


Binary Ionization Technology Group (BIT)  communications <hr/> Applied Technologies 3394 Carmel Mountain Road San Diego, CA 92121-1002 (858) 720-4000 Fax: (858) 720-9250 www.L-3Com.com Activation Solution MSDS	MSDS Ref. No. 7722-84-1-1
	Version US / Canada
	Date Approved: December 1, 2005
	Revision No. 1

MATERIAL SAFETY DATA SHEET

Hydrogen Peroxide Less Than 8% with less than 5% IPA

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Activation Solution

GENERAL USE: Standard grade is used for industrial bleaching, processing, pollution abatement, and general oxidation reactions.

MANUFACTURER

TITAN CORPORATION
3394 Carmel Mountain Rd.
San Diego, CA 92121
General Information: (858) 720-4187

Emergency Telephone Numbers:

CHEMTREC (U.S.): (800) 424-9300
POISON CONTROL: (800) 222-1222

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt%</u>
Hydrogen Peroxide	7722-84-1	<8
Isopropyl Alcohol (IPA)	67-63-0	<5
Water	7732-18-5	>87

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: Weak oxidizing agent which is stable under normal conditions. Sensitive to contamination. Decomposes yielding oxygen that supports combustion of organic matters and can cause overpressure if confined.

POTENTIAL HEALTH EFFECTS: Minimally irritating to the eyes and mildly irritating to skin.

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately. **INHALATION:** Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

NOTES TO MEDICAL DOCTOR: Direct contact may be minimally irritating. Treatment is by dilution and is symptomatic and supportive.

5. FIRE FIGHTING MEASURES

FLASH POINT AND METHOD: Non-combustible **FLAMMABLE**

LIMITS: Non-combustible **AUTOIGNITION TEMPERATURE:** Non-combustible

EXTINGUISHING MEDIA: Flood with water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire.

FIRE FIGHTING PROCEDURES: Any tank or container surrounded by fire should be flooded with water for cooling. Wear full protective clothing and self-contained breathing apparatus.

SENSITIVITY TO STATIC DISCHARGE: No data available

SENSITIVITY TO IMPACT: No data available

HAZARDOUS DECOMPOSITION PRODUCTS: Oxygen which supports combustion.

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Dilute with a large volume of water and hold in a pond or diked area until hydrogen peroxide decomposes. Dispose according to methods outlined for waste disposal.

Combustible materials exposed to hydrogen peroxide should be immediately

submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

7. HANDLING AND STORAGE

HANDLING: Wear cup type chemical safety goggles and full-face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes. Avoid cotton, wool and leather. Avoid excessive heat and contamination. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Never return unused hydrogen peroxide to original container, empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic. **STORAGE:** Store drums in cool areas out of direct sunlight and away from combustibles. For bulk storage refer to FMC Technical Bulletins.

COMMENTS: Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into the work environment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

<u>Chemical Name</u>	<u>TWA</u> <u>(ACGIH)</u>	<u>STEL/Ceiling</u> <u>(ACGIH)</u>	<u>PEL</u> <u>(OSHA)</u>	<u>STEL/Ceiling</u> <u>(OSHA)</u>
Hydrogen Peroxide	1 ppm		1 ppm	

ENGINEERING CONTROLS: Ventilation should be provided to minimize the release of hydrogen peroxide vapors and mists into the work environment. Spills should be minimized or confined immediately to prevent release into the work area. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use cup type chemical goggles.

RESPIRATORY: If concentrations in excess of 10 ppm are expected use approved self-contained breathing apparatus. Do not use oxidizable sorbants such as activated carbon.

PROTECTIVE CLOTHING: Liquid proof rubber or neoprene gloves. Rubber or neoprene footwear (avoid leather). Impervious clothing materials such as rubber, neoprene, nitrile or polyvinyl chloride (avoid cotton, wool and leather). Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in a fire.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: light alcohol odor

APPEARANCE: Clear, colorless liquid

pH: (as is) approx. 2.5 to 3.5

PERCENT VOLATILE: 100%

VAPOR PRESSURE: 31 mmHg at 30°C

VAPOR DENSITY: (Air - 1): Not available

BOILING POINT: 101°C (214°F)

FREEZING POINT: -3°C (27°F)

SOLUBILITY IN WATER: (in H₂O % by wt) 100%

EVAPORATION RATE: (Butyl Acetate - 1) Above 1

DENSITY: Not available

SPECIFIC GRAVITY: (H₂O - 1): 1.01 @ 20°C/4°C

COEFF. OIL/WATER: Not available

ODOR THRESHOLD: Not available

OXIDIZING PROPERTIES: Not applicable

COMMENTS: pH (1% solution): 5.0 -6.0

NOTE: Data listed above is for 8% Hydrogen Peroxide.

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Excessive heat or contamination could cause product to become unstable.

STABILITY: Stable (contamination could cause decomposition)

POLYMERIZATION: Will not occur

HAZARDOUS DECOMPOSITION PRODUCTS: Oxygen which supports combustion.

INCOMPATIBLE MATERIALS: Reducing agents, iron and other heavy metals, galvanized iron, copper alloys and caustic.

COMMENTS: Materials to avoid: Dirt, organics, and combustibles.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Minimally irritating (rabbit) (5% hydrogen peroxide) [FMC Study Number: 186-0949]

SKIN EFFECTS: Mildly irritating after 4 hours exposure (rabbit) (10% hydrogen peroxide) [FMC Study Number: 189-1078] **DERMAL LD₅₀:** >2000 mg/kg (rabbit) (35% hydrogen peroxide) [FMC Study Number: 183-746]

ORAL LD₅₀: >5000 mg/kg (rat) (10% hydrogen peroxide) [FMC Study Number: 189-1077]

INHALATION LC₅₀: >0.17 mg/L (rat) (50% hydrogen peroxide) [FMC Study Number: 189-1080]

ACUTE EFFECTS FROM OVEREXPOSURE: Minimally irritating to the eyes, skin, nose, throat, and lungs.

CHRONIC EFFECTS FROM OVEREXPOSURE: There are reports of limited evidence of carcinogenicity of hydrogen peroxide to mice administered high concentrations in their drinking water (IARC Monograph 36, 1985). However, the International Agency For Research on Cancer concluded that hydrogen peroxide could not be classified as to its carcinogenicity to humans (Group III carcinogen).

CARCINOGENICITY

<u>Chemical Name</u>	<u>NTP Status</u>	<u>IARC Status</u>	<u>OSHA Status</u>	<u>Other</u>
Hydrogen Peroxide	Not listed	Not listed	Not listed	(ACGIH) Listed (A3, Animal Carcinogen)

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Channel catfish 96 hour LC50 - 37.4 mg/L
Fathead minnow 96 hour LC50 - 16.4 mg/L

Daphnia magna 24 hour EC50 - 7.7 mg/L

Daphnia pulex 48 hour LC50 - 2.4 mg/L

Freshwater snail 96 hour LC50 - 17.7 mg/L

For more information refer to ECETOC "Joint Assessment of Commodity

Chemicals No. 22, Hydrogen Peroxide.' ISSN-0773-6339, January 1993

CHEMICAL FATE INFORMATION: Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Degrades in the atmosphere within the light spectrum with hydroxyl radicals in the gas phase and subsequent photolysis.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: An acceptable method of disposal is to dilute with a large amount of water and allow the hydrogen peroxide to decompose followed by discharge into a suitable treatment system in accordance with all regulatory agencies. The appropriate regulatory agencies should be contacted prior to disposal.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME: Not regulated
PRIMARY HAZARD CLASS/DIVISION: Not applicable
UN/NA NUMBER: None
PLACARDS: Not Required
LABEL: Not applicable
OTHER SHIPPING INFORMATION:
DOT Marking: Not applicable
Hazardous Substance/RQ: Not applicable
49 STCC Number: Not applicable

SPECIAL SHIPPING NOTES: IMDG: Not regulated
IATA: Not regulated

Protect from physical damage. Keep drums in upright position.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355): Not listed

SECTION 311 HAZARD CATEGORY (40 CFR 370): Not applicable

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370): 10000 lbs. (conc. <52%)

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372): Not Listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE)

COMPENSATION AND LIABILITY ACT)

CERCLA REGULATORY (40 CFR 302.4): Not listed

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA STATUS (40 CFR 710): Listed

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification No.: None

Hazard Classification: None

Ingredient Disclosure List: Not listed

16. OTHER INFORMATION

<u>HMIS RATING</u>		<u>NFPA RATING</u>	
HEALTH:	0	HEALTH:	0
FLAMMABILITY	0	FLAMMABILITY	0
PHYSICAL HAZARD:	0	REACTIVITY:	0
PERSONAL PROTECTION (PPE):	H	SPECIAL:	None

Key

4 - Severe

3 - Serious

- 2 - Moderate
- 1 - Slight
- 0 - Minimal

HMIS RATINGS NOTES:

Protection -H (Safety goggles, gloves, apron, and vapor respirator)

The contents and format of this MSDS are in accordance with OSHA Hazard Communication Standard and Canada's Workplace Hazardous Information System (WHMIS).

National Fire Protection Association (NFPA)

Hazardous Materials Identification System (HMIS)