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

MSDS Name: D(+)-Sucrose
Catalog Numbers: 571203, 571204, BP220-1. BP220-16, BP220-212, S3-12, S3-212, S3-500, S5-3, S5-500, S5-12

Synonyms:
Best sugar, cane sugar, saccharose, table sugar.

Company Identification: Fisher Scientific
1 Reagent Lane
Palo Alto, CA 94303

Appearance:
White solid.

Potential Health Effects:
Eye: Dust may cause mechanical irritation.
Skin: May cause skin irritation. Low hazard for usual industrial handling.

Ingestion: Not available.
Hydrolysis of sucrose yields invert sugar composed of equal parts fructose and glucose. Sugar is an important source of metabolic energy in foods and its formation in plants is an essential factor in the life process.

Inhalation:
Excessive inhalation may cause minor respiratory irritation.

Chronic:
Chronic inhalation of fine dusts may cause lung damage.

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

CAS# | Chemical Name | % | EINECS#
--- | ------------- | --- | --------
57-50-1 | Sucrose | 100 | 200-334-9

Hazard Symbols: None Listed.
Risk Phrases: None Listed.

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

Emergency Overview:
Appearance: White solid.

Exposure Limits:
OSHA Vacated Permissible Exposure Limit: 15 mg/m3 (total dust); 5 mg/m3 TWA (respirable fraction)

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 EN 166.
Skin: Wear appropriate protective clothing to minimize contact with skin.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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

Exposure:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cups of milk or water. Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water.

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:
Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Extinguishing Media:
Use extinguishing media most appropriate for the surrounding fire.

Aut Flammable Limit: Not applicable.
Flash Point: Not applicable.
Explosion Limits: Lower: Not applicable.

**** 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 dust conditions.

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

Handling:
Use with adequate ventilation. Minimize dust generation and accumulation.

Storage:
Store in a cool, dry, well-ventilated area away from incompatible substances.

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

Engineering Controls:
Use adequate ventilation to keep airborne concentrations low.
**SECTION 11 - TOXICOLOGICAL INFORMATION***

**RTCS#:
CAS #: 57-50-1: WN5000000
LE50/LE50: Not available.
Carcinogenicity: Sucrose
ACGIH: A4 - Not Classifiable as a Human Carcinogen

**Epidemiology:
No information available.

**Teratogenicity:
No information available.

**Reproductive Effects:
No information available.

**Neurotoxicity:
No information available.

**Mutagenicity:
No information available.

**Other:
See actual entry in RTECS for complete information.

**SECTION 12 - ECOCLOGICAL 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 TPO:
No information available.

**SECTION 15 - REGULATORY INFORMATION***

**US FEDERAL:

TSCA
CAS #: 57-50-1 is listed on the TSCA inventory.

WHSR: A default listing of the chemicals is on the Health & Safety Reporting List.

CERCLA:
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
Chemical Substances and corresponding RQs
None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TQ.

SARA Codes
CAS #: 57-50-1 acute, flammable.

Section 313:
No chemicals are reportable under Section 313.

Clean Air Act:
This material does not contain any hazardous air pollutants.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.

Clean Water Act:
None of the chemicals in this product are listed as Priority Pollutants under the CWA.

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

STATE:
Sucrose can be found on the following state right to know lists:
Pennsylvania, Minnesota, Massachusetts.
California: No Significant Risk Levels:
None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.

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### MATERIAL SAFETY DATA SHEET

**Chemical Name:** Xylenes, mixed isomers with ethylbenzene,

**CAS Registry Number:** 108-88-3

**Synonyms:** Dimethylnaphthalene; Benzene, dimethyl-; xylol; Methyltoluene.

**Company Identification:** Fisher Scientific

**1 Yeoman Lane**

**Fair Lawn, NJ 07410**

**For information, call:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International assistance, call:** 703-527-1887

## SECTION 1 - COMPOSITION, INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>0.00</td>
</tr>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>99.96</td>
</tr>
</tbody>
</table>

**Hazard Symbols:** XN

**Risk Phrases:** H10, H317, H318

### SECTION 1 - HASARDE IDENTIFICATION

**EMERGENCY OVERVIEW**

**Appearance:** Clear, colorless liquid. Flash Point: 25 deg C.

**Health Hazards:** Flammable liquid and vapor. Causes respiratory tract irritation. Causes eye irritation. This substance has caused adverse reproductive and toxic effects in animals. May cause central nervous system depression. Aspiration hazard if swallowed. Can enter lungs directly. May cause liver and kidney damage. May cause nervous or mental depression if absorbed through skin or if inhaled. Prolonged or repeated contact may dry the skin and cause irritation. Target Organs: Blood, Kidneys, central nervous system, liver, lungs, eyes, skin, mucous membranes.

**Potential Health Effects**

**Eye:** Causes severe eye irritation. Splashes of xylene in human eyes generally cause transient superficial injury.

**Skin:** May be harmful if absorbed through the skin. Xylene contact causes dermatitis, the skin with irritation, dryness, and cracking of the skin. Blistering may occur, particularly if exposure to concentrated xylene is prolonged and the exposed area of skin is occluded.

**Ingestion:** Inhalation of high concentrations may cause central nervous system depression characterized by headache, dizziness, drowsiness, and nausea. Advanced stages may have a rolled look to the eyes. Possible death due to respiratory failure. May cause effects similar to those of acute inhalation.

**Inhalation:** May lead to chemical pneumonitis and chemical bronchitis.

**Chronic:** Chronic exposure to xylene may cause dermatitis, reversible eye damage, dryness, blurred breathing and confusion, dizziness, sensations of burning, weakness, anoxia, nausea, ringing in the ears, irritability, thirst, mild changes in liver function, kidney damage. Causes irritation of mucous membranes. Exposure may cause blood abnormalities. Odor is not a warning for overexposure to xylene.

### SECTION 2 - FIRST AID MEASURES

**Eye:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

### SECTION 3 - 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. Keep away from fire and drying agents. A chemical fire can involve highly toxic fumes. Contact with combustible materials may result in an explosive mixture with air. Vapors are heavier than air and may travel to a source of ignition and flash back along the ground and collect in low or confined areas. This liquid may cause a fire to spread and may travel to a source of ignition and spread fire. May accumulate static electricity.

**Extinguishing Media:** Do not use water, foam, dry chemical, carbon dioxide, or any other agent. Cool fire-retardant containers. Water may be ineffective. This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Autoignition Temperature:** 527 deg C (980.60 deg F)

**Flash Point:** 23 deg C (73.40 deg F)

**Explosion Limits:** Lower: 1.1%

**Explosion Limits:** Upper: 7.0%

**NFPA Rating:** Health: 1; Flammability: 3; Instability: 0

### SECTION 6 - ACCIDENTAL RELEASE MEASURES

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

**Spills/Leaks:** Avoid spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. When the spill is small, use approved absorbent material, cover the spill, and contain it. Water spray may reduce vapor but may not prevent ignition in confined areas. This material will burn with a white smoke. Do not allow water to come in contact with soil, water, and air in excess of the rate of manufacture. This material creates a fire and forms acids on water. If possible, try to contain floating material.

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not transfer material, cut, weld, braze, solder, drill, grind, or bang containers. Do not expose containers to source of ignition. Use only with adequate ventilation.

**Storage:** Store in dry, cool, well-ventilated area away from incompatible substances. Keep strong acids.

### 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 ventilation to keep airborne concentrations below the permissible exposure limits.

**Chemical Name** | **ACGIH** | **NIOSH** | **OSHA** | **OSHA - Final PELs**
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>100 ppm</td>
<td>125 ppm</td>
<td>100 ppm TWA</td>
<td>435 ppm TWA</td>
</tr>
<tr>
<td>Xylenes (α-, m-, p-)</td>
<td>100 ppm</td>
<td>150 ppm</td>
<td>900 ppm IDLH</td>
<td>100 ppm TWA</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:**
Ethylbenzene:

100 ppm TWA: 435 mg/m³ TWA

Xylene (isomers):

100 ppm TWA: 435 mg/m³ TWA

Personal Protective Equipment

Eyes:

Wear chemical goggles.

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 29 CFR 1910.134 or European Standards EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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

Physical State:

Liquid

Color:

Clear, colorless

Odor:

Not applicable

PH:

Not applicable

Vapor Pressure:

3.72 mm Hg @ 31 deg C

Vapor Density:

3.66 (Air=1)

Evaporation Rate:

0.77

Specific Gravity:

1.033-1.041 5 deg C

Freezing/Melting Point:

-47.4 deg C

Decomposition Temperature:

-100 deg C

Solubility in water:

Insoluble

Specific Gravity: 0.864 @ 20/46C

Molecular Formula:

C8H10

Molecular Weight:

106.17

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

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

High temperatures, ignition sources.

Incompatibilities:

With other materials.

Strong oxidizing agents, strong acids, acetic acid, nitric acid.

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide.

Health & Safety Reporting List:

Will not occur.

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

RTSCA:

CAS# 100-41-4: DA0700000

LD50/LC50:

CAS# 100-41-4: Dose test, rabbit, eye: 500 mg Severe; Oral, rat: LD50 = 3500 mg/kg; Skin, rabbit: LD50 = 21800 ll/kg.

CAS# 1330-20-7:

Carcinogenicity:

Ethylbenzene:

Acute: A3 - Animal Carcinogen

OSHA: Possible Select carcinogen

IARC: Group 2B carcinogen

Xylenes (o-, m-, p- isomers)

Acute: A4 - Not Classifiable as a Human Carcinogen

IARC: Group 3 carcinogen

Epidemiology:

No information available.

Teratogenicity:

No information available.

Reproductive Effects:

There is no evidence that xylene produces embryotoxicity (reduced litter weight, altered ossification, retarded kidney development, increased extra rib) and fetotoxicity in mice and rats, but xylene is not considered teratogenic.

Neurotoxicity:

No information available.

Mutagenicity:

No information available.

Other Studies:

No data available.

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

Ecotoxicity:

Fish: Rainbow trout; LC50 = 9.8 mg/L; 24 hr; Unspecified

Goldfish: LD50 = 13.5 mg/L; 24 hr; Unspecified

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Risk Phrases:  
R 10 Flammable.  
R 20/21 Harmful by inhalation and in contact with skin.  
R 38 Irritating to skin.

Safety Phrases:  
S 25 Avoid contact with eyes.

MSDS Creation Date: 6/22/1999 Revision Date: 9/21/2001

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