects : No Reproductive or Fertility effects observed in Reproduction/Developmental Toxicity Screening Test, Inhalative.

Teratogenicity : No Teratogenic effects observed in Reproduction/Developmental Toxicity Screening Test, Inhalative.

Germ Cell Mutagenicity : All mutagenicity tests on components of this product were negative.

Epidemiology : Not available.

Target Organ Effects : Isocyanates are known to cause respiratory irritation.

Sensitization to material : Contains isocyanates, which as a class, are known to cause both respiratory and skin sensitization reactions.

Synergistic materials : N/Av

Irritancy/Corrosivity : Irritating to the respiratory system. Slightly irritating to eyes and skin.

Other important hazards : See hazards listed in Section 2.

SECTION 12 – ECOLOGICAL INFORMATION

Environmental effects : The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

Data is based on the product.

Biodegradation : 2 %, Exposure time: 28 d, i.e. not readily degradable

Bioaccumulative potential : The substance hydrolyzes rapidly in water. An accumulation in aquatic organisms is not to be expected.

Mobility in soil : No data available.

PBT and vPvB assessment : No data available.



Ecotoxicity

Acute and Prolonged Toxicity to Fish	LC50: 28.3 mg/l (Danio rerio (zebra fish), 96 h)
Acute Toxicity to Aquatic Invertebrates	EC50: > 100 mg/l (Daphnia magna (Water flea), 48 h)
Toxicity to Aquatic Plants	IC50: > 100 mg/l, (scenedesmus subspicatus, 72 h)
Toxicity to Microorganisms	EC50: > 10,000 mg/l, (activated sludge)
Other Adverse Effects	None reported.

SECTION 13 – DISPOSAL CONSIDERATION

Handling for disposal	: Handle waste according to recommendations in Section 7.
Methods of disposal	: Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.
Packaging	: Handle contaminated packaging in the same manner as the product.
RCRA	: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14 – TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	UN 3082	Other regulated substances, liquid, n.o.s. (contains Hexamethylene-1,6-Diisocyanate)	9	III	
TDG Additional Information	When in individual containers of less than the Product RQ, this material ships as non-regulated.				
49 CFR/DOT	UN 3082	Other regulated substances, liquid, n.o.s. (contains Hexamethylene-1,6-Diisocyanate)	9	III	
49 CFR/DOT Additional Information	When in individual containers of less than the Product RQ, this material ships as non-regulated.				

RSPA/DOT Regulated Components	: Hexamethylene-1,6-Diisocyanate (HDI)	100 lbs.
Reportable Quantity (HDI)	: Product	43497 lbs.
Sea Transport (IMDG)	: Non-Regulated	
Air Transport (ICAO/IATA)	: Non-Regulated	

SECTION 15 – REGULATORY INFORMATION

Canadian Information:

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR). This SDS contains all of the information required by the HPR.

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on either the Domestic Substances List (DSL) or the Non- Domestic Substances List (NDSL).

US Federal Information:

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

CERCLA Reportable Quantity (RQ) (40 CFR 117.302):

822-06-0 Hexamethylene-1,6-Diisocyanate – 100 lbs (45.45 kg)..

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes:

- Immediate (Acute) Health Hazard

Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This material is not subject to SARA notification requirements, since it does not contain Toxic Chemical constituents above *de minimus* concentrations.

U.S. State Right To Know Laws

California Proposition 65: This product does not contain any chemicals known to the State of California to cause cancer and/or reproductive effects.

Other State Right to Know Laws:

Component	CAS	CA	MA	MN	NJ	NY	PA	RI
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	No	No	No	No	No	No	No
Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate	666723-27-9	No	No	No	No	No	No	No
Hexamethylene-1,6-Diisocyanate	822-06-0	Yes	Yes	Yes	Yes	Yes	No	No

SECTION 16 – OTHER INFORMATION

HMIS Rating : * - Chronic Hazard 0 - Minimal 1 – Slight 2 – Moderate 3 – Serious 4 – Severe
Health: *2 Flammability 1 Physical Hazard 1
Recommended PPE: Gloves, safety glasses with side shields, vapor respirator

NFPA Rating 0 - Minimal 1 – Slight 2 – Moderate 3 – Serious 4 – Severe
Health: 2 Flammability 1 Reactivity 1 Special Hazards 0

Legend : ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
DOT: Department of Transportation
DSL: Domestic Substances List
EPA: Environmental Protection Agency
GHS: Globally Harmonized System
HPR: Hazardous Products Regulations
IARC: International Agency for Research on Cancer
Inh: Inhalation
N/Av: Not Available
N/Ap: Not Applicable
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

Disclaimer of Liability

The Information presented herein is supplied as a guide to those who handle or use this product and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive. The manner and conditions of use and handling may involve other and additional considerations. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product. No warranty of any kind is given or implied. ARDEX Engineered Cements will not be liable for any damages, losses, injuries or consequential damages which may result from the use or reliance on any information contained herein.

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