Fisher Scientific

ACROS ORGANICS

MSDS

IMPORTANT SAFETY INFORMATION -- DO NOT DISCARD.
PLEASE ROUTE TO COMPANY SAFETY OFFICER.

SYRACUSE CTY SCH DIST
BOVA SUPP CTR
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SYRACUSE NY 13204

IF NAME AND/OR ADDRESS HAVE CHANGED, CONTACT YOUR SALES REPRESENTATIVE OR LOCAL BRANCH.

FOR EACH CHEMICAL, A MSDS SHEET WILL BE SENT ONLY ON THE FIRST SHIPMENT UNLESS A SUBSTANTIAL REVISION OCCURS.

REQUIRED MATERIAL SAFETY DATA SHEETS (MSDS) NOT INCLUDED IN THIS MAILING WILL FOLLOW UNDER SEPARATE COVER.

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

Dextrose Anhydrous
06365

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

MSDS Name: Dextrose Anhydrous
Catalog Numbers:
AC410950010, S73415, S73418, S73418-1, S73418-2, BP350 1, BP350-1, BP350-500, BP3501, BP350500, CRN D16 10, CRND16 10, CRND1610, D14-1, D14-212, D14-50, D14-500, D1450LC, D15 3, D15-10, D15-50, D1510, D153, D1550, D15500, D16 1, D16 10, D16 3, D16 50, D16 500, D16-1, D16-10, D16-3, D16-50, D16-500, D161, D1610, D163, D1650, D16500, NC9519486, NC9539130, NC9614447, S734181, S734182, XXD16100KG-X, XXD1625KG
Synonyms:
Corn Sugar, Glucose, D-Glucose, Grape Sugar.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, 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	%	EINECS#
50-99-7	Glucose	>99	200-075-1

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

EMERGENCY OVERVIEW

Appearance: white.
Caution! This is expected to be a low hazard for usual industrial handling. May cause eye and skin irritation. May cause respiratory and digestive tract irritation.
Target Organs: No data found.

Potential Health Effects
Eye:
May cause eye irritation.
Skin:
May cause skin irritation. Low hazard for usual industrial handling.
Ingestion:
No hazard expected in normal industrial use. May cause irritation of the digestive tract.
Inhalation:
No hazard expected in normal industrial use. May cause respiratory tract irritation.
Chronic:
No information found.

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

Eyes:
Gently lift eyelids and flush continuously with water. If irritation develops, get medical aid.
Skin:
Get medical aid if irritation develops or persists. Wash clothing before reuse. Flush skin with plenty of soap and water.
Ingestion:
Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Get medical aid if irritation or symptoms occur.
Inhalation:
Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If 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:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Extinguishing Media:
Use agent most appropriate to extinguish fire. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

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

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.
Storage:
Store in a cool, dry, well-ventilated area away from incompatible substances.

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

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Glucose	none listed	none listed	none listed

OSHA Vacated PELs:
Glucose:
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:
Protective garments not normally required.
Clothing:
Protective garments not normally required.
Respirators:
A respirator 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:	Solid
Appearance:	white
Odor:	odorless
pH:	5.9 (0.5M)
Vapor Pressure:	Negligible.
Vapor Density:	Not applicable.
Evaporation Rate:	Negligible.
Viscosity:	Not applicable.
Boiling Point:	Not available.
Freezing/Melting Point:	295 deg F
Autoignition Temperature:	Not applicable.
Flash Point:	Not applicable.
NFPA Rating:	(est.) Health: 0; Flammability: 0; Reactivity: 0
Explosion Limits, Lower:	Not available.
Upper:	Not available.
Decomposition Temperature:	Not available.
Solubility:	Soluble in water.
Specific Gravity/Density:	1.54 (water=1)
Molecular Formula:	C6H12O6
Molecular Weight:	180.0804

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

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, dust generation, excess heat.
Incompatibilities with Other Materials:
Oxidizing agents.
Hazardous Decomposition Products:
Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Has not been reported.

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

RTECS#:
CAS# 50-99-7: LZ6600000
LD50/LC50:
CAS# 50-99-7: Oral, rat: LD50 = 25800 mg/kg.
Carcinogenicity:
Glucose -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information available.
Teratogenicity:
No information available.
Reproductive Effects:
No information available.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.
Other Studies:
See actual entry in RTECS for complete information.

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

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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
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# 50-99-7 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
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 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 50-99-7: flammable.
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 depletors.
This material does not contain any Class 2 Ozone depletors.
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:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Glucose 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
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Risk Phrases:

Safety Phrases:
WGK (Water Danger/Protection)
CAS# 50-99-7: 0
United Kingdom Occupational Exposure Limits

Canada
CAS# 50-99-7 is listed on Canada's DSL/NDSL List.
This product does not have a WHMIS classification.
CAS# 50-99-7 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits

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

MSDS Creation Date: 7/14/1999 Revision #1 Date: 8/02/2000

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, howsoever arising, even if the company has been advised of the possibility of such damages.

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

Hexamethylenediamine
10920

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

MSDS Name: Hexamethylenediamine
Catalog Numbers:
S8031
Synonyms:
1,6-Diaminohexane; 1,6-Hexamethylenediamine.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, 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	%	EINECS#
124-09-4	1,6-Hexanediamine	>98	204-679-6

Hazard Symbols: C
Risk Phrases: 21/22 34

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

EMERGENCY OVERVIEW
Appearance: colorless or white. Flash Point: 80 deg C.
Danger! Flammable solid. May be harmful if absorbed through the skin. Corrosive. Hygroscopic. May be harmful if swallowed. May cause liver damage. May cause fetal effects based upon animal studies. Sensitizer. May cause severe respiratory and digestive tract irritation with possible burns. May cause severe eye and skin irritation with possible burns. May cause allergic skin and respiratory reaction.
Target Organs: Blood, liver.

Potential Health Effects
Eye:
Contact with eyes may cause severe irritation, and possible eye burns. May cause conjunctivitis and corneal inflammation.
Skin:
May be absorbed through the skin in harmful amounts. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May cause severe irritation and possible burns.
Ingestion:
May cause liver damage. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. Exposure may cause anemia and other blood abnormalities. May be harmful if swallowed.
Inhalation:
May cause allergic respiratory reaction. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. May cause effects similar to those described for ingestion.
Chronic:
Prolonged or repeated skin contact may cause dermatitis. May cause fetal effects.

**** 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 immediately.
Skin:
Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
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 immediately.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration.
Notes to Physician:
Treat symptomatically and

**** 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. Dusts at sufficient concentrations can form explosive mixtures with air. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable solid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. May polymerize explosively when involved in a fire. Contact with metals may evolve flammable hydrogen gas.
Extinguishing Media:
Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Cool containers with flooding quantities of water until well after fire is out.

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

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Ground and bond containers when transferring material. Avoid contact with skin and eyes. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage:
Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Do not store in metal containers.

**** 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
1,6-Hexanediamine	0.5 ppm	none listed	none listed

OSHA Vacated PELs:
1,6-Hexanediamine:
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 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:	Solid
Appearance:	colorless or white
Odor:	fish-like - weak odor
pH:	Not available.
Vapor Pressure:	3 mm Hg @ 60 deg C
Vapor Density:	4.0 (air=1)
Evaporation Rate:	Not available.
Viscosity:	1.5 cP @ 50 deg
Boiling Point:	204 deg C

Freezing/Melting Point:	42 deg C
Autoignition Temperature:	Not available.
Flash Point:	80 deg C (176.00 deg F)
NFPA Rating:	Not published.
Explosion Limits, Lower:	0.7
Upper:	6.3
Decomposition Temperature:	Not available.
Solubility:	Soluble in water.
Specific Gravity/Density:	0.848 (water=1)
Molecular Formula:	C6H16N2
Molecular Weight:	116.1254

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

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid:
High temperatures, ignition sources, moisture, metals, strong oxidants.
Incompatibilities with Other Materials:
Acids, acid chlorides, acid anhydrides, carbon dioxide, strong oxidizers.
Hazardous Decomposition Products:
Carbon monoxide, oxides of nitrogen, carbon dioxide.
Hazardous Polymerization: Has not been reported

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

RTECS#:
CAS# 124-09-4: MO1180000
LD50/LC50:
CAS# 124-09-4: Oral, rat: LD50 = 750 mg/kg; Skin, rabbit: LD50 = 1110 mg/kg.
Carcinogenicity:
1,6-Hexanediamine -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information available.
Teratogenicity:
No information available.
Reproductive Effects:
May cause fetal effects based on animal studies.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.
Other Studies:
None.

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

Other
No information available.

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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
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# 124-09-4 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
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 (RQ)
None of the chemicals in this material have an RQ.

Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 124-09-4: acute.
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 depletors.
This material does not contain any Class 2 Ozone depletors.
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:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
1,6-Hexanediamine can be found on the following state right to know lists: New Jersey, Minnesota, Massachusetts.
California No Significant Risk Level:
None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: C
Risk Phrases:
R 21/22 Harmful in contact with skin and if swallowed.
R 34 Causes burns.
Safety Phrases:
S 22 Do not breathe dust.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
WGK (Water Danger/Protection)
CAS# 124-09-4: 1
United Kingdom Occupational Exposure Limits

Canada
CAS# 124-09-4 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of E.
CAS# 124-09-4 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 124-09-4: OEL-HUNGARY:TWA 1 mg/m3;STEL 2 mg/m3;Skin
OEL-RUSSIA:STEL 0.1 mg/m3

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

MSDS Creation Date: 2/23/1998 Revision #2 Date: 8/02/2000

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, howsoever arising, even if the company has been advised of the possibility of such damages.

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

Hydrochloric Acid 37% Solution
11155

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

MSDS Name: Hydrochloric Acid 37% Solution
Catalog Numbers:
S71942, S71943, S74853, S74853SC, S80038, 144J212, A142 212, A142-212, A142212, A142P 20, A142P-20, A142P20, A144 212, A144 500, A144 500LB, A144 612GAL, A144-20, A144-212, A144-500, A144-500L, A144-500LB, A144-612G, A144-612GAL, A144-612GL, A1440212LC, A144212, A144500, A144500LB, A144500LB02, A144500LDLC, A1445212LC, A144612GAL, A144C 212, A144C-2.5, A144C-212, A144C212, A144C212001, A144FP 500, A144FP500, A144P 20, A144P 500, A144P-1GA, A144P-1GAL, A144P-20, A144P20, A144P500, A144S 212, A144S 500, A144S-212, A144S-500, A144S212, A144S212EA, A144S500, A144SI 212 A144SI-21, A144SI-212, A144SI212, A466 1, A466 250, A466 500, A466-1, A466-2, A466-250, A466-500, A4661, A4662, A466250, A466250LC, A4662LC, A466500, A481 212, A481-212, A481212, A481212LC, A482-200L, A482-20L, A482-212L, A482-500, A508-212, A508-500, A508212 001, A508212 002, A508212001, A508212002, A508212003, A508212004, A508212LC, A5084, A508SK212 CRNA481 212, CRNA481212, NC9525793, NC9532181, NC9631527, S71942SCMF, S71942SCND, S71943ND, SA431-500, SA48-1, SA48-20, SA48-4, SA48-500, XXA142200LI, XXA144STEST, XXA481EP212
Synonyms:
Muriatic acid; Chlorohydric acid; Hydrogen chloride; Spirits of salt
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, 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	%	EINECS#
7647-01-0	Hydrogen chloride	36-38	231-595-7
7732-18-5	Water	62-64	231-791-2

Hazard Symbols: C
Risk Phrases: 34 37

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

EMERGENCY OVERVIEW
Appearance: colorless to slight yellow.
Danger! Corrosive. Hygroscopic. May be harmful if swallowed. May cause fetal effects based upon animal studies. Causes eye and skin burns. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Possible sensitizer.
Target Organs: Teeth, circulatory system.

Potential Health Effects
Eye:
May cause irreversible eye injury. Vapor or mist may cause irritation and severe burns. Contact with liquid is corrosive to the eyes and causes severe burns. May cause painful sensitization to light.
Skin:
May be absorbed through the skin in harmful amounts. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Contact with liquid is corrosive and causes severe burns and ulceration.
Ingestion:
May cause circulatory system failure. Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract. May be harmful if swallowed.
Inhalation:
May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract. Exposure to the mist and vapor may erode exposed teeth. Causes corrosive action on the mucous membranes.
Chronic:
Prolonged or repeated skin contact may cause dermatitis. Repeated exposure may cause erosion of teeth. May cause fetal effects. Laboratory experiments have resulted in mutagenic effects. Prolonged exposure may cause conjunctivitis, photosensitization, and possible blindness.

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

Eyes:
Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation is required (at least 30 minutes). SPEEDY ACTION IS CRITICAL!
Skin:
Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
Ingestion:
Do NOT induce vomiting. 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 immediately. Give milk of magnesia.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician:
Do Not use sodium bicarbonate in an attempt to neutralize the acid.
Antidote:
Do Not use oils or ointments in eye.

**** 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. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Not flammable, but reacts with most metals to form flammable hydrogen gas. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Containers may explode when heated.
Extinguishing Media:
For large fires, use water spray, fog, or alcohol-resistant foam. Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. Do NOT get water inside containers. Do NOT use straight streams of water. Most foams will react with the material and release corrosive/toxic gases. Cool containers with flooding quantities of water until well after fire is out. For small fires, use carbon dioxide (except for cyanides), dry chemical, dry sand, and alcohol-resistant foam.

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

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Large spills may be neutralized with dilute alkaline solutions of soda ash, or lime. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. Do not get water inside containers. A vapor suppressing foam may be used to reduce vapors. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Contents may develop pressure upon prolonged storage. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes. Use caution when opening. Keep from contact with moist air and steam.
Storage:
Do not store in direct sunlight. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Do not store in metal containers. Store protected from moisture. Do not store near flammable or oxidizing substances (especially nitric acid or chlorates).

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

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. 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
Hydrogen chloride	C 5 ppm	50 ppm IDLH	C 5 ppm; C 7 mg/m3
Water	none listed	none listed	none listed

OSHA Vacated PELs:
Hydrogen chloride:
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 neoprene or polyvinyl chloride gloves to prevent 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:	Clear liquid
Appearance:	colorless to slight yellow
Odor:	strong, pungent
pH:	0.01
Vapor Pressure:	5.7 mm Hg @ 0 deg C
Vapor Density:	1.26
Evaporation Rate:	> 1.00 (N-butyl acetate)
Viscosity:	Not available.
Boiling Point:	81.5-110 deg C @ 760 mmHg
Freezing/Melting Point:	-74 deg C
Autoignition Temperature:	Not applicable.
Flash Point:	Not applicable.
NFPA Rating:	Not published.
Explosion Limits, Lower:	Not available.
Upper:	Not available.
Decomposition Temperature:	
Solubility:	Miscible.
Specific Gravity/Density:	1.0-1.2
Molecular Formula:	HCl.H2O
Molecular Weight:	36.46

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

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Mechanical shock, incompatible materials, metals, excess heat, exposure to moist air or water, bases.
Incompatibilities with Other Materials:
Bases, acetic anhydride, alkali metals, aluminum, amines, copper, copper alloys, fluorine, iron, sodium hydroxide, steel, sulfuric acid, vinyl acetate, zinc, potassium permanganate, cesium acetylene carbide, rubidium acetylene carbide, rubidium carbide, sodium, chlorosulfonic acid, oleum, carbonates, perchloric acid, calcium phosphide, metal oxides, acetates, cesium carbide, beta-propiolactone, ethyleneimine, propylene oxide, lithium silicides, alcohols + hydrogen cyanide, 2-aminoethanol, ammonium hydroxide, calcium carbide, 1,1-difluoroethylene, ethylene diamine, magnesium boride, mercuric sulfate, silver perchlorate + carbon tetrachloride, uranium phosphide.
Hazardous Decomposition Products:
Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide, hydrogen gas.
Hazardous Polymerization: Will not occur.

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

RTECS#:
CAS# 7647-01-0: MW4025000
CAS# 7732-18-5: ZC0110000
LD50/LC50:

CAS# 7647-01-0: Inhalation, mouse: LC50 =1108 ppm/1H; Inhalation, rat: LC50 =3124 ppm/1H; Oral, rabbit: LD50 = 900 mg/kg.
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
Carcinogenicity:
Hydrogen chloride -
IARC: Group 3 carcinogen
Water -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
Experimental reproductive effects have been reported.
Teratogenicity:
Embryo or Fetus: Stunted fetus, Inhalation, rat TCL0=450 mg/m3/1H
Specific Developmental Abnormalities: homeostatis, Inhalation, rat TCL0=450 mg/m3/1H (female 1 days pre-mating).
Reproductive Effects:
No information available.
Neurotoxicity:
No information available.
Mutagenicity:
Cytogenetic analysis: Hamster, lung = 30 mmol/L.; Cytogenetic analysis: Hamster, ovary = 8 mmol/L.
Other Studies:
No data available.

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

Ecotoxicity:
Fish: Bluegill/Sunfish: 3.6 mg/L; 48Hr; Lethal (unspecified)Fish: Bluegill/Sunfish: LC50; 96 Hr; pH 3.0-3.5

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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

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

US DOT
Shipping Name: HYDROCHLORIC ACID
Hazard Class: 8
UN Number: UN1789
Packing Group: II
Canadian TDG
Shipping Name: HYDROCHLORIC ACID
Hazard Class: 8(9.2)
UN Number: UN1789

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

US FEDERAL
TSCA
CAS# 7647-01-0 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
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 (RQ)
CAS# 7647-01-0: final RQ = 5000 pounds (2270 kg)
Section 302 (TPQ)
CAS# 7647-01-0: TPQ = 500 pounds; RQ = 5000 pounds (does not meet toxicity criteria but because of high production volume and recognized toxicity is considered a chemical of concern)
SARA Codes
CAS # 7647-01-0: acute.
Section 313
This chemical is not at a high enough concentration to be reportable under Section 313.
No chemicals are reportable under Section 313.
Clean Air Act:
CAS# 7647-01-0 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 7647-01-0 is listed as a Hazardous Substance 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:

CAS# 7647-01-0 is considered highly hazardous by OSHA.

STATE

Hydrogen chloride 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.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: C

Risk Phrases:

R 34 Causes burns.
R 37 Irritating to respiratory system.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7647-01-0: 1
CAS# 7732-18-5: No information available.

United Kingdom Occupational Exposure Limits

CAS# 7647-01-0: OES-United Kingdom, TWA 1 ppm TWA; 2 mg/m3 TWA
CAS# 7647-01-0: OES-United Kingdom, STEL 5 ppm STEL; 8 mg/m3 STEL
CAS# 7647-01-0: OES-United Kingdom, STEL 5 ppm STEL; 8 mg/m3 STEL

Canada

CAS# 7647-01-0 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 D2A, E.
CAS# 7647-01-0 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# 7647-01-0: OEL-AUSTRALIA:TWA 5 ppm (7 mg/m3)
OEL-AUSTRIA:TWA 5 ppm (7 mg/m3)
OEL-BELGIUM:STEL 5 ppm (7.7 mg/m3)
OEL-DENMARK:STEL 5 ppm (7 mg/m3)
OEL-FINLAND:STEL 5 ppm (7 mg/m3);Skin
OEL-FRANCE:STEL 5 ppm (7.5 mg/m3)
OEL-GERMANY:TWA 5 ppm (7 mg/m3)
OEL-HUNGARY:STEL 5 mg/m3
OEL-JAPAN:STEL 5 ppm (7.5 mg/m3)
OEL-THE NETHERLANDS:TWA 5 ppm (7 mg/m3)
OEL-THE PHILIPPINES:TWA 5 ppm (7 mg/m3)
OEL-POLAND:TWA 5 mg/m3
OEL-RUSSIA:STEL 5 ppm (5 mg/m3)
OEL-SWEDEN:STEL 5 ppm (8 mg/m3)
OEL-SWITZERLAND:TWA 5 ppm (7.5 mg/m3);STEL 10 ppm (15 mg/m3)
OEL-THAILAND:TWA 5 ppm (7 mg/m3)
OEL-TURKEY:TWA 5 ppm (7 mg/m3)
OEL-UNITED KINGDOM:TWA 5 ppm (7 mg/m3);STEL 5 ppm (7 mg/m3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

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

MSDS Creation Date: 7/06/1999 Revision #2 Date: 8/02/2000

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, howsoever arising, even if the company has been advised of the possibility of such damages.

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

2-Propanol, 99-100%
12090

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

MSDS Name: 2-Propanol, 99-100%
Catalog Numbers:
AC149320200, AC412790040, AC423830040, AC423830200, S77795, S77795-2SPEC, S77795HPLC, S77795SPEC, S77798, A415 20, A415 4, A415-20, A415-4, A41520, A4154, A416 1, A416 20, A416 20 001, A416 200, A416 200 001, A416 200 002, A416 200 003, A416 4, A416 500, A416-1, A416-20, A416-200, A416-4, A416-500 A4161, A41620, A41620 001, A416200, A416200 001, A416200 002, A416200 003, A416200001, A416200002, A416200003, A416200004, A41620001, A41620003, A416200LC, A41620LC, A4164, A4164LOT002, A416500, A416ALC, A416FB115, A416FB19, A416FB200, A416FB50, A416J500, A416P4, A416RB115, A416RB19, A416RB200, A416RB50, A416RS115, A416RS200, A416RS28, A416RS50, A416S 4, A416S-4, A416S4, A416SK 4, A416SK-4, A416SK4, A416SK4LC, A416SS 115, A416SS 50, A416SS-11, A416SS-115, A416SS-20, A416SS-200, A416SS-30, A416SS-50, A416SS115, A416SS28, A416SS50, A417 1, A417 4, A417-1, A417-4, A4171, A4174, A418, A418-20, A418-4, A418-500, A419 1, A419 4, A419-1, A419-4, A4191, A4194, A4194LC, A419RS115, A419RS200, A419RS28, A419SS115, A419SS200, A419SS28, A419SS50, A426F-1GAL, A426P 4, A426P-4, A426P4, A426PJ4, A426S 20, A426S 200, A426S 4, A426S-20, A426S-200, A426S-4, A426S20, A426S200, A426S4, A432-1, A451 1, A451 4, A451-1, A451-4, A4511, A4514, A451CU50, A451J1, A451SK 1, A451SK 4, A451SK-1, A451SK-4, A451SK1, A451SK4, A464 4, A464-4, A4644, A4644LC, A4644LOT002, A464J4, A464RS200, A5164LC, A5164LOT001, A519 4, A519-4, A5194, A520 4, A520-4, A5204, A520RS200, A520SS115, A520SS200, A520SS50, BP2621100, BPA416RS-115, BPA416RS-200, BPA416RS-28, BPA416RS-50, CRNA5164, HC 500 1GAL, HC500 1GAL, HC5001GAL, NC9587417, NC9587754, NC9603410, NC9618918, NC9619958, NC9638686 NC9654693, NC9754679, S77952SPEC, XXA416PEROXTES, XXA41920LI, XXA464SK4LI, XXA520ET200LI, XXAC451U200LI
Synonyms:
Isopropanol; Dimethylcarbinol; sec-Propyl alcohol; Rubbing alcohol; Petrohol; 1-Methylethanol; 1-Methylethyl alcohol; 2-Hydroxypropane; 2-Propyl alcohol; Isopropyl alcohol; Propan-2-ol; Propol
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, 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	%	EINECS#
67-63-0	2-Propanol	100.0	200-661-7

Hazard Symbols: XI F
Risk Phrases: 11 36 67

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

EMERGENCY OVERVIEW
Appearance: colorless liquid. Flash Point: 12 deg C.
Warning! Flammable liquid and vapor. Hygroscopic. Mutagen. This substance has caused adverse reproductive and fetal effects in animals. May cause central nervous system depression. May cause kidney damage. May form explosive peroxides. May cause severe eye irritation and possible injury. Causes digestive and respiratory tract irritation. Causes mild skin irritation. Possible sensitizer.
Target Organs: Kidneys, central nervous system, cardiovascular system.

Potential Health Effects
Eye:
Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury.
Skin:
May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May be absorbed through the skin. May cause irritation with pain and stinging, especially if the skin is abraded.
Ingestion:
Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause 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:
Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause narcotic effects in high concentration. Vapors

may cause dizziness or suffocation. Causes upper respiratory tract irritation.
Chronic:
Prolonged or repeated skin contact may cause defatting and dermatitis. May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. May cause allergic skin reaction in some individuals.

**** 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 immediately.
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. Wash clothing before reuse.
Ingestion:
Do NOT induce vomiting. 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 immediately.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician:
Urine acetone test may be helpful in diagnosis. Hemodialysis should be considered in severe intoxication. Treat symptomatically and supportively.

**** 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. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable Liquid. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media:
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. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after 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., vermiculite, dry sand or earth), then place into a chemical waste container. Do not use combustible materials such as saw dust. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Loosen closure cautiously before opening. Contents may develop pressure upon prolonged storage. Avoid contact with eyes, skin, and clothing. Do not breathe dust, vapor, mist, or gas. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Keep container tightly closed. Do not ingest or inhale. Use only in a chemical fume hood. 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. Do not store in direct sunlight. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Addition of water or appropriate reducing materials will lessen peroxide formation. Store protected from moisture.

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

Engineering Controls:

8

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
2-Propanol	(400) ppm; (500) ppm STEL	400 ppm TWA; 980 mg/m3 TWA 2000 ppm IDLH (10 percent lower explosive limit)	400 ppm TWA; 980 mg/m3 TWA

OSHA Vacated PELs:
2-Propanol:
400 ppm TWA; 980 mg/m3 TWA

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 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:	colorless liquid
Odor:	solvent odor - alcohol-like
pH:	Not available.
Vapor Pressure:	33 mm Hg @ 20C
Vapor Density:	2.1 (air=1)
Evaporation Rate:	2.3 (n-butyl acetate=1)
Viscosity:	2.27 mPas @ 20C
Boiling Point:	82 deg C @ 760 mmHg
Freezing/Melting Point:	-88 deg C
Autoignition Temperature:	459 deg C (858.20 deg F)
Flash Point:	12 deg C (53.60 deg F)
NFPA Rating:	(est.) Health: 1; Flammability: 3; Reactivity: 0
Explosion Limits, Lower:	2.5 vol %
Upper:	12.1 vol %
Decomposition Temperature:	Not available.
Solubility:	Miscible.
Specific Gravity/Density:	0.7850 (water=1)
Molecular Formula:	C3H8O
Molecular Weight:	60.0554

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

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions. Distillation may lead to the formation of peroxides. This material may be sensitive to peroxide formation.

Conditions to Avoid:
Incompatible materials, light, ignition sources, acids, excess heat, exposure to moist air or water, oxidizers.

Incompatibilities with Other Materials:
Acids, amines, ethylene oxide, halogens, permanganates, sulfuric acid, oxygen, isocyanates, hydrogen peroxides, acetaldehyde, halogenated organics (e.g. dibromoethane, hexachlorobenzene, methyl chloride, trichloroethylene), ketones (e.g. acetone, acetophenone, MEK, MIBK), acid anhydrides, oleum, chromium trioxide, alkalies, chlorine, carbony dichloride(phosgene), iron salts, perchloric acid, potassium-tert-butoxide, moisture, Attacks some forms of plastics, rubbers, and coatings., aluminum isopropoxide + crotonaldehyde + heat, trinitiromethane, barium perchlorate, dioxygenyl tetrafluoroborate, sodium dichromate + sulfuric acid, hydrogen + palladium, nitroform, aldehydes, hexamethylene diisocyanate, hypochlorous acid, aluminum at high temperatures.

Hazardous Decomposition Products:
Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Will not occur.

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

RTECS#:
CAS# 67-63-0: NT8050000

LD50/LC50:
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.

Carcinogenicity:
2-Propanol -
IARC: Group 3 carcinogen

Epidemiology:
Experimental teratogenic and reproductive effects have been reported for isopropanol. Early epidemiological studies have suggested an association between the strong acid manufacture of isopropyl alcohol and paranasal sinus cancer in workers.

Teratogenicity:
Oral, rat: TDLo = 8 gm/kg (female 6-15 day(s) after conception) Effects on Embryo or Fetus - fetotoxicity.; Oral, rat: TDLo = 32400 ug/kg (female 26 week(s) pre-mating) Effects on Embryo or Fetus - fetal death.; Inhalation, rat: TCLo = 7000 ppm/7H (female 1-19 day(s) after conception) Specific Developmental Abnormalities - musculoskeletal system.

Reproductive Effects:
Oral, rat: TDLo = 11340 mg/kg (female 45 day(s) pre-mating) Maternal Effects - menstrual cycle changes or disorders.; Oral, rat: TDLo = 5040 mg/kg (female 1-20 day(s) after conception) Fertility - litter size (e.g. # fetuses per litter; measured before birth).

Neurotoxicity:
No information available.

Mutagenicity:
Cytogenetic analysis: Inhalation, rat = 1030 ug/m3/16W (Intermittent).

Other Studies:
Standard Draize Test: Administration onto the skin (rabbit) = 500 mg (Mild). Standard Draize Test: Administration into the eye (rabbit) = 100 mg (Moderate). Standard Draize Test: Administration into the eye = 10 mg (Moderate). Standard Draize test: Administration into the eye (rabbit) = 100 mg/24H (Moderate).

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

Ecotoxicity:
Fish: Goldfish: > 5000 mg/L; 24 Hr; Modified ASTM D 1345
bioassayFish: Fathead Minnow: 11,830 mg/L; 1 Hr; Static bioassay

Other
Dangerous to aquatic life in high concentrations.

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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

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

US DOT
Shipping Name: ISOPROPANOL
Hazard Class: 3
UN Number: UN1219
Packing Group: II

Canadian TDG
Shipping Name: ISOPROPANOL
Hazard Class: 3
UN Number: UN1219

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

US FEDERAL

TSCA
CAS# 67-63-0 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 67-63-0: Effective Date: December 15, 1986; Sunset Date: December 15, 1996
Chemical Test Rules
CAS# 67-63-0: Testing required by: manufacturers; importers; processor
Section 12b
CAS# 67-63-0: 4/12b
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.

9

SARA Codes
CAS # 67-63-0: acute, chronic, flammable.
Section 313
This material contains 2-Propanol (CAS# 67-63-0, 100 0%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
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:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
2-Propanol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level:
None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XI F
Risk Phrases:
R 11 Highly flammable.
R 36 Irritating to eyes.
R 67 Vapors may cause drowsiness and dizziness.
Safety Phrases:
S 7 Keep container tightly closed.
S 16 Keep away from sources of ignition - No smoking.
S 24/25 Avoid contact with skin and eyes.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

WGK (Water Danger/Protection)
CAS# 67-63-0: 1
United Kingdom Occupational Exposure Limits
CAS# 67-63-0: OES-United Kingdom, TWA 400 ppm TWA; 999 mg/m3 TWA
CAS# 67-63-0: OES-United Kingdom, STEL 500 ppm STEL; 1250 mg/m3 STEL

Canada
CAS# 67-63-0 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of B2, D2A.
CAS# 67-63-0 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits
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);Skin
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);Skin
OEL-THE PHILIPPINES:TWA 400 ppm (980 mg/m3)
OEL-RUSSIA:STEL 400 ppm (10 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 800 ppm
OEL-TURKEY:TWA 200 ppm (500 mg/m3)
OEL-UNITED KINGDOM:TWA 400 ppm (980 mg/m3);STEL 500 ppm;Skin
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

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

MSDS Creation Date: 7/23/1999 Revision #5 Date: 10/27/2000

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, howsoever arising, even if the company has been advised of the possibility of such damages.