

Initial Preparation Date: 12/10/2003
Last Revision Date: 6/14/2005

MATERIAL SAFETY DATA SHEET

PRODUCT IDENTITY: BRAVO SYSTEMS INTERSTITIAL FLUID

1. SUPPLIER

S. BRAVO SYSTEMS, INC.
2929 VAIL AVENUE
COMMERCE, CA 90040
PHONE: 323-888-4133
EMERGENCY PHONE: 1-800-424-9300 (CHEMTREC)

2. INGREDIENTS

<u>Material</u>	<u>CAS#</u>	<u>% BY WT.</u>	<u>Vapor Pressure mm Hg@ Temp.</u>	
Propylene Glycol	57-55-6	>25 <30	.08	68°F
Additives	N/A	<.001		

3. HAZARDS IDENTIFICATION

NFPA: HEALTH: 0 **FLAMMABILITY: 1** **REACTIVITY: 0**

KEY: 0 – Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

POTENTIAL HEALTH EFFECTS

Routes of Exposure: Eye Contact, Skin Contact, Inhalation, Ingestion, Signs and Symptoms of Overdose

Eye: May cause minor eye irritation

Skin: No significant adverse effects are expected under anticipated conditions of normal use. Repeated, prolonged exposure may cause slight flaking, tenderness and softening of skin.

Ingestion: No significant adverse effects are expected under anticipated conditions of normal use. Excessive ingestion may cause central nervous system effects.

Inhalation: No significant adverse effects are expected under anticipated conditions of normal use. If effects do occur, refer to FIRST AID section.

Signs And Symptoms Of Overexposure: Same as above.

Medical Conditions Generally Aggravated By Exposure: Material and/or its emissions may aggravate preexisting eye disease.

Other Health Information: None

4. FIRST AID MEASURES

Ensure physician has access to this MSDS.

Eyes: Immediately flush eyes with large amounts of water for 20-30 minutes, lifting lower and upper lids. Get medical attention as soon as possible. Obtain medical attention if pain, blinking, tears or redness persist.

Skin: Product is not expected to present a significant skin hazard under anticipated conditions of normal use.

Inhalation: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

Ingestion: If large quantity is swallowed, give a pint of luke warm water if victim is completely conscious and alert. If large quantities are consumed, induce vomiting. Obtain emergency medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash Point: 218° F

Flammable or Explosive Limits (approximate % by volume in air) LEL: 2.6 UEL: 12.5

Extinguishing Media: Carbon dioxide, dry chemical, alcohol type foam, water spray, water fog

Special Fire Fighting Procedures: Wear positive pressure, self contained breathing apparatus and other protective apparatus as warranted. Fight fire from distance or protected location – heat may build up pressure and rupture closed containers. Liquid may form slippery film. Use water spray or fog for cooling, solid stream may spread fire as burning liquid will float on water. Avoid frothing/steam explosion. Notify authorities if liquid enters sewers/public waters.

Unusual Fire And Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken In Case Material Is Released Or Spilled: Prevent flow to sewers and public waters as it may contaminate said water. Restrict water usage to prevent slip/fall hazard. Soak up small spills with inert solids. Dike and recover large land spills. Notify appropriate authorities if product enters any waterway.

7. HANDLING AND STORAGE

Precautions To Be Taken Handling And Storage: Store in tightly closed and properly vented containers, away from heat, spark, open flame and strong oxidizing agents.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory Protection: No special respiratory protection equipment is recommended under normal conditions of anticipated use with adequate ventilation.

Ventilation: Adequate general ventilation is required, local exhaust is recommended, if possible

Protective Gloves: Not required.

Eye Protection: Chemical splash goggles or full face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor. Contact lenses should not be worn.

Other Protective Equipment: None.

Work Practices/Engineering Controls: Keep containers closed when not in use.

Personal Hygiene: If product handling results in skin contact, wash hands and other exposed areas with mild soap and water before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse.

9. PHYSICAL PROPERTIES

Boiling Point (deg F):	370
Freeze Point:	Product will not freeze
Specific Gravity (Water =1):	1.01
Vapor Pressure (mm of Hg) @ 20C:	<0.1
Vapor Density (air=1):	2.6
Water Solubility:	Complete
Evaporation Rate (BuAc = 1):	Slight
Appearance:	Clear, red liquid
Odor:	Slightly viscous, almost odorless liquid

10. STABILITY and REACTIVITY

Stability:	Stable
Conditions To Avoid:	Heat, sparks, open flame
Materials To Avoid:	Strong alkalis, strong oxidizing agents
Hazardous Decomposition Or By-Products:	Carbon monoxide, and other toxic vapors
Hazardous Polymerization:	Not expected to occur

11. TOXICOLOGICAL INFORMATION

Skin: The LD50 for skin absorption in rabbits is >10,000 mg/kg.

Ingestion: The oral LD50 for rats is 20,000-34,000 mg/kg.

Mutagenicity: In vitro mutagenicity studies were negative. Animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION

Movement & Partitioning: Based largely or completely on information for similar material(s), i.e., propylene glycol. Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). Log octanol / water partition coefficient (log Pow) is -0.92. Henry Law Constant (H) is 1.2E-8 atm.m³/mole.

Degradation & Transformation: Based largely or completely on information for similar material(s) i.e., propylene glycol. Biodegradation under aerobic static laboratory conditions is high (BOD20 OR BOD28/ThOD greater than 40%). Biodegradation is expected to be achievable in a secondary wastewater treatment plant. 5-day biochemical oxygen demand (BOD5) is 1.16 p/p. 200-day biochemical oxygen demand (BOD20) is 1.45 p/p. theoretical oxygen demand (THOD) is calculated to be 1.68 p/p. Inhibitory concentration (IC50) in OECD Activated Sludge Respiration Inhibition Test (OECD Test No. 209) is greater than 1 gm/L. Degradation is expected in the atmospheric environment within minutes to hours.

Ecotoxicology: Based largely or completely on information for similar material (s), i.e., propylene glycol. Material is practically non-toxic to aquatic organisms on an acute basis (LC50 greater than 100 mg/L in most sensitive species).

Acute LC50 for fathead minnow (*Pimephales promelas*) is 4,600-54900 mg/L

Acute LC50 for guppy (*Poecilia reticulata*) is greater than 10000 mg/L.

Acute LC50 for water flea *Daphnia magna* is 4850-34400 mg/L

Acute LC50 for rainbow trout (*Oncorhynchus mykiss*) is 44mL/L (about 44000 mg/L)

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method; Landfill solids at permitted sites using registered transporters. Burn concentrated liquids, avoiding flameouts and assuring emissions comply with applicable regulations. Diluted aqueous waste may biodegrade, but avoid overloading plant biomass and assure effluent complies with applicable regulations.

14. TRANSPORT INFORMATION

This product is not regulated by DOT.
This product is not regulated by IMDG
This product is not regulated by IATA

15. REGULATORY INFORMATION

WHMIS classification for product is n/a

This product has been classified in accordance with the hazard criteria of the CFR and the MSDS contains all the information required by the CFR.

16. OTHER INFORMATION

Contact: Thomas Cholke

Phone: (847) 559-2225

Old World Industries, Inc. makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, expressed or implied, is made by Old World Industries, Inc. as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does Old World Industries, Inc. assume liability arising out of the use by others of this product referred to herein. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.