MATERIAL SAFETY DATA SHEET

DATE PREPARED: Apr. 3, 2003

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION
   - CHEMICAL PRODUCT NAME: SHOWBRAINE SLP-F
   - NAME OF MANUFACTURER: Showa Water Industries Co., Ltd.
   - ADDRESS: 1-3-1 Nagara-Shinseki-Cho, Gifu-City, Gifu, JAPAN
   - FAX NUMBER: 81-58-294-2231
   - EMERGENCY TELEPHONE: 81-58-232-1131

2. COMPOSITION/INFORMATION ON INGREDIENTS
   - SUBSTANCE/MIXTURE: MIXTURE
   - CHEMICAL NAME: Propylene glycol et al.
   - SYNONYMS: Propylene glycol et al.
   - CAS REGISTRY NUMBER: 57-55-6 (Propylene glycol)
   - INGREDIENT AND COMPOSITION: 2.5%
   - CHEMICAL FORMULA: CH₃CHOHCH₂OH
   - UN CLASS UN No.: Not applicable for the definition of the dangerous goods of United nation

3. HAZARD IDENTIFICATION
   - CLASS NAME OF HAZARDOUS CHEMICALS FOR MSDS IN JAPAN: Not applicable
   - PHYSICAL AND CHEMICAL HAZARDS: Combustible liquid.
   - ADVERSE HUMAN HEALTH EFFECTS:
     - Slightly irritating to the skin. Mildly irritating to the eyes.
     - This substance is believed to present very little hazard if swallowed.
     - This substance is believed to present very little hazard if contact to skin.
   - ENVIRONMENTAL EFFECTS:
     - This substance may be hazardous to marine environment.
4. FIRST-AID MEASURES
   • EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.
   • SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists.
   • INHALATION: No hazard in normal industrial use. If exposed to excessive levels of fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
   • INGESTION: Call a physician immediately. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES
   • EXTINGUISHING MEDIA: Use alcohol foam, carbon dioxide, powder, or water spray.
   • SPECIFIC HAZARDS WITH REGARD TO FIRE-FIGHTING MEASURES: Evacuate area fight fire from safe distance.

6. ACCIDENTAL RELEASE MEASURES
   • Evacuate non essential personnel. Shut off all sources of ignition. No flames, smoking, or flames in area. Collect leaking and spilled liquid in sealable containers as far as possible. Do not let this chemical enter the environment.

7. HANDLING & STORAGE
   • HANDLING: Wash thoroughly after handling. Avoid contact with eyes, skin and clothing.
   • STORAGE: Keep container closed when not in use. Do not store in direct sunlight. Keep away from heat and flame. Separated from strong oxidants, strong acid, strong alkaline substances.

8. EXPOSURE CONTROL/PERSONAL PROTECTION
   • CONTROL PARAMETERS:
     - CHEMICAL NAME: Propylene glycol
     - CAS No: 57-55-6
     - OSHA PEL(1996): Not established
     - ACGIH TLV(1996): Not established
     - TWA STEL: Not established
• ENGINEERING MEASURES: Facilities strong or utilizing this substance should be equipped with an eyewash facility and a safety shower.

• PERSONAL PROTECTIVE EQUIPMENT:
  − RESPIRATORY PROTECTION: Chemical cartridge respirator with an organic vapour cartridge.
  − EYE PROTECTION: Wear safety glasses with side shields or goggles and a face shield.
  − HANDS, SKIN AND BODY PROTECTION: Wear contact is likely, wear chemical resistant gloves, a chemical suit, rubber boots.

9. PHYSICAL & CHEMICAL PROPERTIES
• PHYSICAL STATE: Liquid
• APPEARANCE: Red liquid
• ODOR: Faint odor
• pH: 7.3
• SOLUBILITY IN WATER: Very good

• Density (g/cm³): 1.09 (20°C)
• BOILING POINT: 105°C
• MELTING POINT: −11°C
• VAPOUR PRESSURE: −
• Po/w: −

10. PHYSICAL HAZARD (STABILITY & REACTIVITY)
• FLASH POINT: None
• AUTOIGNITION TEMPERATURE: None
• UPPER AND LOWER EXPLOSION LIMIT: 2.6vol%~12.5vol% (as propylene glycol)
• FLAMMABILITY: Combustible
• SPONTANEOUS COMBUSTIBILITY: Not applicable
• REACTIVITY WITH WATER: Not reactive with water
• OXIDIZABILITY: Not oxidant
• STABILITY & REACTIBILITY: This substance is stable.
• HAZARDOUS DECOMPOSITION PRODUCTS: None

11. TOXICOLOGICAL INFORMATION
• CORROSIVE AND IRRITANT PROPERTIES

  Skin irritation: Believed to be slightly irritation upon prolong contact.

  Eye irritation: Believed caused slight eye irritation.

• ACUTE TOXICITY
  − oral: mus LD₅₀ 22g/kg (as PG)
  − oral: rat LD₅₀ 21g/kg (as PG)

• CARCINOGENIC EFFECTS: Not established: on LARC, NTP, EU, OSHA

• MUTAGENIC EFFECTS: This substance was negative in the Ames test. ²
12. ECOLOGOCAL INFORMATION
   - BIODEGRABILITIY: This substance biodegradable.
   - BIOACCUMULATION: Not available
   - FISH TOXICITY: Not available

13. DISPOSAL CONSIDERATION
    Burn in a chemical incinerator equipped with an afterburner and scrubber. Do not dump into sewers, on the ground or into any body of water. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity or other sources of ignition. Empty drum recondition, or properly disposed of.

14. TRANSPORT INFORMATION
    - Any transportation practice must be in compliance with laws and regulation in your country or region.

15. REGULATORY INFORMATION
    U.S.A status
    TSCA INVENVRT: Listed
    Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. OTHER INFORMATION
    - REFERENCES: 1) NIOSH Registry of Toxic Effects Chemical Substances
      
      To the best of our knowledge, the information contained herein is accurate. However, neither Showa Water Industries Co., Ltd nor any of its subsidiaries assumes any liability what is over for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown hazard and should be used with caution. Although certain hazard are described herein. We cannot guarantee that these are the only hazard which exist.