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MSDS

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BOVA SUPPLY CENTER
00 MAY 19 AM 11:55

*** MATERIAL SAFETY DATA SHEET ***
 Ethyl Alcohol, Denatured (A407)

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Ethyl Alcohol, Denatured (A407)
 Catalog Numbers:
 S73979-1, S73979-2, S73985, A407 1, A407 20, A407 20 001,
 A407 20 002, A407 20 004, A407 20 005, A407 20 006,
 A407 20 007, A407 20 008, A407 20 009, A407 20 010, A407 200, A407 4,
 A407 500, A407 500 001, A407-1, A407-20, A407-200, A407-4, A407-500, A4071,
 A40720, A40720 007, A40720 008, A40720 009, A40720 010, A40720 011,
 A40720 012, A40720 013, A40720 014, A40720 015, A40720 016,
 A40720001, A40720002, A40720003, A40720004, A40720005, A40720006, A40720007,
 A40720008, A40720009, A40720010, A4074, A407500, A407500 001, A407500001,
 A407J500, A407J500, A407P 1CAL, A407P 1CAL, A407P4, A407S 4,
 A407S-4, A407S4, A407SK 4, A407SK-4, A407SKA, BW6100200, S739791, S739792

Synonyms:
 Ethanol denatured, grain alcohol denatured, ethyl hydroxide
 Denatured ethyl hydrate denatured, algarin denatured
 Company Identification: Finer Scientific
 Fairlawn, NJ 07410
 For information, call: 201-796-7100
 Emergency Number: 201-796-7100
 For CHEMTREC assistance, call: 800-424-9300
 For International CHEMPREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

| CAS# | Chemical Name | % | ELINECS# |
|------------|--|----------|-----------|
| 64-17-5 | Ethyl Alcohol | 85.4-92. | 200-578-6 |
| 67-56-1 | Methyl alcohol | 3.6 | 200-659-6 |
| 67-63-0 | Isopropyl alcohol | 25 ppm | 200-661-7 |
| 67-64-1 | Acetone | 2 ppm | 200-662-2 |
| 71-43-2 | Benzene | trace | 200-753-7 |
| 75-07-0 | Acetaldehyde | 10 ppm | 200-836-8 |
| 108-10-1 | Methyl isobutyl ketone | 1.9 | 203-550-1 |
| 108-88-3 | Toluene | 0.8% | 203-625-9 |
| 141-78-6 | Ethyl acetate | 1.3 | 205-500-4 |
| 7732-18-5 | Water | 5.0% | 231-791-2 |
| 64742-89-8 | Solvent naphtha (petroleum), light all phatic | 0.72-0.7 | 265-192-2 |

Hazard Symbols: F
 Risk Phrases: 11

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW C
 Appearance: clear, colorless, flammable liquid
 Danger: May cause skin irritation. May be fatal if swallowed.
 Flammable liquid. May cause central nervous system depression. May
 be absorbed through the skin. May form explosive peroxides. May cause
 blindness if swallowed. Causes severe eye irritation. May cause liver
 and kidney damage. May cause reproductive and fetal effects.
 Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects

Eye:
 Produces irritation, characterized by a burning sensation, redness,
 tearing, inflammation, and possible corneal injury. May cause
 painful sensitization to light. Vapors may cause eye irritation.

Skin:
 May cause skin irritation. Prolonged and/or repeated contact may
 cause defatting of the skin and dermatitis. May be absorbed through
 the skin.
 Ingestion:
 May be fatal or cause blindness if swallowed. May cause systemic
 toxicity with acidosis. May cause liver and kidney damage. May cause
 central nervous system depression, characterized by excitement,
 followed by headache, dizziness, drowsiness, and nausea. Advanced
 stages may cause collapse, unconsciousness, coma and possible death
 due to respiratory failure.

Inhalation:

**** SECTION 4 - FIRST AID MEASURES ****

Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. May cause effects similar to those described for ingestion. May cause drowsiness, unconsciousness, and central nervous system depression.

Chronic: Irritation and ingestion may cause effects similar to those of acute inhalation. Prolonged contact with the eyes and skin may cause defatting and dermatitis. Prolonged contact with the skin may cause adverse reproductive effects. May cause fetal effects.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
 As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Use water spray to keep fire-exposed containers cool. Containers may explode if heated. Do not breathe fire. Flammable liquid. May form explosive peroxide ground and collect in low or confined areas.

Extinguishing Media:
 In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Cool containers with flooding quantities of water until well away from fire is out.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
 Absorb spill with inert material, (e.g., dry sand or earth), then sweep up and dispose in accordance with local, state, and federal regulations. Ignition. A vapor suppressing foam may be used to reduce vapors.

**** SECTION 7 - HANDLING AND STORAGE ****

Handling:
 Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, clothing, or transferring material. Avoid contact with residue (liquid and/or vapor). May be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage:
 Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
 Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|---------------|-----------------------|---------------------------------|---------------------------------|
| Ethyl Alcohol | 1000 ppm ; 1880 mg/m3 | 1000 ppm TWA; 1900 mg/m3 TWA | 1000 ppm TWA; 1900 mg/m3 TWA |

| | | | |
|--|---|--|--|
| Methyl alcohol | 200 ppm ; 262 mg/m ³ ; 250 ppm STEL; 328 mg/m ³ STEL; skin - potential for absorption | 200 ppm IDLH (10 ppm IDLH limit) | 200 ppm TWA; 260 mg/m ³ TWA |
| Isopropyl alcohol | 400 ppm ; 983 mg/m ³ ; 500 ppm STEL; 1230 mg/m ³ STEL | 400 ppm TWA; 980 mg/m ³ TWA; 2000 ppm IDLH (10 percent lower explosive limit) | 400 ppm TWA; 980 mg/m ³ TWA |
| Acetone | 500 ppm ; 1188 mg/m ³ ; 1750 ppm STEL; 1782 mg/m ³ STEL | 250 ppm TWA; 590 mg/m ³ TWA; 2500 ppm IDLH (lower explosive level) | 1000 ppm TWA; 2400 mg/m ³ TWA |
| Benzene | 0.5 ppm ; 1.6 mg/m ³ ; 2.5 ppm STEL; 8 mg/m ³ STEL; skin - potential for cutaneous absorption | 0.1 ppm TWA; NIOSH Potential Occupational Carcinogen - see Appendix A. Potential NIOSH carcinogen. | 10 ppm TWA (apply only to exempt industry segments) ; 1 ppm STEL; 0.5 ppm TWA action limit; Cancer hazard; Flammable (see 2 9 CFR 1910.1028) |
| Acetaldehyde | C. 25 ppm; C 45 mg/m ³ | NIOSH Potential Carcinogen - see Appendix A; (Aldehydes) for supplementary exposure limits | 200 ppm TWA; 360 mg/m ³ TWA |
| Methyl isobutyl ketone | 50 ppm ; 205 mg/m ³ ; 75 ppm STEL; 307 mg/m ³ STEL | 50 ppm TWA; 205 mg/m ³ TWA; 500 ppm IDLH | 100 ppm TWA; 410 mg/m ³ TWA |
| Toluene | 50 ppm ; 188 mg/m ³ ; skin - potential for cutaneous absorption | 100 ppm TWA; 375 mg/m ³ TWA; 500 ppm IDLH | 200 ppm TWA; C 300 ppm |
| Ethyl acetate | 400 ppm ; 1440 mg/m ³ | 400 ppm TWA; 1400 mg/m ³ TWA; 12000 ppm IDLH (10 percent lower explosive limit) | 400 ppm TWA; 1400 mg/m ³ TWA |
| Water | none listed | none listed | none listed |
| Solvent naphtha (petroleum), light aliphatic | none listed | none listed | none listed |

OSHA Vacated PELs:
 100 ppm alcohol; 1900 mg/m³ TWA
 Methyl alcohol
 200 ppm TWA; 260 mg/m³ TWA
 Isopropyl alcohol
 400 ppm TWA; 980 mg/m³ TWA
 Acetone
 750 ppm TWA; 1800 mg/m³ TWA
 Benzene
 100 ppm TWA (unless specified in 1910.1028)
 Acetaldehyde
 100 ppm TWA; 180 mg/m³ TWA
 Methyl isobutyl ketone
 50 ppm TWA; 205 mg/m³ TWA
 Toluene
 100 ppm TWA; 375 mg/m³ TWA
 Ethyl acetate
 400 ppm TWA; 1400 mg/m³ TWA
 Water

No OSHA Vacated PELs are listed for this chemical.
 Solvent naphtha (petroleum), light aliphatic:
 No OSHA Vacated PELs are listed for this chemical.
 Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: clear, colorless
Odor: aromatic odor
Color: none
Odor: none
Boiling Point: 35 deg C (95 deg F)
Freezing/Melting Point: -90 deg C (-130 deg F)
Autoignition Temperature: 430 deg C (800 deg F)
Flash Point: 13 deg C (55.40 deg F)
NEPA Rating: 3
Explosion Limits, Lower: 1.6 (ethanol)
Evaporation Rate: 2.0
Vapor Density: Not available.
Viscosity: 173.3 deg F
Freezing Point: 685 deg F (362.78 deg C)
Autoignition Temperature: 430 deg C (800 deg F)
Flash Point: 13 deg C (55.40 deg F)
NEPA Rating: 3
Explosion Limits, Lower: 1.6 (ethanol)
Decomposition Temperature: Not available.
Solubility: Soluble in water.
Specific Gravity/Density: 0.7905
Molecular Formula: Mixture.
Molecular Weight: Not available.

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability: Stable. This material may be sensitive to peroxide formation.
Conditions to Avoid: This material may be sensitive to peroxide formation, incompatible materials.
Incompatibility: Isopropanol is susceptible to autoxidation and therefore should be classified as peroxidizable. Acids (mineral, organic, hydrochloric acid, hydrofluoric acid, sulfuric acid, phosphoric acid), acids (mineral, oxidizing, e.g. chromic acid, hypochlorous acid), nitric acid, sulfuric acid, organic acids (e.g. acetic acid, and hydrochloric acid, methanoic acid, oxalic acid), azo, diazo, and hydrazine, isocyanates (e.g. methyl isocyanate, ethyl isocyanate, isocyanic acid, hydrazine, methyl hydrazine, e.g. cesium, potassium, sodium) nitrides (alkali and alkali, sodium nitride), peroxides and hydroperoxides (organic e.g. acetyl peroxide, benzoyl peroxide, butyl peroxide, methyl ethyl ketone peroxide), epoxides (e.g. butyl glycidyl ether), oxidizing substances (e.g. bromine, hydrogen peroxide, nitrogen dioxide, perchloric acid, chromic acid, ceric ammonium sulfate, e.g. aluminum carbide, chlorosilane, hydrogen phosphide, titanium, e.g. aluminum carbide, carbide, ethyl dichlorosilane).
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
 CAS# 64-17-5: KQ6300000
 CAS# 67-56-1: FCL400000
 CAS# 67-63-0: NYS050000
 CAS# 67-71-3: CML400000
 CAS# 71-43-2: CML400000
 CAS# 75-07-0: AS1925000
 CAS# 108-10-1: SA9275000
 CAS# 108-98-3: XSS250000
 CAS# 741-78-6: AHS425000
 CAS# 741-23-8: AHS425000
 CAS# 64742-89-8: Unlisted.

Fish: Trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3&C
 Bacteria: Photobacterium phosphotum; EC50 = 34900 mg/L; 5-30 min; Mic
 Environmental Fate:
 Ethanol: In water, will volatilize and probably degrade.
 Physical/Chemical:
 Not available.
 Other: Not expected to bioconcentrate in fish.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
 RCRA P-Series: None listed.
 RCRA U-Series: CAS# 67-56-1; waste number U154
 (Ignitable waste); CAS# 71-84-1; waste number U002
 (Corrosive waste); CAS# 75-07-0; waste
 (Flammable waste); Toxic waste); CAS# 75-07-0; waste

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
 Shipping Name: ETHANOL SOLUTIONS
 Hazard Class: 3
 Packing Group: II
 Canadian TDG
 Shipping Name: ALCOHOLS TOXIC NOS (ETHANOL, METHANOL MIXTURE)
 Hazard Class: 3(6.1)
 UN Number: UN1986
 Other Information: FP 18C

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
 TSCA
 CAS# 64-17-5 is listed on the TSCA inventory.
 CAS# 67-56-1 is listed on the TSCA inventory.
 CAS# 67-63-0 is listed on the TSCA inventory.
 CAS# 67-64-1 is listed on the TSCA inventory.
 CAS# 71-43-2 is listed on the TSCA inventory.
 CAS# 108-10-1 is listed on the TSCA inventory.
 CAS# 108-88-3 is listed on the TSCA inventory.
 CAS# 141-78-6 is listed on the TSCA inventory.
 CAS# 7732-18-5 is listed on the TSCA inventory.
 CAS# 64742-89-8 is listed on the TSCA inventory.
 Health & Safety Reporting List
 CAS# 67-63-0: Effective Date: December 15, 1986; Sunset Date: December 15, 1992
 CAS# 108-10-1: Effective Date: October 4, 1982; Sunset Date: October 4, 1992
 CAS# 108-88-3: Effective Date: October 4, 1982; Sunset Date: October 4, 1992
 Chemical Test Rules
 CAS# 67-63-0: Testing required by: manufacturers; importers; processor
 Section 12b
 CAS# 67-63-0: export notification required - Section 4
 CAS# 108-10-1: export notification required - Section 4
 CAS# 141-78-6: export notification required - Section 4
 TSCA Significant New Use Rule
 None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RFQ)
 CAS# 67-63-0: final RQ = 5000 pounds (2270 kg)
 CAS# 67-64-1: final RQ = 5000 pounds (2270 kg)
 CAS# 71-43-2: final RQ = 1000 pounds (454 kg)
 CAS# 75-07-0: final RQ = 1000 pounds (454 kg)
 CAS# 108-10-1: final RQ = 5000 pounds (2270 kg)
 CAS# 108-88-3: final RQ = 1000 pounds (454 kg)
 CAS# 141-78-6: final RQ = 5000 pounds (2270 kg)
 Section 302 (RFQ)
 SARA or the chemicals in this product have a TPO.
 CAS# 64-17-5: acute, chronic, flammable.
 CAS# 67-56-1: acute, flammable.
 CAS# 67-63-0: acute, chronic, flammable, sudden release of pressure.
 CAS# 67-64-1: acute, chronic, flammable.
 CAS# 71-43-2: acute, chronic, flammable.
 CAS# 75-07-0: acute, chronic, flammable, reactive.
 CAS# 108-88-3: acute, chronic, flammable, reactive.
 CAS# 141-78-6: flammable.
 Section 313
 This material contains Methyl alcohol (CAS# 67-56-1, 3 6%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
 This material contains Isopropyl alcohol (CAS# 67-63-0, 25%), which is

LD50/LC50:
 CAS# 64-17-5: Inhalation, mouse: LC50 = 39 gm/m³/4H; Inhalation, rat: LC50 = 3000 ppm/10H; Oral, mouse: LD50 = 3450 mg/kg; Oral, rabbit: LD50 = 6300 mg/kg; Oral, rat: LD50 = 7060 mg/kg.
 CAS# 67-56-1: Inhalation, rat: LC50 = 64000 ppm/4H; Oral, mouse: LD50 = 3200 mg/kg; Oral, rabbit: LD50 = 15200 mg/kg; Oral, rat: LD50 = 5620 mg/kg.
 CAS# 67-63-0: Oral, mouse: LD50 = 3600 mg/kg; Oral, rabbit: LD50 = 6410 mg/kg; Oral, rat: LD50 = 5045 mg/kg; Skin, rabbit: LD50 = 12800 mg/kg.
 CAS# 67-64-1: Inhalation, rat: LC50 = 50100 mg/m³/8H; Oral, mouse: LD50 = 3 gm/kg; Oral, rabbit: LD50 = 5340 mg/kg; Oral, rat: LD50 = 5800 mg/kg; Skin, rabbit: LD50 = 20 gm/kg.
 CAS# 71-43-2: Inhalation, mouse: LC50 = 9980 ppm; Inhalation, rat: LC50 = 10000 ppm/7H; Oral, mouse: LD50 = 4700 mg/kg; Oral, rat: LD50 = 5620 mg/kg; Skin, rabbit: LD50 = 15200 mg/kg; Oral, rat: LD50 = 661 mg/kg; Skin, rabbit: LD50 = 3540 mg/kg; Oral, rat: LD50 = 610 mg/kg.
 CAS# 108-10-1: Inhalation, mouse: LC50 = 23300 mg/m³; Oral, mouse: LD50 = 2671 mg/kg; Oral, rat: LD50 = 2080 mg/kg; Skin, rabbit: LD50 = >20 gm/kg.
 CAS# 108-88-3: Inhalation, mouse: LC50 = 400 ppm/24H; Inhalation, rat: LC50 = 49 gm/m³/4H; Oral, rat: LD50 = 636 mg/kg; Skin, rabbit: LD50 = 14176 mg/kg.
 CAS# 141-78-6: Inhalation, mouse: LC50 = 45 gm/m³/2H; Inhalation, rat: LC50 = 200 gm/m³; Oral, mouse: LD50 = 4100 mg/kg; Oral, rabbit: LD50 = 4935 mg/kg; Oral, rat: LD50 = 5620 mg/kg; Skin, rabbit: LD50 = >20 gm/kg.
 CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
 CAS# 64742-89-8:
 Carcinogenicity:

Ethyl Alcohol - A4 - Not Classifiable as a Human Carcinogen
 Methyl alcohol - A4 - Not Classifiable as a Human Carcinogen
 Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
 Isopropyl alcohol - IARC: Group 3 carcinogen

Acetone - ACGIH: A4 - Not Classifiable as a Human Carcinogen
 Benzene - ACGIH: A1 - Confirmed human carcinogen
 California: carcinogen - initial date 4/1/88
 NTP: Occupational carcinogen
 OSHA: Possible Select carcinogen
 IARC: Group 2B carcinogen
 IARC: Group 2B carcinogen

Methyl isobutyl ketone - IARC, NIOSH, NTP, or OSHA.
 Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
 Toluene - ACGIH: A4 - Not Classifiable as a Human Carcinogen
 Ethyl acetate - IARC: Group 3 carcinogen
 Water - ACGIH: A4 - Not Classifiable as a Human Carcinogen

Solvent naphtha (petroleum), light aliphatic - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
 Epidemiology: Available.
 Teratogenicity: Available.
 No data available.
 Reproductive Effects:
 Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have been collectively termed the fetal alcohol syndrome. Among the characteristics of this syndrome are intrauterine and postnatal growth deficiency, a distinctive pattern of facial dysmaturity, and mental retardation. Other clinical features such as liver motor dysfunction, and skeletal dysplasia, have also been reported in children have all of the features of the syndrome. This syndrome has been associated with alcoholic women who drank heavily and chronically during pregnancy.

Neurotoxicity: No data available.
 Mutagenicity: Available.
 Other Studies: Available.
 No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity: 250 ppm/6hr/goldfish/lethal/fresh water

subject to the reporting requirements of Section 313 of SARA title III and 40 CFR Part 372.
This chemical is not at a high enough concentration to be reportable under Section 313 of SARA Title III and 40 CFR Part 372.
This material contains Acetaldehyde (CAS# 75-07-0, 10%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
This material contains Methyl isobutyl ketone (CAS# 108-10-1, 1%) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
This chemical is not at a high enough concentration to be reportable under Section 313.

- Clean Air Act:
- CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).
 - CAS# 71-43-2 is listed as a hazardous air pollutant (HAP).
 - CAS# 75-07-0 is listed as a hazardous air pollutant (HAP).
 - CAS# 108-10-1 is listed as a hazardous air pollutant (HAP).
 - CAS# 108-88-3 is listed as a hazardous air pollutant (HAP).
 - This material does not contain any Class 1 Ozone depleters.
 - This material does not contain any Class 2 Ozone depleters.
- Clean Water Act:
- CAS# 71-43-2 is listed as a Hazardous Substance under the CWA.
 - CAS# 75-07-0 is listed as a Hazardous Substance under the CWA.
 - CAS# 108-88-3 is listed as a Hazardous Substance under the CWA.
 - CAS# 71-43-2 is listed as a Priority Pollutant under the Clean Water Act.
 - CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act.

OSHA: CAS# 75-07-0 is considered highly hazardous by OSHA.

Ethyl Alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Methyl alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Isopropyl alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Acetone can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Benzene can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Acetaldehyde can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Methyl isobutyl ketone can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Toluene can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Ethyl acetate can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
Solvent naphtha (petroleum), light aliphatic is not present on state lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
WARNING: This product contains Benzene, a chemical known to the state of California to cause birth defects or other reproductive harm.
WARNING: This product contains Acetaldehyde, a chemical known to the state of California to cause cancer.
WARNING: This product contains Ethyl Alcohol, a chemical known to the state of California to cause birth defects or other reproductive harm.
California No Significant Risk Level:
CAS# 71-43-2: no significant risk level = 7 ug/day
CAS# 75-07-0: inhalation: no significant risk level = 90 ug/day
European Labeling in Accordance with EC Directives
Risk Phrases: F
Safety Phrases: R 11 Highly flammable.
S 16 Keep away from sources of ignition - No smoking.
S 2 Keep out of reach of children.
S 7 Keep container tightly closed.
WGK (Water Danger/Protection)

- CAS# 64-17-5: 0
- CAS# 67-56-1: 1
- CAS# 67-63-0: 1
- CAS# 67-64-1: 0
- CAS# 71-43-2: 3
- CAS# 75-07-0: 1
- CAS# 108-10-1: 1
- CAS# 108-88-3: 2
- CAS# 75-07-0: 1
- CAS# 64742-89-8: No information available.

Canada

- CAS# 64-17-5 is listed on Canada's DSL/NDSL List.
- CAS# 67-56-1 is listed on Canada's DSL/NDSL List.
- CAS# 67-63-0 is listed on Canada's DSL/NDSL List.
- CAS# 67-64-1 is listed on Canada's DSL/NDSL List.
- CAS# 71-43-2 is listed on Canada's DSL/NDSL List.
- CAS# 75-07-0 is listed on Canada's DSL/NDSL List.
- CAS# 108-10-1 is listed on Canada's DSL/NDSL List.
- CAS# 108-88-3 is listed on Canada's DSL/NDSL List.
- CAS# 141-78-6 is listed on Canada's DSL/NDSL List.
- CAS# 7932-18-5 is listed on Canada's DSL/NDSL List.
- CAS# 64742-89-8 is listed on Canada's DSL/NDSL List.
- This product has a WHMIS classification of B2, DIA, D2B.
- CAS# 67-56-1 is not listed on Canada's Ingredient Disclosure List.
- CAS# 67-63-0 is not listed on Canada's Ingredient Disclosure List.
- CAS# 67-64-1 is not listed on Canada's Ingredient Disclosure List.
- CAS# 71-43-2 is not listed on Canada's Ingredient Disclosure List.
- CAS# 75-07-0 is not listed on Canada's Ingredient Disclosure List.
- CAS# 108-10-1 is not listed on Canada's Ingredient Disclosure List.
- CAS# 108-88-3 is not listed on Canada's Ingredient Disclosure List.
- CAS# 141-78-6 is not listed on Canada's Ingredient Disclosure List.
- CAS# 7932-18-5 is not listed on Canada's Ingredient Disclosure List.
- CAS# 64742-89-8 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

- CAS# 64-17-5: OEL-AUSTRALIA: TWA 1000 ppm (1900 mg/m3)
- OEL-BELGIUM: TWA 1000 ppm (1880 mg/m3); STEL 5000 mg/m3
- OEL-CZECHOSLOVAKIA: TWA 1000 mg/m3; STEL 5000 mg/m3
- OEL-DENMARK: TWA 1000 ppm (1900 mg/m3)
- OEL-FINLAND: TWA 1000 ppm (1900 mg/m3); STEL 1250 ppm (2400 mg/m3)
- OEL-GERMANY: TWA 1000 ppm (1900 mg/m3); STEL 5000 pp
- OEL-HUNGARY: TWA 1000 ppm (1900 mg/m3)
- OEL-THE NETHERLANDS: TWA 1000 ppm (1900 mg/m3)
- OEL-THE PHILIPPINES: TWA 1000 ppm (1900 mg/m3)
- OEL-POLAND: TWA 1000 mg/m3
- OEL-RUSSIA: STEL 1000 mg/m3
- OEL-SWEDEN: TWA 1000 ppm (1900 mg/m3)
- OEL-SWITZERLAND: TWA 1000 ppm (1900 mg/m3)
- OEL-TAIWAN: TWA 1000 ppm (1900 mg/m3)
- OEL-THAILAND: TWA 1000 ppm (1900 mg/m3)
- OEL-TURKEY: TWA 1000 ppm (1900 mg/m3)
- OEL-UNITED KINGDOM: TWA 1000 ppm (1900 mg/m3); STEL 5000 mg/m3
- OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA, check ACCT TIV
- OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACCT TIV
- CAS# 67-56-1: OEL-ARAB REPUBLIC OF EGYPT: TWA 200 ppm (260 mg/m3); Skin
- CAS# 67-63-0: OEL-AUSTRALIA: TWA 400 ppm (980 mg/m3); STEL 500 ppm (1225 mg/m3)
- OEL-BELGIUM: TWA 400 ppm (985 mg/m3); STEL 500 ppm (1230 mg/m3)
- OEL-DENMARK: TWA 200 ppm (490 mg/m3); STEL 1000 ppm (2460 mg/m3)
- OEL-FRANCE: STEL 400 ppm (980 mg/m3)
- OEL-GERMANY: TWA 400 ppm (980 mg/m3)
- OEL-JAPAN: STEL 400 ppm (980 mg/m3)
- OEL-THE NETHERLANDS: TWA 400 ppm (980 mg/m3)
- OEL-RUSSIA: STEL 400 ppm (980 mg/m3)
- OEL-SWEDEN: TWA 150 ppm (350 mg/m3); STEL 250 ppm (600 mg/m3)
- OEL-SWITZERLAND: TWA 400 ppm (980 mg/m3); STEL 900 ppm
- OEL-TURKEY: TWA 200 ppm (500 mg/m3)
- OEL-UNITED KINGDOM: TWA 400 ppm (980 mg/m3); STEL 500 ppm (1230 mg/m3)
- OEL IN BELGIUM, COLOMBIA, JORDAN, KOREA check ACCT TIV
- CAS# 67-64-1: OEL-AUSTRALIA: TWA 500 ppm (1185 mg/m3); STEL 1000 ppm
- OEL-BELGIUM: TWA 750 ppm (1780 mg/m3); STEL 1000 ppm
- OEL-CZECHOSLOVAKIA: TWA 800 mg/m3; STEL 4000 mg/m3
- OEL-DENMARK: TWA 250 ppm (600 mg/m3)
- OEL-FINLAND: TWA 500 ppm (1200 mg/m3); STEL 625 ppm (1500 mg/m3)
- OEL-GERMANY: TWA 750 ppm (1800 mg/m3)
- OEL-HUNGARY: TWA 600 ppm (1400 mg/m3)
- OEL-INDIA: TWA 750 ppm (1780 mg/m3); STEL 1000 ppm (2375 mg/m3)
- OEL-JAPAN: TWA 200 ppm (470 mg/m3)
- OEL-THE NETHERLANDS: TWA 750 ppm (1780 mg/m3); STEL 1000 ppm (2400 mg/m3)
- OEL-THE PHILIPPINES: TWA 1000 ppm (1900 mg/m3)
- OEL-RUSSIA: TWA 200 ppm (490 mg/m3)
- OEL-SWEDEN: TWA 250 ppm (600 mg/m3); STEL 500 ppm (1200 mg/m3)
- OEL-SWITZERLAND: TWA 750 ppm (1780 mg/m3)

CEL-TURKEY:TWA 1000 ppm (2400 mg/m3)
CEL-UNITED KINGDOM:TWA 750 ppm (1810 mg/m3);STEL 1250 ppm
CEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACCIH TLV
CEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACCI TLV

CAS# 71-43-2: OEL-AUSURALIA:TWA 5 ppm (16 mg/m3); Carcinogen
CEL-BELGIUM:TWA 10 ppm (32 mg/m3); Carcinogen JANS
CEL-CZECHOSLOVAKIA:TWA 10 mg/m3;STEL 20 mg/m3
OEL-DENMARK:TWA 5 ppm (16 mg/m3);Skin;Carcinogen
CEL-FINLAND:TWA 5 ppm (15 mg/m3);STEL 10 ppm (30 mg/m3);Skin;CAR
CEL-FRANCE:TWA 5 ppm (16 mg/m3);Carcinogen
CEL-GERMANY:Skin;Carcinogen
CEL-INDIA:TWA 10 (30 mg/m3);Skin;Carcinogen
CEL-INDIA:TWA 10 (30 mg/m3);Skin
CEL-JAPAN:TWA 10 ppm (32 mg/m3);STEL 25 ppm (80 mg/m3);CAR
CEL-THE NETHERLANDS:TWA 10 ppm (30 mg/m3);Skin
CEL-THE PHILIPPINES:TWA 25 ppm (80 mg/m3);Skin
CEL-POLAND:TWA 30 mg/m3;Skin
CEL-RUSSIA:TWA 10 ppm (5 mg/m3);STEL 25 ppm (15 mg/m3);SKIN;CAR
CEL-SWEDEN:TWA 1 ppm (3 mg/m3);STEL 5 ppm (16 mg/m3);Skin;CAR
CEL-SWITZERLAND:TWA 5 ppm (16 mg/m3);SKIN;Carcinogen
OEL-TURKEY:TWA 20 ppm (64 mg/m3);Skin
CEL-UNITED KINGDOM:TWA 10 ppm (30 mg/m3)
CEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACCIH TLV
CEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACCI TLV

CAS# 75-07-0: OEL-ARAB REPUBLIC OF EGYPT:TWA 100 ppm (180 mg/m3)
CEL-AUSTRALIA:TWA 100 ppm (180 mg/m3);STEL 150 PP (270 mg/m3)
CEL-BELGIUM:TWA 100 ppm (180 mg/m3);STEL 150 ppm (270 mg/m3)
CEL-CANADA:TWA 25 ppm (74 mg/m3);STEL 400 mg/m3;CAR
CEL-DENMARK:TWA 25 ppm (74 mg/m3);STEL 75 ppm (13 mg/m3)
CEL-FINLAND:TWA 50 ppm (180 mg/m3);Carcinogen JANS
CEL-FRANCE:TWA 100 ppm (180 mg/m3);Carcinogen
CEL-GERMANY:TWA 100 ppm (180 mg/m3);Carcinogen
CEL-HUNGARY:STEL 25 mg/m3;Carcinogen
CEL-INDIA:TWA 100 ppm (180 mg/m3);STEL 150 ppm (270 mg/m3)
CEL-THE NETHERLANDS:TWA 100 ppm (180 mg/m3)
CEL-THE PHILIPPINES:TWA 200 ppm (360 mg/m3)
CEL-POLAND:STEL 5 mg/m3;Skin
CEL-RUSSIA:TWA 25 ppm (45 mg/m3);STEL 50 ppm (90 mg/m3)
CEL-SWEDEN:TWA 25 ppm (45 mg/m3);STEL 100 PP (180 mg/m3)
CEL-SWITZERLAND:TWA 50 ppm (90 mg/m3);STEL 100 PP (180 mg/m3)
CEL-TURKEY:TWA 200 ppm (360 mg/m3)
CEL-UNITED KINGDOM:TWA 100 ppm (180 mg/m3)
CEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACCIH TLV
CEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACCI TLV

CAS# 108-88-3: OEL-AUSTRALIA:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
CEL-BELGIUM:TWA 100 ppm (377 mg/m3);STEL 150 ppm (565 mg/m3)
CEL-CZECHOSLOVAKIA:TWA 200 mg/m3;STEL 1000 mg/m3
CEL-DENMARK:TWA 50 ppm (190 mg/m3);Skin
CEL-FINLAND:TWA 100 ppm (375 mg/m3);STEL 150 ppm;Skin
CEL-FRANCE:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
CEL-GERMANY:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
CEL-HUNGARY:TWA 100 ppm (380 mg/m3);Skin
CEL-JAPAN:TWA 100 ppm (380 mg/m3)
CEL-THE NETHERLANDS:TWA 100 ppm (375 mg/m3);Skin
CEL-THE PHILIPPINES:TWA 100 ppm (375 mg/m3)
CEL-POLAND:TWA 100 ppm;STEL 50 mg/m3
CEL-RUSSIA:TWA 100 ppm;STEL 100 ppm (400 mg/m3);Skin
CEL-SWEDEN:TWA 50 ppm (200 mg/m3);STEL 100 ppm (400 mg/m3);Skin
CEL-THE PHILIPPINES:TWA 200 ppm (750 mg/m3);STEL 300 ppm
CEL-THAILAND:TWA 200 ppm (750 mg/m3)
CEL-TURKEY:TWA 200 ppm (750 mg/m3)
CEL-UNITED KINGDOM:TWA 100 ppm (375 mg/m3);STEL 150 ppm;Skin
CEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACCIH TLV

CAS# 141-78-6: OEL-AUSTRALIA:TWA 400 ppm (1400 mg/m3)
CEL-BELGIUM:TWA 400 ppm (1440 mg/m3);STEL 2000 mg/m3
CEL-CZECHOSLOVAKIA:TWA 400 ppm (1400 mg/m3)
CEL-DENMARK:TWA 300 ppm (1100 mg/m3)
CEL-FINLAND:TWA 300 ppm (1100 mg/m3)
CEL-FRANCE:TWA 400 ppm (1400 mg/m3)
CEL-GERMANY:TWA 400 ppm (1400 mg/m3)
CEL-HUNGARY:TWA 400 mg/m3;STEL 1200 mg/m3
CEL-JAPAN:TWA 400 ppm (1400 mg/m3)
CEL-THE NETHERLANDS:TWA 400 ppm (1400 mg/m3)
CEL-THE PHILIPPINES:TWA 400 ppm (1400 mg/m3) JANS
CEL-POLAND:TWA 200 ppm
CEL-RUSSIA:TWA 400 ppm;STEL 200 mg/m3
CEL-SWEDEN:TWA 150 ppm (500 mg/m3);STEL 300 ppm (1100 mg/m3)
CEL-SWITZERLAND:TWA 400 ppm (1400 mg/m3);STEL 800 ppm
CEL-TURKEY:TWA 400 ppm (1400 mg/m3)
CEL-UNITED KINGDOM:TWA 400 ppm (1400 mg/m3)
CEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACCIH TLV
CEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACCI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 10/12/1998 Revision #0 Date: Original.

The information above is believed to be accurate and represents the best available information. However, we make no warranty, expressed or implied, with respect to merchantability or any other warranty, express or implied, resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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**** MATERIAL SAFETY DATA SHEET ****

Bromothymol Blue Solution 0.04%
40091

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Bromothymol Blue Solution 0.04%
Catalog Numbers: S122 500, S122500

Synonyms:
None.

Company Identification: Fisher Scientific

1
Fisher Scientific
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

| CAS# | Chemical Name | % | ELINECS# |
|------------|--|------|-----------|
| 64-02-8 | Tetrasodium edta | 0.02 | 200-573-9 |
| 7732-18-5 | Water | >99 | 231-791-2 |
| 34722-90-2 | Phenol, 4,4'-(3h-2,1,1-benzoxathiol-3-ylidene)bis(2-bromo-methyl)-s-s-dioxide, monosodium salt | 0.04 | 252-169-7 |

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: dark green.
Condition: This is reported to be a low hazard for usual industrial handling. May cause irritation.
Target Organs: None.

Potential Health Effects

Eye: May cause eye irritation. Low hazard for normal industrial handling.
Skin: May cause skin irritation. Low hazard for usual industrial handling.
Ingestion: Low hazard for usual industrial handling.
Inhalation: Low hazard for usual industrial handling.
Chronic: No information found.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water.
Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid if irritation or symptoms occur.
Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. Breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Notes to Physician: Treat symptomatically and

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information: wear a self-contained breathing apparatus in As in any fire.
Extinguishing Media: water, MSHA/NIOSH (approved or equivalent), and full protective gear.
Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

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Spills/Leaks:
Absorb spill with inert material. (e.g., dry sand or earth), then place into a chemical waste container. Clean up spills immediately, observing precautions in the Protective Equipment section.

**** SECTION 7 - HANDLING AND STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse.
Storage:
Store in a cool, dry place.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|--|-------------|-------------|-------------------|
| Tetrasodium edta | none listed | none listed | none listed |
| Water | none listed | none listed | none listed |
| Phenol, 4,4'-(3h-2,1,1-benzoxathiol-3-ylidene)bis(2-bromo-methyl)-s-s-dioxide, monos, s-s-dioxide, monos | none listed | none listed | none listed |

OSHA Vacated PELs:

Tetrasodium edta:
No OSHA Vacated PELs are listed for this chemical.
Water:
No OSHA Vacated PELs are listed for this chemical.
Phenol, 4,4'-(3h-2,1,1-benzoxathiol-3-ylidene)bis(2-bromo-methyl)-s-s-dioxide, monos:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyewashes or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: dark green
Odor: odorless
pH: Not available.
Vapor Pressure: 14 mm Hg @20 deg C
Volatility: Not available.
Viscosity: Not available.
Boiling Point: 100 deg C
Freezing/Melting Point: 0 deg C
Autoignition Temperature: Not applicable.
Flash Point: Not applicable.
NFPA Rating: Not published.
Explosion Limits, Lower: Not available.
Explosion Limits, Upper: Not available.
Decomposition Temperature: Not available.
Solubility: Not available.
Specific Gravity/Density: 1
Molecular Formula: Mixture
Molecular Weight: 0

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable.

Conditions to Avoid:
Incompatibilities with Other Materials:
None identified.
Hazardous Decomposition Products:
None.
Hazardous Polymerization: Will not occur.

*** SECTION 11 - TOXICOLOGICAL INFORMATION ***

RTBSS#:
CAS# 64-02-8: AHS075000
CAS# 7732-18-5: ZC0110000
CAS# 34722-90-2 unlisted.
LD50/LC50:
Not available.
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
Carcinogenicity: 90-2.
Tetraacodium edta -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Phenol, 4,4'-(3h-2,1-benzoxathiol-3-ylidene)bis(2-bromo--methy
1-(1-methyl-2-ethyl-1H-imidazol-5-ylidene)bis(2-bromo--methy
None listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: available.
No data available.
Teratogenicity:
No data available.
Reproductive Effects:
No data available.
Neurotoxicity: available.
Mutagenicity: available.
No data available.
Other Studies:
No data available.

*** SECTION 12 - ECOLOGICAL INFORMATION ***

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

*** SECTION 14 - TRANSPORT INFORMATION ***

US DOT
No information available
Canadian TDG
No information available.

*** SECTION 15 - REGULATORY INFORMATION ***

US FEDERAL
TSCA
CAS# 64-02-8 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
CAS# 34722-90-2 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemicals in the Reporting List
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (PO)
None of the chemicals in this material have an RQ.
Section 302 (TPO)
None of the chemicals in this product have a TPO.
Section 313
No chemicals are reportable under section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 ozone depleters.
This material does not contain any Class 2 ozone depleters.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

STATES

None of the chemicals in this product are considered highly hazardous by OSHA.

Tetraacodium edta is not present on state lists from CA, PA, MN, MA, FL, or NJ.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
Phenol, 4,4'-(3h-2,1-benzoxathiol-3-ylidene)bis(2-bromo--methy
1-(1-methyl-2-ethyl-1H-imidazol-5-ylidene)bis(2-bromo--methy
None listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Call from WA, SI, AL, MA, FL, or NJ.
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.

Risk Phrases:

W6K (Water Danger/Protection)
CAS# 64-02-8: No information available.
CAS# 7732-18-5: No information available.
CAS# 34722-90-2: No information available.

Canada

CAS# 64-02-8 is listed on Canada's DSL/NDSL List.
CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.
CAS# 34722-90-2 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of Not Controlled.
None listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 34722-90-2 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 1/27/1999 Revision #0 Date: Original.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, even if such damages were foreseeable. The possibility of such damages is not intended to be excluded or limited in any way.

**** MATERIAL SAFETY DATA SHEET ****

Iodine-Potassium Iodide Solution

**** SECTION 1 - CHEMICAL, PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Iodine-Potassium Iodide Solution
 Catalog Numbers: 571949, 571950

Synonyms: None
 Company Identification: Fisher Scientific
 Reagent Grade
 Catalog No. 07410

For information, call: 201-796-7100
 Emergency Number: 201-796-7100
 For CHEMTREC assistance, call: 800-424-9300
 For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

| CAS# | Chemical Name | % | RTNCS# |
|-----------|------------------|-----|-----------|
| 7553-56-2 | Iodine | 3.0 | 231-442-4 |
| 7681-11-0 | Potassium iodide | 2.0 | 231-659-4 |
| 7732-18-5 | Water | 95 | 231-791-2 |

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: dark amber.
 Caution! May cause respiratory tract irritation. May cause skin irritation. May cause eye irritation. May cause digestive tract irritation.
 Target Organs: Central nervous system, respiratory system, cardiovascular system.

Potential Health Effects

Eye: May cause eye irritation.
 Skin: May cause skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
 Ingest: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
 Inhalation: May cause respiratory tract irritation.
 Chronic: Chronic exposure can lead to iodism characterized by salivation, nasal discharges, sneezing, conjunctivitis, fever, laryngitis, bronchitis, stomatitis, and skin rashes.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
 Skin: Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
 Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.
 Inhalation: from exposure to fresh air immediately. If not breathing, give artificial respiration. Get medical aid if cough or other symptoms appear.
 Notes to Physician: Treat symptomatically and

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information: wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Material will not burn.
 Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

**** SECTION 7 - HANDLING AND STORAGE ****

General Information: Use proper personal protective equipment as indicated in Section 8.
 Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Cover with sand, dry lime or soda ash and place in a closed container for disposal.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation.
 Storage: Store in a cool, dry place.

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|------------------|------------------------|-------------|----------------------|
| Iodine | C 0.1 ppm; C 1.0 mg/m3 | 2 ppm IDLH | C 0.1 ppm; C 1 mg/m3 |
| Potassium iodide | none listed | none listed | none listed |
| Water | none listed | none listed | none listed |

OSHA Vacated PELs:

Iodine: No OSHA Vacated PELs are listed for this chemical.
 Potassium iodide: No OSHA Vacated PELs are listed for this chemical.
 Water: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
 Skin: Wear appropriate protective gloves to prevent skin exposure.
 Clothing: Wear appropriate protective clothing to prevent skin exposure.
 Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z98.1 requirements must be followed whenever conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: liquid
 Appearance: colorless
 Odor: iodine-like
 pH: Not available.
 Vapor Pressure: 14 mm Hg
 Vapor Density: 0.7
 Evaporation Rate: >1
 Viscosity: Not available.
 Boiling Point: 100 deg C
 Freezing Point: Not applicable.
 Autoignition Temperature: Not applicable.
 Flash Point: Not applicable.
 NFPA Rating: Not published.
 Explosion Limits, Lower: Not available.
 Explosion Limits, Upper: Not available.
 Decomposition Temperature: Not available.
 Solubility: Soluble in water.
 Specific Gravity/Density: Mixture
 Molecular Formula: I2
 Molecular Weight: 0

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability: Stable under normal temperatures and pressures.
 Conditions to Avoid:

Incompatible materials:
Powdered aluminum, active metals, strong reducing agents. Acetylene and acetaldehyde cause explosive reactions with iodine. Mixtures with ammonium hydroxide form shock sensitive compounds.
Hazardous Hydrogen iodide, Iodine, iodide ions (I-).
Hazardous Polymerization: Will not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#: 7533-56-2; NI1575000
CAS# 7681-11-0; RT2975000
CAS# 7732-18-5; ZC0110000
LD50/LC50:
CAS# 7533-56-2: Oral, mouse: LD50 = 22 gm/kg; Oral, rabbit: LD50 = 10 gm/kg; Oral, rat: LD50 = 14 gm/kg.
CAS# 7681-11-0:
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
Carcinogenicity:
Iodine
Potassium iodide -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Teratogenicity:
Potassium iodide has been observed to cause developmental abnormalities of the endocrine system in human fetuses.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: CORROSIVE LIQUID, N.O.S.
Hazard Class: 8 (CONTAINS IODINE)
UN Number: UN1760
Packing Group: II
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 7533-56-2 is listed on the TSCA inventory.
CAS# 7681-11-0 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
Chemical Name: Potassium iodide
None of the chemicals are on the Health & Safety Reporting List.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

Section 302 (EO)

None of the chemicals in this material have an RC.
Section 302 (TPO)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 7533-56-2: acute, chronic, flammable.
CAS # 7681-11-0: acute, chronic.
Section 313
None of the chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depleters.
This material does not contain any Class 2 Ozone depleters.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous under the Clean Water Act.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous

STATE
Iodine can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Potassium iodide is not present on state lists from CA, PA, MN, MA, or NJ.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations with EC Directives
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Risk Phrases:
WGK (Water Danger/Protection)
CAS# 7533-56-2: 1
CAS# 7681-11-0: 1
CAS# 7732-18-5: No information available.

Canada

CAS# 7533-56-2 is listed on Canada's DSL/NDSL List.
CAS# 7681-11-0 is listed on Canada's DSL/NDSL List.
CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of 0.1 ppm.
CAS# 7533-56-2 is not listed on Canada's Ingredient Disclosure List.
CAS# 7681-11-0 is not listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 7533-56-2: OEL-ARAB Republic of Egypt: TWA 0.1 ppm (0.1 mg/m3)
OEL-ASISTRIA: TWA 0.1 ppm (1 mg/m3)
OEL-AUSTRIA: TWA 0.1 ppm (1 mg/m3)
OEL-BELGIUM: STEL 0.1 ppm (1 mg/m3)
OEL-DENMARK: STEL 0.1 ppm (1 mg/m3)
OEL-FINLAND: STEL 0.1 ppm (1 mg/m3); Skin
OEL-FRANCE: STEL 0.1 ppm (1 mg/m3)
OEL-GERMANY: TWA 0.1 ppm (1 mg/m3)
OEL-HUNGARY: TWA 1 mg/m3; STEL 2 mg/m3
OEL-JAPAN: TWA 0.1 ppm (1 mg/m3); STEL 1 mg/m3
OEL-THE NETHERLANDS: TWA 0.1 ppm (1 mg/m3)
OEL-NORWAY: TWA 1 mg/m3; STEL 2 mg/m3
OEL-POLAND: TWA 0.1 ppm; STEL 1 mg/m3; Skin
OEL-SWEDEN: STEL 0.1 ppm (1 mg/m3)
OEL-SWITZERLAND: TWA 0.1 ppm (1 mg/m3); STEL 0.2 pp (2 mg/m3)
OEL-THAILAND: TWA 0.1 ppm (1 mg/m3)
OEL-TURKEY: TWA 0.1 ppm (1 mg/m3)
OEL-UNITED KINGDOM: STEL 0.1 ppm (1 mg/m3)
OEL-USA: TWA 0.1 ppm (1 mg/m3)
OEL-INDONESIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 9/02/1997 Revision #0 Date: Original.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of such information and we do not warrant, express or implied, with respect to such information and we do not warrant, express or implied, that the information should make their own investigations to determine the accuracy of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.