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:
   Substances          CAS No       Concentration %
   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-air 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 ACGIH-TLV, 2001
     \[
     \begin{align*}
     \text{Nuisance Dusts (Phosphates)} & : 5 & 3 \\
     \text{Metal Oxides} & : 5 & 3 \\
     \text{Silica-Quartz} & : 0.1 & 0.05 \\
     \text{Silica-Cristobalite} & : 0.05 & 0.05 \\
     \end{align*}
     \]
   • 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 respiratory 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 (IARD) reports inhaled crystalline silica is a Group 1 carcinogen to humans. NTP has listed crystalline silica as a 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 (40CFR2G1)
    • 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 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
    • 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:
   - Substance: Colloidal Silica (amorphous)  112926-00-8  Concentration %: 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-air 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): LD$_{50}$ = Greater than 34,000 mg/kg.
   • Acute dermal toxicity (albino rabbits): LD$_{50}$ = 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 (40CFR2G1)
   • 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