PSX Part B Hardener Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- PSX Part B Hardener

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Epoxy adhesive curing agent; aliphatic amine
- This product is intended to be mixed only with its specific base adhesives; PSX 20 Part A, PSX 34 Part A, PSX 48 Part A, PSX 60 Part A, or PSX 111 Part A

1.3 Details of the supplier of the safety data sheet

- NOV Fiber Glass Systems

  17115 San Pedro Avenue, Suite 200
  San Antonio, Texas 78232 USA

  Tel: 1-210-477-7500
  Fax: 1-210-231-5915

  E-mail: Mike.Thayer@nov.com

1.4 Emergency telephone number(s)

- Chemwatch, 24-Hour Support
  - USA.....1-855-237-5573
  - Canada 1-833-269-5440

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Physical

- Not classified

Health

- Acute toxicity, Category 3 (inhalation)
- Acute toxicity, Category 4 (oral)
- Acute toxicity, Category 4 (dermal)
- Acute toxicity, Category 1 (eyes)
- Skin corrosion, Category 1A
- Skin sensitizer, Category 1
- Specific target organ systemic toxicity – single exposure, Category 3 (respiratory tract irritation)

Environmental

- Chronic aquatic toxicity, Category 3

2.2 Label elements

Signal Word(s)

- DANGER

Pictogram(s)

Hazard Statements

- Physical
  - Not classified
- Health
  - H302: Harmful if swallowed or in contact with skin.
  - H314: Causes severe skin burns and eye damage.
  - H317: May cause an allergic skin reaction.
  - H318: Causes serious eye damage.
  - H331: Toxic if inhaled
  - H335: May cause respiratory irritation.
- Environmental
  - H412: Harmful to aquatic life with long lasting effects.

Precautionary Statements

- Prevention
  - P260: Do not breathe dust/fume/gas/mist/vapor/spray.
  - P264: Wash skin thoroughly after handling.
  - P270: Do not eat, drink or smoke when using this product.
  - P271: Use only outdoors or in well-ventilated area.
  - P272: Contaminated work clothing should not be allowed out of the workplace.
  - P273: Avoid release to the environment.
  - P280: Wear protective gloves/protective clothing/eye protection/face protection.
- Response
  - P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician.
  - P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
  - P302+P352: IF ON SKIN: Wash with plenty of soap and water.
  - P304+P312: IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
  - P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
  - P362+P364: Take off contaminated clothing and wash it before reuse.

- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P391: Collect spillage.

- Storage

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

- Disposal

- P501: Dispose of contents/container in accordance with regulatory requirements.

2.3 Other Hazards

- PBT and vPvB assessment

- None of the ingredients are considered to be either PBT or vPvB.

SECTION 3: Composition/information on Ingredients

3.1 Substances

- Not applicable

3.2 Mixtures

Chemical Identity	CAS No.	EC No.	Concentration Range (weight %)
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	057214-10-5	500-137-0	30 – 50
m-Phenylenebis(methylamine)	001477-55-0	216-032-5	20 – 30
Polyaminofunctional silane	035141-30-1	252-390-9	3 - 6
Diethylenetriamine	000111-40-0	203-865-4	< 0.3

SECTION 4. First-aid measures

4.1 Description of first-aid measures

Inhalation

- Move to fresh air.
- If difficulty in breathing or respiratory irritation; seek immediate medical attention.
- If breathing has stopped; seek immediate medical attention, perform artificial respiration.

Skin contact

- Wash affected area thoroughly with soap and water for at least 20 minutes.
- Immediately remove any contaminated clothing.
- If irritation develops or persists; seek medical attention.
- NOTE TO PHYSICIANS: Corticosteroid cream may be effective in treating skin irritation.

Eye contact

- Immediately flush with water for at least 20 minutes.
- Remove contact lenses, if present.
- If irritation develops or persists, seek medical attention**.**

Ingestion

- Do not induce vomiting unless directed to do so by medical personnel.
- Prevent aspiration of vomit.
- Never give anything by mouth to an unconscious person.
- If conscious, rinse out mouth with water; drink 1 to 2 glasses of milk or water.
- If symptoms persist, seek immediate medical attention.

4.2 Most Important symptoms and effects, both acute and delayed

Acute

- Irritation.

Delayed

- Pre-existing skin problems may be aggravated by prolonged or repeated contact.
- Repeated and/or prolonged exposure to low concentrations of vapors may cause sore throat.

4.3 Indication of any immediate medical attention and special treatment needed

- No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Alcohol-resistant foam, carbon dioxide, dry chemical, dry sand, limestone powder.

5.2 Specific hazards arising from the substance or mixture

- May generate ammonia and toxic nitrogen oxide gases.
- Use of water spray may result in the formation of very toxic aqueous solutions.
- Do not allow runoff from firefighting to enter drains or water courses.
- Incomplete combustion may form carbon monoxide.
- Ammonia gas may be liberated at high temperatures.
- Burning produces noxious and toxic fumes

5.3 Advice for firefighters

- Avoid contact with skin.
- Wear self-contained breathing apparatus and protective clothing, as necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Due to the high viscosity of this product and the relatively small end-use container size, significant spills are unlikely to occur.
- If a spilled in an enclosed area, ventilate and remove all sources of ignition.
- Use only non-sparking tools during cleanup and place discarded material into a suitable container.

6.2 Environmental precautions

- Do not allow spilled materials to enter storm sewers, sanitary sewers, or impact groundwater.
- Do not allow spilled materials to remain on the ground.

6.3 Methods and materials for containment and cleaning up

- Use only non-sparking tools during cleanup and place discarded material into a suitable container for disposal.

6.4 Reference to other sections

- See also, ***SECTION 8: Control parameters*** and ***SECTION 13: Disposal considerations***.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Avoid contact with skin and eyes and inhalation of vapors.
- Do not eat, drink, or smoke when using this product.
- Thoroughly wash exposed skin after working with this product.
- Only use this product in a well-ventilated area.
- Use spark-free tools.
- Empty containers may contain product residue and may be hazardous.

7.2 Conditions for safe storage, including any incompatibilities

- Do not store near acids.
- Keep containers tightly closed in a dry, cool, and well-ventilated location.
- Store in original containers or in containers of the same construction material as original containers.

7.3 Specific end use(s)

- No additional data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

m-Phenylenebis(methylamine)
CAS No. 001477-55-0

Country	Occupational Exposure Limit (OEL) Values		Legal Basis
	Eight Hour TWA	Fifteen Minute STEL	
Australia	None established	0.1 mg/m³ (ceiling)	Workplace Exposure Standards for Airborne Contaminants
Austria	0.1 mg/m³	None established	Maximum Workplace Concentrations (MAK) Technical Guidance Concentrations (TRK)
Belgium	None established	0.1 mg/m³	limites d'exposition professionnelle – VLEP/ Grenswaarden voor beroepsmatige blootstelling – GWBB
Canada – Alberta	None established	0.1 mg/m³ (ceiling)	Occupational Safety and Health Code
Canada – British Columbia	None established	0.1 mg/m³ (ceiling)	Occupational Health and Safety Regulation, Table of Exposure Limits for Chemical and Biological Substances
Canada - Ontario	None established	0.1 mg/m³ (ceiling)	Regulation 883, Control of Exposure to Biological or Chemical Agents
Canada - Quebec	None established	0.1 mg/m³ (ceiling)	Regulation respecting occupational safety and health
Canada - Saskatchewan	None established	0.1 mg/m³ (ceiling)	The Occupational Safety and Health Regulations
Denmark	0.02 ppm	0.02 ppm	Grænseværdier for stoffer og materialer
France	None established	0.1 mg/m³	Institut National de Recherche et de Sécurité (INRS)
New Zealand	None established	0.1 ppm (ceiling)	Workplace Exposure Standards and Biological Exposure Indices
Singapore	None established	0.1 mg/m³	Workplace Safety and Health (General Provisions) Regulations
South Korea	0.1 mg/m³	None established	[Need reference]
Switzerland	0.1 mg/m³	None established	Verordnung über die Verhütung von Unfällen und Berufskrankheiten (VUV)", Art. 50 Abs.3
USA (ACGIH)	None established	0.1 mg/m³ (ceiling)	None
USA (NIOSH)	None established	0.1 ppm	NIOSH Pocket Guide to Chemical Hazards (Recommendations Only)

Formaldehyde polymer with 1,3-benzenedimethanamine and phenol
CAS No. 057214-10-5

Country	Occupational Exposure Limit (OEL) Values		Legal Basis
	Eight Hour TWA	Fifteen Minute STEL	
No OELs were found for this ingredient.			

Polyaminofunctional silane
CAS No. 035141-30-1

Country	Occupational Exposure Limit (OEL) Values		Legal Basis
	Eight Hour TWA	Fifteen Minute STEL	

No OELs were found for this ingredient.

Diethylnetriamine
CAS No. 000111-40-0

Country	Occupational Exposure Limit (OEL) Values		Legal Basis
	Eight Hour TWA	Fifteen Minute STEL	
Australia	1 ppm	None established	Workplace Exposure Standards for Airborne Contaminants
Austria	1 ppm	None established	Maximum Workplace Concentrations (MAK) Technical Guidance Concentrations (TRK)
Belgium	1 ppm	None established	limites d'exposition professionnelle – VLEP/ Grenswaarden voor beroepsmatige blootstelling – GWBB
Canada – Alberta	1 ppm	None established	Occupational Safety and Health Code
Canada – British Columbia	1 ppm	None established	Occupational Health and Safety Regulation, Table of Exposure Limits for Chemical and Biological Substances
Canada - Ontario	1 ppm	None established	Regulation 883, Control of Exposure to Biological or Chemical Agents
Canada - Quebec	1 ppm	None established	Regulation respecting occupational safety and health
Canada - Saskatchewan	1 ppm	2 ppm	The Occupational Safety and Health Regulations
Denmark	1 ppm	2 ppm	Grænseværdier for stoffer og materialer
France	1 ppm	None established	Institut National de Recherche et de Sécurité (INRS)
Hungary	4 mg/m^3	4 mg/m^3	Chemical Safety of Workplaces
Ireland	1 ppm	None established	Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations
New Zealand	1 ppm	None established	Workplace Exposure Standards and Biological Exposure Indices
Poland	4 mg/m^3	12 mg/m^3	Principles and Methods of Assessing the Working Environment
Singapore	1 ppm	None established	Workplace Safety and Health (General Provisions) Regulations
South Korea	1 ppm	None established	[Need reference]
Spain	1 ppm	None established	Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT)
Sweden	1 ppm	2 ppm	Occupational Exposure Limit Values and Measures Against Air Contaminants (AFS 2005:17)
Switzerland	1 ppm	None established	Verordnung über die Verhütung von Unfällen und Berufskrankheiten (VUV)", Art. 50 Abs.3
USA (ACGIH)	1 ppm	None established	None
USA (NIOSH)	1 ppm	None established	NIOSH Pocket Guide to Chemical Hazards (Recommendations Only)
United Kingdom	1 ppm	None established	EH40 Workplace exposure limits

8.2 Exposure controls

Appropriate engineering controls

- Provide adequate general and local exhaust ventilation to control airborne concentrations to below the occupational exposure limit values.
- Provide readily accessible eye wash stations and safety showers.

Personal protective equipment

- Eye and face protection
    - § Approved safety glasses with side shields (e.g., ANSI Z87, EN166)
- Skin protection
    - § Hand protection: PVC, Nitrile rubber or Neoprene gloves are generally recommendedn. Different glove materials, thicknesses, and from different glove manufacturers may provide varying degrees of protection. Temperature and specific use can impact glove effectiveness. Some gloves may be intended to be used only once and then discarded, while others may be used for longer periods of time. The glove supplier should provide the user with information regarding permeability and breakthrough time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
    - § Other skin protection: Such clothing as to minimize or eliminate the chance of skin contact with the product.
- Respiratory protection
    - § If ventilation is insufficient to keep airborne concentrations below the occupation exposure limit levels, full or half-mask respirator fitted with organic vapor cartridges and/or particulate filters (for sanding, grinding, cutting, etc. cured material). Filter masks may be of limited use in cases of high or unknown exposure.

Environmental exposure controls

- Do not flush into surface water or sanitary sewer system.
- Do not place directly onto ground.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

-	Appearance	White to yellow paste
-	Odor	Amine
-	Odor threshold	No data available
-	pH	No data available
-	Melting point/freezing point	No data available
-	Initial boiling point and boiling range	No data available
-	Flash point	No data available
-	Evaporation rate	No data available
-	Flammability (solid, gas)	No data available
-	Upper/lower flammability or explosive limits	No data available

-	Vapor pressure	No data available
-	Vapor density (air = 1)	No data available
-	Relative density	1.20 – 1.25
-	Solubility(ies)	No data available
-	Partition coefficient: n-octanol/water	No data available
-	Auto-ignition temperature	No data available
-	Decomposition temperature	No data available
-	Viscosity	No data available
-	Explosive properties	No data available
-	Oxidizing properties	No data available

9.2 Other information

- No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

- No hazardous decomposition expected if product is stored and used as directed.
- Exothermic reactions are expected when mixed with epoxy adhesive.

10.2 Chemical stability

- Product is stable under normal conditions of storage and use.

10.3 Possibility of hazardous reactions

- Exothermic reactions are expected when mixed with epoxy adhesive.

10.4 Conditions to avoid

- Avoid unintended mixing with epoxy adhesive.

10.5 Incompatible materials

- Sodium hypochlorite, organic acids, mineral acids, oxidizing agents.
- Reaction with peroxides may result in violent decomposition of peroxide, possibly creating an explosion.

10.6 Hazardous decomposition products

- In case of hazardous decomposition, may produce products such as carbon monoxide, carbon dioxide, nitrogen oxides..

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

- Data for ingredients not listed were not found or not sufficient for classification.

m-Phenylenebis(methylamine) (CAS No. 001477-55-0)

-	Oral	Rat:	LD50	930 mg/kg
-	Inhalation	Rat	LC50 (1 hour)	ca. 700 ppm
-	Dermal	Rabbit	LD50	ca. 2000 mg/kg

Diethylenetriamine (CAS No. 000111-40-0)

-	Oral	Rat:	LD50	ca. 800-2600 mg/kg
-	Inhalation	Rat	LC90 (4 hours)	1.8 mg/L
-	Dermal	Rabbit	LD50	ca. 600-1240 mg/kg

Skin corrosion/irritation

- Data for ingredients not listed were not found or not sufficient for classification.

m-Phenylenebis(methylamine) (CAS No. 001477-55-0)

- Rabbit Corrosive

Diethylenetriamine (CAS No. 000111-40-0)

- Rabbit Highly corrosive

Serious eye damage/irritation

- Data for ingredients not listed were not found or not sufficient for classification.

m-Phenylenebis(methylamine) (CAS No. 001477-55-0)

- Rabbit Corrosive

Diethylenetriamine (CAS No. 000111-40-0)

- Rabbit Highly corrosive

Respiratory or skin sensitization

- Data for ingredients not listed were not found or not sufficient for classification.

m-Phenylenebis(methylamine) (CAS No. 001477-55-0)

-	Inhalation	—	No data found
-	Skin	Guinea pig	Not sensitizing

Diethylenetriamine (CAS No. 000111-40-0)

-	Inhalation	—	No data found
-	Skin	Guinea pig	Sensitizing

Germ cell mutagenicity

- Data for ingredients were not found or not sufficient for classification.

Carcinogenicity

- Data for ingredients were not found or not sufficient for classification.

Reproductive toxicity

- Data for ingredients were not found or not sufficient for classification.

STOT-single exposures

- One or more ingredients may present the following:

  Respiratory system. Skin. Eyes. Asthma. Adverse respiratory effects (such as cough, tightness of chest ot shortness of breath). Eye disease. Skin disorders. Allergies. Adverse skin effects (such as rash, irritation, corrosion). Adverse eye effects (such as conjunctivitis, corneal damage).

STOT-repeated exposures

- Data for ingredients not listed were not found or not sufficient for classification.

Aspiration hazard

- Data for ingredients were not found or not sufficient for classification.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

- Data for ingredients not listed were not found or not sufficient for classification.

Diethylenetriamine (CAS No. 000111-40-0)

-	Fish:	***Poecilia reticulata***	LC50 (96-hour)	1014 mg/L
-	Crustacea	***Daphnia magna***	EC50 (48-hour)	17 mg/L
-	Algae / Aquatic plants	***Scenedesmus subspicatus***	EC50 (96-hour)	592 mg/L
-	Bacteria	***Pseudomonas putida***	EC50 (1-hour)	2000 mg/L

Chronic toxicity

- Data for ingredients not listed were not found or not sufficient for classification.

Diethylenetriamine (CAS No. 000111-40-0)

-	Fish:	***Gasterosteus aculeatus***	NOEC (28-day)	10 mg/L
-	Crustacea	***Daphnia magna***	NOEC (21-day) LOEC (21-day)	5.6 mg/L 11.3 mg/L

12.2 Persistence and degradability

- Not expected to be readily biodegradable.

12.3 Bioaccumulative potential

- Data for ingredients were not found or not sufficient for classification.

12.4 Mobility in soil

- Data for ingredients were not found or insufficient for classification.

12.5 Results of PBT and vPvB assessment

- None of the ingredients are listed.

12.6 Other adverse effects

- No additional data is available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Must be disposed of in accordance with local regulatory requirements.
- Land disposal of uncured product is discouraged and illegal in many jurisdictions.
- Sewer disposal is discouraged.
- Empty containers may contain hazardous residue and must be disposed accordingly.

SECTION 14: Transport information

US Department of Transportation (Road and Rail)
International Carriage of Dangerous Goods by Road (ADR)
International Carriage of Dangerous Goods by Rail (RID)
International Civil Aviation Organization (ICAO) Technical Instructions
International Maritime Dangerous Goods (IMDG) Code
International Carriage of Dangerous Goods by Inland Waterways

- UN3259 AMINES, SOLID, CORROSIVE, N.O.S., MIXTURE (Aliphatic amine), 8, PG II

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The regulatory information provided below may not be comprehensive.

Australia

Australian Inventory of Chemical Substances (AICS)

§ All product ingredients (disclosed or otherwise) are listed on the AICS.

Canada

Controlled Products Regulation (CPR)

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

Ingredient Disclosure List (IDL)

§ All components of this mixture that are on the IDL above their specified concentration are disclosed in this SDS.

United States

EPCRA			CERCLA	RCRA	CAA	OSHA
Section 302 (EHS) TPQ (LB/KG)	Section 304 RQ (LB/KG)	Section 313	RQ (LB/KG)	P/U Codes	112(r) TQ (LB/KG)	Highly Hazardous Chemical
None of the ingredients are listed						

15.2 Chemical safety assessment

- No chemical safety assessment has been carried out for this mixture by the supplier.

SECTION 16: Other information

Revision history

Revision Number	Revision Date	Revision Description
1	25-JUL-2013	Initial SDS creation in conformance with OSHA hazard communication standard (29 CFR 1910.1200) and UN Globally Harmonized System (GHS).
2	27-NOV-2013	Reformatted entire SDS.
3	1-AUG-2014	Reformatted entire SDS and added information in conformance with Regulation (EC) No. 1907/2006 (REACH).
4	27-MAY-2015	Updated Section 14 – Transportation Information
5	27-JAN-2017	General review. Updated precautionary statements in Section 2. Updated transportation information in section 14 to reflect reclassification as solid per ASTM D4359-90.
6	12-SEP-2017	Updated Section 15 to include AICS disclosure.
7	31-MAY-2018	Updated Section 3 based on information from raw material supplier.
8	10-OCT-2018	Added emergency contact telephone number for Australia.
9	25-OCT-2019	General review. No changes made.
10	28-MAY-2020	Updated emergency telephone numbers.

Legend to abbreviations and acronyms used

- ACGIH American Conference of Governmental Industrial Hygienists
- ANSI American National Standards Institute
- CAA Clean Air Act
- cP centipoise
- CFR Code of Federal Regulations (US)
- EN European Standard (French: ***Europ*é*en Norme***)

- EPCRA Emergency Planning and Community Right-to-Know Act
- IARC International Agency for Research on Cancer
- IBC Code International Bulk Chemical Code
- LOEC Lowest Observes Effects Concentration
- MARPOL Marine Pollution
- NOEL No Observed Effects Concentration
- NIOSH National Institute for Occupational Safety and Health
- OSHA Occupational Safety and Health Administration (US)
- PBT Persistent Bioaccumulative and Toxic
- RCRA Resource Conservation and Recovery Act
- vPvB very Persistent and very Bioaccumulative

Key literature references and sources for data

- ESIS. European chemical Substances Information System. http://esis.jrc.ec.europa.eu/.

- USEPA. 2006. List of Lists, Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 112(r) of the Clean Air Act. EPA 550-B-01-003. October 2006.