

MATERIAL SAFETY DATA SHEET

1. Identification of the Substance/Preparation and of the Company/Undertaking.

- Product Type: Phosphate Casting Investment
- Trade Names:

Repli-Cast™

- Company: ETI Empire Direct
1208 W. Struck Avenue
Orange, CA 92867

2. Composition and Information on Ingredients:

<u>Substance:</u>	<u>CAS No.</u>	<u>Concentration %:</u>
Silica, Crystalline, Quartz	14808-60-7	10-30
Silica, Crystalline, Cristobalite	14464-46-1	40-70
Nuisance Dusts (Phosphates)	Not Assigned	10-30
Metallic Oxides	Not Assigned	5-15

3. Hazard Identification:

- Inhalation of excessive dust over a prolonged period can result in lung damage, silicosis.
- Local ventilation should be used to keep employee exposure to respirable dust below 0.05 mg/m³.
- Personal protective equipment not required during normal laboratory use.
- Vacuum spilled material. Avoid creating dust.

4. First-Aid Measures:

- This product has no known acute toxic effects which would require emergency first-aid measures.
- For eye contact, rinse with water and contact physician.

5. Fire-Fighting Measures:

- Non-Flammable. Use whatever measure of extinction is appropriate for surrounding fire.
- Water may cause product to solidify.

6. Accidental Release Measures:

- Vacuum spilled material. Avoid creating dust. Wipe surfaces with wet cloth.
- Avoid washing down drains as material can plug drains.

7. Handling and Storage:

- Handling: No special treatment required.
- Storage: Store in a dry location. Keep container closed.

8. Exposure Controls/Personal Protection:

Exposure Limits (as respirable dust)	OSHA-PEL <u>Mg/m³</u>	ACGIH-TLV, 2001 <u>Mg/m³</u>
Nuisance Dusts (Phosphates)	5	3
Metal Oxides	5	3
Silica-Quartz	0.1	0.05
Silica-Cristobalite	0.05	0.05

- Personal protective equipment: None required during normal laboratory use.
- Engineering controls: Use local ventilation to keep employee exposure to respirable dust below 0.05 mg/m³.
- Respirator: Use respirator approved by NIOSH/MSHA – 2 face with dust/mist cartridges for exposures up to 10 times exposure limit.

9. Physical and Chemical Properties:

- Solid, odorless powder, with variety of colors
- Vapor pressure (mmHg) Not Applicable
- Vapor density (air=1) Not Applicable
- Evaporation rate Not Applicable
- Boiling point °C Not Applicable
- Freezing point °C Not Applicable
- pH Not Applicable
- Specific gravity Not Applicable
- Flammability Not Applicable
- Flash point °C Not Applicable

10. Stability and Reactivity:

- Basically stable, may solidify if contacted by water.
- Incompatible with hydrofluoric acid.
- No hazardous decomposition products.

11. Toxicological Information:

- Route of entry: Inhalation.
- Effects of acute exposure: None known
- Inhalation of excessive dust over a prolonged period can result in lung damage, Silicosis.
- Carcinogenicity: The International Agency for Research on cancer (IARC) reports inhaled crystalline silica is a Group 1 carcinogen to humans. NTP has listed crystalline silica as carcinogen.
- Synergistic products: Mycobacterium Tuberculosis.

12. Ecological Data:

- No ecotoxicological studies are available. Generally considered chemically inert in the environment. Not dangerous to water.

13. Disposal Considerations:

- Waste is not hazardous as defined by RCRA (40CFR261)
- Avoid washing down drains as material can plug drain.

14. Transport Information:

- No special transport requirements, non dangerous goods.

15. Regulatory Information:

- OSHA Hazard Communications Standard, 29 CFR 1810.1200: Contained material considered hazardous, see section V of each listing.
- RCRA: This material is not defined as hazardous waste, per 40 CFR 261.
- TSCA: These products contain materials listed in the TSCA inventory and are not otherwise regulated by TSCA Sec. 4, 5, 6, 7 or 12.
- CERCLA: Materials not reportable under CERCLA. Local requirements may vary.
- SARA: 311/312 hazard categories – immediate and delayed health, 313 reportable ingredients – none
- California Proposition 65: Investments contain Crystalline Silica known to the state of California to cause cancer.

16. Other Information:

- HMIS Rating: Health 3 Flammability 0 Reactivity 0 Other 0
- Hazard: 4-Severe; 3-Serious; 2- Moderate; 1-Slight; 0-Minimum

MATERIAL SAFETY DATA SHEET

1. Identification of the Substance/Preparation and of the Company/Undertaking.

- Product Type: Phosphate Investment Casting Liquid
- Trade Names:

Repli-Pour™

- Company: ETI Empire Direct
1208 W. Struck Avenue
Orange, CA 92867

2. Composition and Information on Ingredients:

<u>Substance:</u>	<u>CAS No.</u>	<u>Concentration %:</u>
Colloidal Silica (amorphous)	112926-00-8	15-40

3. Hazard Identification:

- Not a hazardous material.
- Personal protective equipment not required during normal laboratory use.

4. First-Aid Measures:

- This product has no known acute toxic effects which would require emergency first-aid measures.
- For eye contact, rinse with water and contact physician.

5. Fire-Fighting Measures:

- Unusual fire and explosion hazard: Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas.

6. Accidental Release Measures:

- Do not allow liquid to dry. Cleanup with absorbent paper towels.

7. Handling and Storage:

- Handling: No special treatment required.
- Storage: Keep container closed.

8. Exposure Controls/Personal Protection:

- Personal protective equipment: None required during normal laboratory use.
- Primary route (s) of exposure: Eye, skin, inhalation.
- Eye contact: Can cause transient irritation.
- Prevent inhalation exposure to excessive dust (if mixture dries out). May result in lung damage.
- Exposure limit to dried dust: 6 mg/m³ as 8 hr TWA.

9. Physical and Chemical Properties:

- Translucent odorless liquid – may be colored

Density	10.3-10.4 lbs/gal
Solubility in water	Dispersible
Specific gravity	1.24-1.25 @ 77°F
pH (neat)	8.4-8.8
Viscosity	Max 6.0 cps @ 77°F
Boiling point	212°F @ 760 mm Hg
Flash point	None
- No dangerous reactions are known to occur with correct handling and storage.

10. Stability and Reactivity:

- Basically stable. Avoid contact with aluminum.

11. Toxicological Information:

- Acute oral toxicity (albino rats): LD₅₀ = Greater than 34,000 mg/kg.
- Acute dermal toxicity (albino rabbits): LD₅₀ = Greater than 10,000 mg/kg
- Primary skin irritation test (albino rabbits): Skin irritation index draize rating: 0.125/8.0 minimally irritating.
- Primary eye irritation test (albino rabbits): eye irritation index draize rating: 4.0/110.0 minimally irritating.
- Inhalation of excessive dust (if the mixture dries out) may result in lung damage.
- Carcinogenicity: Not listed as carcinogen by OSHA, NTP or TARC

12. Ecological Data:

- No ecotoxicological studies are available. See CERCLA section 14, if released into the environment.

13. Disposal Considerations:

- Waste is not hazardous as defined by RCRA (40CFR261)
- No special treatment required.

14. Transport Information:

- No special transport requirements. Product is not regulated during transportation.

15. Regulatory Information:

- OSHA Hazard Communications Standard, 29 CFR 1810.1200: None of the ingredients are hazardous.
- RCRA: This material is not defined as hazardous water, per 40 CFR 261.
- TSCA: These products contain materials listed in the TSCA inventory and are not otherwise regulated by TSCA Sec. 4, 5, 6, 7 or 12.
- CERCLA: Materials not reportable under CERCLA. Local requirements may vary.
- SARA: 311/312 hazard categories – immediate and delayed health, 313 reportable ingredients – none.
- Does not contain any chemicals which require warning.

16. Other Information:

- HMIS Rating: Health 1 Flammability 0 Reactivity 2 Other 0
- Hazard: 4-Severe; 3-Serious; 2-Moderate; 1-Slight; 0-Minimum