

## SAFETY DATA SHEET

### Section 1, Identification

<b>Product Identifier</b>	: Expansion Liquid, High Expansion Liquid
<b>Other Common Names</b>	: Phosphate Investment Casting Liquid
<b>Manufacturer</b>	: <b>Emdin International Corporation</b> 15841 Business Center Drive Irwindale, California, USA 91706 Telephone Number 1-626-813-3740 Emergency Number 1-626-404-2723
<b>Recommended Use</b>	: Mixing solution for all phosphate-bonded investments.
<b>Restrictions on Use</b>	: Professional Applications Only

### Section 2, Hazard(s) identification

<b>Hazard Classification</b>	Not classified.
<b>Signal Word</b>	<b>None</b>
<b>Hazard Statement(s)</b>	
<i>Physical</i>	Not classified.
<i>Health</i>	Not classified.
<b>Pictograms</b>	<b>None</b>
<b>Precautionary Statement(s)</b>	
<i>General</i>	<b>P102</b> Keep out of reach of children.
<i>Prevention</i>	Not classified.
<i>Response</i>	Not classified.
<i>Storage</i>	Not classified.
<i>Disposal</i>	Not classified.
<b>Hazard(s) Not Otherwise Classified (HNOC)</b>	None.

### Section 3, Composition/information on ingredients

Chemical Identity	Common Name	CAS Number	WT%
Water		7732-18-5	58 – 70
Synthetic Amorphous Silica		7631-86-9	29 – 41

*There are no additional ingredients present which, within the current knowledge of the manufacturer and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.*

*Exact percentage of composition has been withheld due to batch-to-batch variation and because the SDS is used for a group of substantially similar mixtures.*

## Section 4, First-aid measures

### Description of Necessary First-Aid Measures

<i>Inhalation</i>	No special measures required. If inhaled, remove to fresh air. Get medical attention if adverse health effects persist or are severe.
<i>Skin Contact</i>	No special measures required. In case of contact, flush contaminated skin with plenty of water. Get medical attention if adverse health effects persist or are severe.
<i>Eye Contact</i>	No special measures are required. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if adverse health effects persist or are severe.
<i>Ingestion</i>	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Get medical attention if adverse health effects persist or are severe. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.

### Most Important Symptoms/Effects, Acute and Delayed

<i>Inhalation</i>	
<i>Acute (immediate)</i>	May cause mild irritation of nose, throat and respiratory system. Symptoms include sneezing, coughing and/or shortness of breath.
<i>Chronic (delayed)</i>	Excessive inhalation may cause mild irritation of nose, throat and respiratory system. Symptoms include sneezing, coughing and/or shortness of breath.
<i>Skin Contact</i>	
<i>Acute (immediate)</i>	May cause mild irritation of skin. Symptoms include itchiness.
<i>Chronic (delayed)</i>	Excessive skin contact may cause mild irritation of skin. . Symptoms include itchiness.
<i>Eye Contact</i>	
<i>Acute (immediate)</i>	May cause mild irritation of eyes. Symptoms include pain, tearing, and/or redness.
<i>Chronic (delayed)</i>	Excessive eye contact may cause mild irritation of eyes. Symptoms include pain, tearing, and/or redness.
<i>Ingestion</i>	
<i>Acute (immediate)</i>	May cause gastrointestinal irritation. Symptoms include nausea.
<i>Chronic (delayed)</i>	Excessive ingestion may cause gastrointestinal irritation. Symptoms include nausea.

### Indication of Any Immediate Medical Attention and Special Treatment Needed

<i>Notes to Physician</i>	All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
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## Section 5, Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Use an extinguishing media appropriate for the surrounding materials.
<b>Specific Hazards Arising From the Chemical</b>	Not flammable or combustible.
<b>Special Protective Actions for Firefighters</b>	Wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode. Use standard firefighting procedures and consider the hazards of other involved materials. Cool material exposed to heat with water spray and remove if no risk is involved. Collect contaminated firefighting water separately. Keep away from drains, surface and ground water.

## Section 6, Accidental release measures

<b>Personal Precautions, Protective Equipment, and Emergency Procedures</b>	Avoid formation of respirable particles during clean up. See Section 8 of the SDS for Personal Protective Equipment. No specific emergency precautions.
<b>Environmental Precautions</b>	Keep away from drains, surface and ground water. Report releases as required by local and national authorities.
<b>Methods and Materials for Containment and Cleaning Up</b>	Absorb with liquid binding material. Collect in labeled containers and seal securely.

## Section 7, Handling and storage

<b>Precautions for Safe Handling</b>	Avoid formation of respirable particles. Observe good industrial hygiene practices. Use appropriate lifting techniques.
<b>Conditions for Safe Storage, Including Any Incompatibilities</b>	Store above 2 °C to prevent irreversible precipitation of silica.

## Section 8, Exposure controls/personal protection

### Control Parameters

Chemical Identity	OSHA (PEL)	ACGIH (TLV)	NIOSH (REL)
Synthetic Amorphous Silica	$80 \text{ mg/m}^3$ %SiO <sub>2</sub>	$5 \text{ mg/m}^3$ (resp.) $10 \text{ mg/m}^3$ (total)	$6.0 \text{ mg/m}^3$

<b>Appropriate Engineering Controls</b>	Use local exhaust ventilation to maintain air concentrations below occupational exposure standards.
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### Individual Protection Measures, Such as Personal Protective Equipment (PPE)

#### Eye/Face Protection

Safety glasses with side shields or goggles are recommended.

#### Skin/Body Protection

For prolonged or repeated skin contact use suitable protective gloves. Long sleeved shirts and pants are recommended for workers suffering from dermatitis or sensitive skin.

#### 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. Use a NIOSH/MSHA approved air purifying respirator as needed to control exposure. Consult with respirator manufacturer to determine respirator selection, use, and limitations. Use positive pressure, air-supplied respirator for uncontrolled releases or when air purifying respirator limitations may be exceeded. Follow respirator

protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

*Thermal Hazards*

None.

## Section 9, Physical and chemical properties

### Appearance

*Physical State*

Liquid.

*Form*

Fluid.

*Color*

Colorless.

**Odor**

Odorless.

**Odor Threshold**

Not applicable.

**pH**

9.2 – 10.5 @ 25 °C

**Melting Point / Freezing Point**

32 °F / 0 °C

**Initial Boiling Point and Boiling Range**

212 °F / 100 °C

**Flash Point**

Not applicable.

**Evaporation Rate**

Same as water.

**Flammability (solid, gas)**

Not applicable.

**Upper/lower Flammability or Explosive Limits**

*Flammability Limit – Lower (%)*

Not applicable.

*Flammability Limit – Upper (%)*

Not applicable.

*Explosive Limit – Lower (%)*

Not applicable.

*Explosive Limit - Upper (%)*

Not applicable.

**Vapor Density**

Same as water.

**Relative Density**

1.1 – 1.3 g/cm<sup>3</sup> @ 20° C

**Solubility in Water**

Dispersible.

**Partition Coefficient (n-octanol/water)**

Not applicable.

**Auto-Ignition Temperature**

Not applicable.

**Decomposition Temperature**

Not available.

**Viscosity**

3.9 – 16.3 cps @ 25° C

## Section 10, Stability and reactivity

**Reactivity**

Not available.

**Chemical Stability**

Stable under normal conditions.

**Possibility of Hazardous Reactions**

Not available.

**Conditions to Avoid**

Not available.

**Incompatible Materials**

Not available.

**Hazardous Decomposition Products**

Not available.

## Section 11, Toxicological information

### Information on the Likely Routes of Exposure

*Inhalation*

May cause mild irritation of nose, throat and respiratory system  
Excessive inhalation may cause mild irritation of nose, throat and respiratory system.

*Skin Contact*

May cause mild irritation of skin.  
Excessive skin contact may cause mild irritation of skin.

*Eye Contact*

May cause mild irritation of eyes.  
Excessive eye contact may cause mild irritation of eyes.

*Ingestion*

May cause gastrointestinal irritation.  
Excessive ingestion may cause gastrointestinal irritation.

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics**

<i>Inhalation</i>	Sneezing, coughing and/or shortness of breath.
<i>Skin Contact</i>	Itchiness.
<i>Eye Contact</i>	Pain, tearing, and/or redness.
<i>Ingestion</i>	Nausea.

**Delayed and Immediate Effects and also Chronic Effects from Short- and Long-term Exposure**

<i>Acute Toxicity</i>	Not expected to be a hazard under normal conditions of intended use.
<i>Irritation</i>	Not expected.
<i>Corrosion</i>	Not expected.
<i>Sensitization</i>	Not available.
<i>Mutagenicity</i>	Not expected.
<i>Reproductive Toxicity</i>	Not expected.
<i>Teratogenicity</i>	Not expected.
<i>Specific Target Organ Toxicity (single exposure)</i>	Not expected.
<i>Specific Target Organ Toxicity (repeated exposure)</i>	Not expected.
<i>Aspiration Hazard</i>	Not available.

**Numerical Measures of Toxicity**

Chemical	Organism	Data
Synthetic Amorphous Silica	Rat Terrestrial Rodent	LD50 Oral > 5000 mg/kg
	Rabbit Terrestrial Lagomorph	LD50 Dermal > 5000 mg/kg
	Rat Terrestrial Rodent	LC0 Inhalative > 140 -> 2000 mg/m <sup>3</sup> /4h

**Carcinogenicity** Not expected.

**Section 12, Ecological information**

**Ecotoxicity** The product components are 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.

Chemical	Organism	Data
Synthetic Amorphous Silica	Fish (Zebra Fish)	LC0 (96 h) > 10,000 mg/L
	Water Flea (Daphnia Magna)	EC50 (24 h) > 1000 mg/L
	Algae (Scenedesmus Subspicatus)	EC50 (72 h) > 10,000 mg/L

**Persistence and Degradability** Synthetic amorphous silica is chemically and biologically inert.

**Bioaccumulative Potential** Not expected.

**Mobility in Soil** Not available.

**Other Adverse Effects** Not expected.

## Section 13, Disposal considerations

**Disposal Instructions** Dispose of contents/container in accordance with local/regional/national/international regulation.

**Hazardous Waste Code** Not regulated.

## Section 14, Transport information

**DOT** Not regulated.

**TDG** Not regulated.

**IATA/ICAO** Not regulated.

**IMDG/IMO** Not regulated.

**Special Precautions for User** Transport in closed containers that are upright and secure.

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)** This product is provided only in non-bulk containers.

## Section 15, Regulatory information

### **US Federal Regulations**

*Clean Air Act Section 112(b)  
Hazardous Air Pollutants (HAPs)* Not listed.

*Clean Air Act Section 602  
Class I Substances* Not listed.

*Clean Air Act Section 602  
Class II Substances* Not listed.

*DEA List I Chemicals  
(Precursor Chemicals)* Not listed.

*DEA List II Chemicals  
(Essential Chemicals)* Not listed.

*Safe Drinking Water Act  
(SDWA)* Not listed.

*OSHA Specifically Regulated  
Substances (29 CFR 1910.1001-  
1050)* Not listed.

*CERCLA Hazardous Substance  
List (40 CFR 302.4)* Not listed.

*SARA Section 302/304  
(extremely hazardous substance)* Not listed.

*SARA Section 311/312  
(hazardous chemical)* Not listed.

*SARA Section 313  
(TRI reporting)* Not regulated.

### **US State Regulations**

*Massachusetts Toxics Use  
Reduction Act (TURA)* Not listed.

<i>New Jersey Worker and Community Right-to-Know Act</i>	Not listed.
<i>Pennsylvania Worker and Community Right to Know Act</i>	Not listed.
<i>Rhode Island Right-to-Know Hazardous Substance List</i>	Not listed.
<i>California Proposition 65</i>	Not listed.
<b>Section 16, Other information</b>	
<b>Issue Date</b>	October 19, 2015
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<b>Key/legend to Abbreviations and Acronyms</b>	<p><b>ACGIH</b> - American Conference of Governmental Industrial Hygienists  <b>ANSI</b> - American National Standards Institute  <b>CERCLA</b> - Superfund or Comprehensive Environmental Response, Compensation, and Liability Act of 1980  <b>DEA</b> - Drug Enforcement Administration  <b>DOT</b> - Department of Transportation  <b>IARC</b> - International Agency for Research on Cancer  <b>IATA</b> - International Air Transport Association  <b>IBC</b> - International Building Code  <b>ICAO</b> - International Civil Aviation Organization  <b>IMDG</b> - International Maritime Dangerous Goods  <b>IMO</b> - International Maritime Organization  <b>MARPOL 73/78</b> - Marine Pollution 1973/1978  <b>MSHA</b> - Mine Safety and Health Administration  <b>NIOSH</b> - National Institute for Occupational Safety and Health  <b>NTP</b> - National Toxicology Program  <b>OSHA</b> - Occupational Safety and Health Administration  <b>PEL</b> - Permissible Exposure Limit  <b>REL</b> - Recommended Exposure Limit  <b>SARA</b> - Superfund Amendments and Reauthorization Act of 1986  <b>SDS</b> - Safety Data Sheet  <b>TGD</b> - Transportation of Dangerous Goods  <b>TLV</b> - Threshold Limit Value  <b>TRI</b> - Toxics Release Inventory</p>
<b>Disclaimer</b>	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.