

FURATHANE® MORTAR RESIN

SDS Preparation Date (mm/dd/yyyy): 05/03/2015

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SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label

: **FURATHANE® MORTAR RESIN**

Product Code(s) : **320820**

Recommended use of the chemical and restrictions on use

: Furfuryl Alcohol Polymer Resin
Use Pattern: Professional Use Only
Recommended Restrictions: None known.

Chemical family : Mixture

Name, address, and telephone number
of the supplier:

Atlas Minerals and Chemicals Inc.

1227 Valley Road
Mertztown, PA, USA
19539

Supplier's Telephone # : 610-682-7171

24 Hr. Emergency Tel # : Chemtrec 1-800-424-9300 (Within Continental U.S.); Chemtrec 703-527-3887
(Outside U.S.).

Name, address, and telephone number of
the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Dark liquid, mild odor.

Most important hazards: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification:

Flammable Liquid - Category 4

Acute Toxicity, oral - Category 4

Acute Toxicity, dermal - Category 4

Acute Toxicity, inhalation - Category 3 (vapor)

Eye Damage/Irritation - Category 2A

Carcinogenicity- Category 2

Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory)

Specific Target Organ Toxicity, Repeated Exposure - Category 2

Label elements

Hazard pictogram(s)



Signal Word

DANGER!

Hazard statement(s)

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Combustible liquid.
Harmful if swallowed.
Harmful in contact with skin.
Toxic if inhaled.
Causes serious eye irritation.
Suspected of causing cancer.
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

Keep away from flames and hot surfaces. - No smoking.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe fumes or vapors.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Do not eat, drink or smoke when using this product.

Wear protective gloves/clothing and eye/face protection.
IF exposed or concerned: Get medical attention/advice.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists, get medical advice/attention.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician.
In case of fire: Use water fog, dry chemical, CO2 or 'alcohol' foam for extinction.

Store locked up.
Store in a well-ventilated area. Keep container tightly closed.
Keep cool.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:
Burning produces obnoxious and toxic fumes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause respiratory tract irritation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration</u>
Furfuryl alcohol	2-Furanmethanol	98-00-0	40.0 - 70.0
Ethyl alcohol	Ethanol	64-17-5	1.0 - 5.0
Urea	Carbamimidic acid	57-13-6	1.0 - 5.0

The exact concentrations of the above listed chemicals are being withheld as a trade secret.

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SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention.
- Inhalation* : IF INHALED: Remove person to fresh air and keep comfortable for breathing. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Call a POISON CENTER or doctor/physician if you feel unwell.
- Skin contact* : IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash before re-use.
- Eye contact* : For eye contact, flush with running water for at least 15 minutes. If eye irritation persists, get medical advice/attention.

Most important symptoms and effects, both acute and delayed

- : Harmful if swallowed, in contact with skin or if inhaled. Causes skin irritation. Contact may cause redness, swelling and a painful sensation. May cause respiratory irritation. May cause coughing and breathing difficulties. May cause eye irritation. Symptoms may include tearing, redness and discomfort. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Symptoms may include redness, itching and swelling. Suspected of causing cancer. May cause damage to the kidneys through prolonged or repeated exposure.

Indication of any immediate medical attention and special treatment needed

- : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

- Suitable extinguishing media* : Carbon dioxide (CO₂); Dry chemical; alcohol-resistant foam; water fog .
- Unsuitable extinguishing media* : Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

- : COMBUSTIBLE LIQUID. Flammable vapors are heavier than air and may travel a distance from the source of the product. Vapors may ignite explosively.

Flammability classification (OSHA 29 CFR 1910.106)

- : Flammable Liquid - Category 4

Hazardous combustion products

- : Carbon dioxide and carbon monoxide.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : All persons dealing with the clean-up should wear the appropriate chemically protective equipment. Keep people away from and upwind of spill/leak. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.

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- Environmental precautions** : Do not allow material to contaminate ground water system. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.
- Methods and material for containment and cleaning up** : Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Use only non-sparking tools and equipment in the clean-up process. Contain spilled liquid with non-combustible, inert absorbent material (e.g. sand). Pick up and transfer to properly labelled containers. Contact the proper local authorities. Refer to Section 13 for disposal of contaminated material.
- Special spill response procedures** : Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/clothing and eye/face protection. Use only in well-ventilated areas. Keep away from heat and open flames. - No smoking. Do not breathe mist or vapors. Use only non-sparking tools. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing. Keep container tightly closed. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

- Conditions for safe storage** : Store locked up. Store in cool, well ventilated area. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Keep cool. Inspect periodically for damage or leaks. No smoking.

- Incompatible materials** : Oxidizing agents, mineral acids .

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Furfuryl alcohol	10 ppm	15 ppm	50 ppm ; 200 mg/m ³	N/Av
Ethyl alcohol	N/Av	1000 ppm	1000 ppm ; 1900 mg/m ³	N/Av
Urea	10 mg/m ³ (AIHA WEEL)	N/Av	N/Av	N/Av

Exposure controls

Ventilation and engineering measures

- : Use only in well-ventilated areas. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Use explosion-proof equipment. In case of insufficient ventilation wear suitable respiratory equipment.

- Respiratory protection** : If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02. Advice should be sought from respiratory protection specialists.

- Skin protection** : Wear protective gloves/clothing. Where extensive exposure to product is possible, use resistant coveralls, apron and boots to prevent contact. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

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- Eye / face protection** : Wear eye/face protection. Wear as appropriate: Tightly fitting safety goggles
- Other protective equipment** : Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.
- General hygiene considerations** : Avoid breathing dust, mist or vapors. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Do not take contaminated clothing home. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** : Dark liquid.
- Odor** : Mild odor.
- Odor threshold** : No information available.
- pH** : No information available.
- Melting/Freezing point** : No information available.
- Initial boiling point and boiling range** : 1103°C (217°F)
- Flash point** : 65°C (149°F)
- Flashpoint(Method)** : Tag closed cup
- Evaporation rate (BuAe = 1)** : (butyl acetate = 1) <1
- Flammability (solid, gas)** : Not applicable.
- Lower flammable limit (% by vol.)** : Not applicable.
- Upper flammable limit (% by vol.)** : Not applicable.
- Oxidizing properties** : None known.
- Explosive properties** : Not explosive
- Vapor pressure** : ETHANOL: 43 MM HG @ 68°F (20°C)
- Vapor density** : (Air = 1) > 1
- Relative density / Specific gravity** : 1.1-1.2
- Solubility in water** : Slightly soluble.
- Other solubility(ies)** : No information available.
- Partition coefficient: n-octanol/water or Coefficient of water/oil distribution** : No information available.
- Auto-ignition temperature** : No information available.
- Decomposition temperature** : No information available.
- Viscosity** : 75-125 cps @ 77°F
- Volatiles (% by weight)** : 40% by Volume
- Volatile organic Compounds (VOC's)** : 20 G/L
- Absolute pressure of container** : Not applicable.
- Flame projection length** : Not applicable.
- Other physical/chemical comments** : No additional information.

SECTION 10. STABILITY AND REACTIVITY

- Reactivity** : Not normally reactive.

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- Chemical stability** : Stable under normal conditions. Decomposition may occur on exposure to air, acid or heat. The rate of decomposition is a function of temperature and time of exposure and can be slowed by the addition of small amounts of base or storage under nitrogen.
- Possibility of hazardous reactions** : In the presence of acids, a highly exothermic (generation of a large amount of heat) polymerization can occur, which has resulted in violent explosions.
- Conditions to avoid** : Direct sources of heat. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.
- Incompatible materials** : Oxidizing agents, mineral acids .
- Hazardous decomposition products** : None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

- Routes of entry inhalation** : YES
- Routes of entry skin & eye** : YES
- Routes of entry Ingestion** : YES
- Routes of exposure skin absorption** : YES

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : May cause respiratory irritation. Symptoms may include coughing and sneezing.

Sign and symptoms ingestion

- : Ingestion may cause severe irritation to the mouth, throat and stomach.

Sign and symptoms skin

- : May cause skin irritation. Symptoms may include redness, itching and swelling.

Sign and symptoms eyes

- : This material is classified as hazardous under OSHA regulations (29CFR 1910.1200) (Hazcom 2012). Classification: Eye Damage/Irritation - Category 2A
Causes serious eye irritation.

Potential Chronic Health Effects

- : Chronic skin contact with low concentrations may cause dermatitis.

Mutagenicity

- : Not expected to be mutagenic in humans.

Carcinogenicity

- : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification Carcinogenicity- Category 2

Suspected of causing cancer.

Contains: Furfuryl alcohol

Reproductive effects & Teratogenicity

- : This product is not expected to cause reproductive or developmental effects.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

- : This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Specific Target Organ Toxicity, Repeated Exposure - Category 2
May cause damage to the kidneys through prolonged or repeated exposure.

Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory)
May cause respiratory irritation.

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Medical conditions aggravated by overexposure

: Pre-existing skin, eye and respiratory disorders.

Synergistic materials

: No information available.

Toxicological data

: Acute Toxicity, oral - Category 4 Harmful if swallowed.
Acute Toxicity, dermal - Category 4 Harmful in contact with skin.
Acute Toxicity, inhalation - Category 3 (vapor) Toxic if inhaled.

The calculated ATE values for this mixture are:

ATE oral = 657

ATE dermal = 1752

ATE inhalation (vapors) = 2.49

<u>Chemical name</u>	<u>LC₅₀(4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Furfuryl alcohol	233 ppm (.937mg/L)	132 mg/kg	657 mg/kg
Ethyl alcohol	> 32 380 ppm	7060 mg/kg	> 15 800 mg/kg
Urea	N/Av	8471 mg/kg	>21000 mg/kg

Other important toxicological hazards

: None reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

: Contains material that may be harmful in the environment.

Do not release, unmonitored, into the environment.

Ecotoxicity data:

<u>Ingredients</u>	<u>CAS No</u>	<u>Toxicity to Fish</u>		
		<u>LC₅₀ / 96h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Ethyl alcohol	64-17-5	> 100 mg/L (Fathead minnow)	N/Av	None.

<u>Ingredients</u>	<u>CAS No</u>	<u>Toxicity to Daphnia</u>		
		<u>EC₅₀ / 48h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Ethyl alcohol	64-17-5	5012 mg/L (Water flea)	N/Av	None.

<u>Ingredients</u>	<u>CAS No</u>	<u>Toxicity to Algae</u>		
		<u>EC₅₀ / 96h or 72h</u>	<u>NOEC / 96h or 72h</u>	<u>M Factor</u>
Ethyl alcohol	64-17-5	1000 mg/L/96hr (Green algae)	N/Av	None.

Persistence and degradability

: Not expected to be rapidly biodegradable.

Bioaccumulation potential

: No data is available on the product itself.

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<u>Components</u>	<u>Partition coefficient n-octanol/ater (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Furfuryl alcohol (CAS 98-00-0)	N/Av	N/Av
Ethyl alcohol (CAS 64-17-5)	-0.32	N/Av
Urea (CAS 57-13-6)	-1.59 at 25 °C	<10

Mobility in soil : The product itself has not been tested.

Other Adverse Environmental effects
: None known.





SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8.

Methods of Disposal : Dispose in accordance with all applicable federal, state, provincial and local regulations.

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	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	UN2874	FURFURYL ALCOHOL	6.1	III	
49CFR/DOT Additional information	None.				
TDG	UN2874	FURFURYL ALCOHOL	6.1	III	
TDG Additional information	None.				
IMDG	UN2874	FURFURYL ALCOHOL	6.1	III	
IMDG Additional information	None.				
ICAO/IATA	UN2874	FURFURYL ALCOHOL	6.1	III	
ICAO/IATA Additional information	Refer to ICAO/IATA Packing Instruction				

Special precautions for user : Appropriate advice on safety must accompany the package.

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Environmental hazards : Contains material that may be harmful in the environment. See ECOLOGICAL INFORMATION, Section 12.

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

: This information is not available.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	de minimus Concentration
Furfuryl alcohol	98-00-0	Yes	N/Ap	N/Av	No	N/Ap
Ethyl alcohol	64-17-5	Yes	N/Ap	None.	No	NS
Urea	57-13-6	Yes	N/Ap	N/Ap	No	N/Ap

SARA TITLE III: Sec. 311 and 312, MSDS Requirements, 40 CFR 370 Hazard Classes: Immediate (Acute) health hazard; Chronic 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 for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Furfuryl alcohol	98-00-0	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Ethyl alcohol	64-17-5	Yes	developmental toxic	Yes	Yes	Yes	Yes	Yes	Yes
Urea	57-13-6	No	N/Ap	No	No	Yes	No	No	No

Canadian Information:

Canadian Environmental Protection Act (CEPA): All ingredients are present on the DSL.

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this Material Safety Data Sheet contains all the information required by the CPR.

International Information:

Components listed below are present on the following International Inventory list:

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<u>Ingredients</u>	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	New Zealand IOC
Furfuryl alcohol	98-00-0	202-626-1	Present	Present	(5)-31	KE-17364	Present	HSR002998
Ethyl alcohol	64-17-5	200-578-6	Present	Present	(2)-202	KE-13217	Present	HSR001144
Urea	57-13-6	200-315-5	Present	Present	(2)-1732	KE-35144	Present	HSR002808

SECTION 16. OTHER INFORMATION

Legend

: ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
ATE: Acute Toxicity Estimate
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DOT: Department of Transportation
ECHA: European Chemicals Agency
ECOTOX: U.S. EPA Ecotoxicology Database
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS: Existing and New Chemical Substances
EPA: Environmental Protection Agency
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IBC: Intermediate Bulk Container
IECSC: Inventory of Existing Chemical Substances
IMDG: International Maritime Dangerous Goods
IOC: Inventory of Chemicals
IUCLID: International Uniform Chemical Information Database
KECI: Korean Existing Chemicals Inventory
KECL: Korean Existing Chemicals List
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MN: Minnesota
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NOEC: No observable effect concentration
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
PICCS: Philippine Inventory of Chemicals and Chemical Substances
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
SDS: Safety Data Sheet / Material Safety Data Sheet
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

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- References** :
1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2014.
 2. International Agency for Research on Cancer Monographs, searched 2015.
 3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2015 (Chempendium, HSDB and RTECs).
 4. Material Safety Data Sheets from manufacturer.
 5. US EPA Title III List of Lists - October 2012 version.
 6. California Proposition 65 List - December 26, 2014 version

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Other special considerations for handling

: Provide adequate information, instruction and training for operators.

<p><u>Prepared for:</u></p> <p>Atlas Minerals and Chemicals Inc. 1227 Valley Road Mertztown, PA 19536 610-682-7171</p>	
<p><u>Prepared by:</u></p> <p>ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada) http://www.thecompliancescenter.com</p>	

DISCLAIMER

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