

TEAM[®] Industrial Services
SAFETY DATA SHEET

1. Product and Company Identification

Material name VALVE PACK AX NUCLEAR GRADE
Version # 00
Issue date 11-01-2012
Revision date 11-01-2012
Supersedes date -
CAS # Mixture
Product code 805-0028
Product use Industrial Leak Sealant
Manufacturer information
Manufacturer/Supplier Team Industrial Services, Inc.
200 Hermann Drive, Alvin, Texas 77511
Emergency Contact CHEMTREC - 24 HOURS
USA: CHEMTREC: 800-424-9300
International: 703-527-3887 (Collect)

2. Hazards Identification

Physical state Solid.
Appearance Black pliable semi-solid with phenolic odor.
Emergency overview WARNING
Cancer hazard - may cause cancer. May cause skin and eye irritation.
Potential health effects
Eyes May cause eye irritation.
Skin May cause skin irritation. The product contains a small amount of sensitizing substances which may provoke an allergic reaction among sensitive individuals in contact with skin.
Inhalation May cause irritation to mucous membrane and respiratory system.
Ingestion Ingestion may cause irritation and malaise.
Target organs Central nervous system Kidney Pancreas. Lungs. Eye Skin Respiratory tract.
Signs and symptoms Irritation. May cause redness and pain. Headaches, dizziness, fatigue, nausea and vomiting. Coughing. Shortness of breath. Difficulty in breathing. Sensitization.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Graphite	7782-42-5	25-50
Quartz	14808-60-7	10-25
Ethanol	64-17-5	<5
Refractories, Fibers, Aluminosilicate	142844-00-6	<5
2,6-Xylenol	576-26-1	<1
Formaldehyde	50-00-0	<1
O-Ethylphenol	90-00-6	<1
Phenol	108-95-2	<1
m-Cresol	108-39-4	<1
p-Cresol	106-44-5	<1

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact	Flush thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops or persists.
Skin contact	Remove contaminated clothing and shoes. Flush thoroughly with water for at least 15 minutes. If irritation occurs, get medical assistance.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if any discomfort occurs.
Ingestion	Rinse mouth thoroughly with water and give large amounts of milk or water, if person is conscious. Only induce vomiting at the instruction of medical personnel. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Get medical attention immediately.

Notes to physician

Treat symptomatically. Symptoms may be delayed.

General advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties

No unusual fire or explosion hazards noted.

Extinguishing media

Suitable extinguishing media	Water spray, foam, dry powder or carbon dioxide.
Unsuitable extinguishing media	No restrictions known.

Protection of firefighters

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Protective equipment and precautions for firefighters Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

Use standard firefighting procedures and consider the hazards of other involved materials. Cool material exposed to heat with water spray and remove it if no risk is involved.

Hazardous combustion products

During fire, gases hazardous to health may be formed.

6. Accidental Release Measures

Personal precautions

Ensure adequate ventilation. Wear suitable protective clothing. Avoid contact with eyes, skin, and clothing. See Section 8 of the MSDS for Personal Protective Equipment.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

Methods for containment

Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal. Collect and dispose of spillage as indicated in section 13 of the MSDS.

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Use only with adequate ventilation. Wash thoroughly after handling. Observe good industrial hygiene practices. Avoid generation and spreading of dust. Avoid inhalation of dust and vapors. Avoid contact with skin and eyes.

Storage

Store in a closed container away from incompatible materials. Store in a well-ventilated place.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Ethanol (CAS 64-17-5)	STEL	1000 ppm	
Formaldehyde (CAS 50-00-0)	Ceiling	0.3 ppm	
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable fraction.
Quartz (CAS 14808-60-7)	TWA	0.025 mg/m ³	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Refractories, Fibers, Aluminosilicate (CAS 142844-00-6)	TWA	0.2 fibers/cm ³	Fiber.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value	Form
Formaldehyde (CAS 50-00-0)	STEL	2 ppm	
	TWA	0.75 ppm	

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Ethanol (CAS 64-17-5)	PEL	1900 mg/m ³	
		1000 ppm	
Graphite (CAS 7782-42-5)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Graphite (CAS 7782-42-5)	TWA	15 mppcf	
Quartz (CAS 14808-60-7)	TWA	0.3 mg/m ³	Total dust.
		0.1 mg/m ³	Respirable.
		2.4 mppcf	Respirable.

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value	Form
Ethanol (CAS 64-17-5)	TWA	1880 mg/m ³	
		1000 ppm	
Formaldehyde (CAS 50-00-0)	Ceiling	1.3 mg/m ³	
		1 ppm	
		0.9 mg/m ³	
Graphite (CAS 7782-42-5)	TWA	0.75 ppm	
		2 mg/m ³	Respirable.
Quartz (CAS 14808-60-7)	TWA	0.025 mg/m ³	Respirable particles.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Ethanol (CAS 64-17-5)	STEL	1000 ppm	
Formaldehyde (CAS 50-00-0)	Ceiling	1 ppm	
		0.3 ppm	
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable.
Quartz (CAS 14808-60-7)	TWA	0.025 mg/m ³	Respirable fraction.

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Ethanol (CAS 64-17-5)	STEL	1000 ppm	
Formaldehyde (CAS 50-00-0)	Ceiling	1.5 ppm	
		1 ppm	
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable fraction.
Quartz (CAS 14808-60-7)	TWA	0.1 mg/m ³	Respirable.

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Refractories, Fibers, Aluminosilicate (CAS 142844-00-6)	TWA	0.2 fibers/ml	Fiber.

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value	Form
Ethanol (CAS 64-17-5)	TWA	1880 mg/m3 1000 ppm	
Formaldehyde (CAS 50-00-0)	Ceiling	3 mg/m3 2 ppm	
Graphite (CAS 7782-42-5)	TWA	2 mg/m3	Respirable dust.
Quartz (CAS 14808-60-7)	TWA	0.1 mg/m3	Respirable dust.

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Ethanol (CAS 64-17-5)	TWA	1900 mg/m3 1000 ppm
Formaldehyde (CAS 50-00-0)	Ceiling	3 mg/m3 2 ppm
Graphite (CAS 7782-42-5)	TWA	10 mg/m3
Quartz (CAS 14808-60-7)	TWA	0.1 mg/m3

Engineering controls Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors.

Personal protective equipment

Eye / face protection Wear approved safety goggles.

Skin protection Wear protective gloves. Hydrocarbon resistant gloves are recommended. Suitable gloves can be recommended by the glove supplier. Wear appropriate chemical resistant clothing to prevent any possibility of skin contact.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Private clothes and working clothes should be kept separately.

9. Physical & Chemical Properties

Appearance	Black pliable semi-solid with phenolic odor.
Physical state	Solid.
Form	Pliable semi-solid.
Color	Black.
Odor	Phenolic.
Odor threshold	Not available.
pH	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Boiling point	Not available.
Melting point/Freezing point	Not available.
Solubility (water)	Slightly soluble in water.
Specific gravity	Not available.
Flash point	160 °F (71.1 °C)

Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources.
Incompatible materials	Strong acids. Strong bases. Strong oxidizing substances.
Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
Ethanol (CAS 64-17-5)		
Acute		
<i>Inhalation</i>		
LC50	Rat	30000 mg/m3
<i>Oral</i>		
LD50	Rat	11.5 g/kg
Formaldehyde (CAS 50-00-0)		
Acute		
<i>Inhalation</i>		
LC50	Rat	0.48 mg/l, 4 Hours
Graphite (CAS 7782-42-5)		
Acute		
<i>Oral</i>		
LD50	Rat	> 10000 mg/kg
m-Cresol (CAS 108-39-4)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	620 mg/kg
<i>Oral</i>		
LD50	Rat	242 mg/kg
p-Cresol (CAS 106-44-5)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	300 mg/kg
<i>Oral</i>		
LD50	Rat	207 mg/kg
Phenol (CAS 108-95-2)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	850 mg/kg
<i>Oral</i>		
LD50	Rat	530 mg/kg

Sensitization The product contains a small amount of sensitizing substance which may provoke an allergic reaction among sensitive individuals in contact with skin.

ACGIH Sensitizer

Formaldehyde (CAS 50-00-0)

Sensitizer.

Acute effects

Dust irritates the respiratory system, and may cause coughing and difficulties in breathing. Overexposure to mists/vapors of this product may cause headache, dizziness, nausea, and respiratory tract irritation.

Local effects

May cause skin and eye irritation.

Chronic effects

Inhalation of high concentrations of quartz dust can lead to the lung disease known as silicosis, with cough and shortness of breath.

Carcinogenicity

May cause cancer.

ACGIH Carcinogens

Ethanol (CAS 64-17-5)

A3 Confirmed animal carcinogen with unknown relevance to humans.

Formaldehyde (CAS 50-00-0)

A2 Suspected human carcinogen.

Quartz (CAS 14808-60-7)

A2 Suspected human carcinogen.

Refractories, Fibers, Aluminosilicate (CAS 142844-00-6)

A2 Suspected human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Formaldehyde (CAS 50-00-0)

1 Carcinogenic to humans. Quartz

(CAS 14808-60-7)

1 Carcinogenic to humans.

Refractories, Fibers, Aluminosilicate (CAS 142844-00-6)

2B Possibly carcinogenic to humans.

US NTP Report on Carcinogens: Anticipated carcinogen

Refractories, Fibers, Aluminosilicate (CAS 142844-00-6)

Reasonably Anticipated to be a Human Carcinogen.

US NTP Report on Carcinogens: Known carcinogen

Formaldehyde (CAS 50-00-0)

Known To Be Human Carcinogen.

Quartz (CAS 14808-60-7)

Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Formaldehyde (CAS 50-00-0)

Potential cancer hazard.

Mutagenicity

Phenol: Suspected of causing genetic defects.

Reproductive effects

Not classified.

Symptoms and target organs

Irritation. May cause redness and pain. Headaches, dizziness, fatigue, nausea and vomiting. Coughing. Difficulty in breathing. Shortness of breath. Sensitization.

12. Ecological Information**Ecotoxicological data**

Components		Species	Test Results
Ethanol (CAS 64-17-5)			
Aquatic			
Algae	EC50	Freshwater algae	275 mg/l, 72 Hours
Fish		Marine water algae	1970 mg/l
Invertebrate	LC50	Fathead minnow (<i>Pimephales promelas</i>)	> 100 mg/l, 96 hours
		Freshwater fish	11200 mg/l, 96 Hours
Formaldehyde (CAS 50-00-0)	EC50	Freshwater invertebrate	5012 mg/l, 48 Hours
Aquatic		Marine water invertebrate	857 mg/l, 48 Hours
Crustacea			
Fish			
m-Cresol (CAS 108-39-4)	EC50	Water flea (<i>Daphnia pulex</i>)	4.3 - 7.8 mg/l, 48 hours
Aquatic	LC50	American eel (<i>Anguilla rostrata</i>)	0 - 197.79 mg/l, 96 hours
Crustacea			
Fish			
	EC50	Scud (<i>Gammarus fasciatus</i>)	7 mg/l, 48 hours
p-Cresol (CAS 106-44-5)	LC50	Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>)	8.9 mg/l, 96 hours
Aquatic			
Crustacea			
	EC50	Water flea (<i>Daphnia magna</i>)	7.7 mg/l, 48 hours

Components	Species	Test Results
Fish	LC50 Fish (Lepidocephalichthyes guntea)	6.15 - 7.96 mg/l, 96 hours
Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.	
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.	
Persistence and degradability	No data available.	
Bioaccumulation / Accumulation	Not expected to bioaccumulate on the basis of the low octanol-water partition coefficient.	
Partition coefficient		
Ethanol		-0.31
Formaldehyde		0.35
Phenol		1.46
p-Cresol		1.94
m-Cresol		1.96
Mobility in environmental media	The product is slightly soluble in water. The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces.	

13. Disposal Considerations

Waste codes	Not regulated.
Disposal instructions	Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Dispose of waste and residues in accordance with local authority requirements.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Refractories, Fibers, Aluminosilicate (CAS 142844-00-6) 0.1 % One-Time Export Notification only.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Formaldehyde (CAS 50-00-0)

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity

Formaldehyde (CAS 50-00-0) 100 LBS

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

Formaldehyde (CAS 50-00-0) 500 LBS

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Formaldehyde (CAS 50-00-0) 0.1 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Formaldehyde (CAS 50-00-0) Listed.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

Formaldehyde: 100

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance (40 CFR 355, Appendix A)	No
Section 311/312 (40 CFR 370)	Yes
Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)	Not controlled
Canadian regulations	This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.
WHMIS status	Controlled
WHMIS classification	D2A - Other Toxic Effects-VERY TOXIC D2B - Other Toxic Effects-TOXIC

WHMIS labeling



Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

State regulations WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Hazardous Substances (Director's): Listed substance

Ethanol (CAS 64-17-5)	Listed.
Formaldehyde (CAS 50-00-0)	Listed.
Graphite (CAS 7782-42-5)	Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Formaldehyde (CAS 50-00-0)	Listed.
Quartz (CAS 14808-60-7)	Listed.
Refractories, Fibers, Aluminosilicate (CAS 142844-00-6)	Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Formaldehyde (CAS 50-00-0)	Listed: January 1, 1988 Carcinogenic.
Quartz (CAS 14808-60-7)	Listed: October 1, 1988 Carcinogenic.
Refractories, Fibers, Aluminosilicate (CAS 142844-00-6)	Listed: July 1, 1990 Carcinogenic.

US - New Jersey RTK - Substances: Listed substance

Ethanol (CAS 64-17-5)	Listed.
Formaldehyde (CAS 50-00-0)	Listed.

Graphite (CAS 7782-42-5) Listed.
Quartz (CAS 14808-60-7) Listed.
Refractories, Fibers, Aluminosilicate (CAS 142844-00-6) Listed.

US - Pennsylvania RTK - Hazardous Substances: Special hazard

Formaldehyde (CAS 50-00-0) Special hazard.

US. Massachusetts RTK - Substance List

Ethanol (CAS 64-17-5) Listed.
Formaldehyde (CAS 50-00-0) Listed.
Graphite (CAS 7782-42-5) Listed.
Quartz (CAS 14808-60-7) Listed.

US. New Jersey Worker and Community Right-to-Know Act

Formaldehyde (CAS 50-00-0) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

Ethanol (CAS 64-17-5) Listed.
Formaldehyde (CAS 50-00-0) Listed.
Graphite (CAS 7782-42-5) Listed.
Quartz (CAS 14808-60-7) Listed.

Mexico regulations This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA.
I - Safety Glasses, Gloves, Dust, Vapor Respirator

HMIS® ratings Health: 3*
Flammability: 2
Physical hazard: 0
Personal protection: I

NFPA ratings Health: 3
Flammability: 2
Instability: 0

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available.