1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name**  
Xylenes, mixed isomers with ethylbenzene

**Cat No.**  
S71233; X3-F1GAL; X3-P1GAL; X3RB-50; X3S-4; X3S-20; X3S-200; X4-4; X4-20; X4-P1GAL; X5-1; X5-4; X5-20; X5-200; X5-500; X5FB-19; X5FB-50; X5FB-115; X5FB-200; X5FB-P1GAL; X5RB-50; X5RB-115; X5RB-200; X5RS-19; X5RS-28; X5RS-50; X5RS-115; X5RS-200; X5S-4; X5SK-4; X5SS-28; X5SS-50; X5SS-115; X5SS-200; X16-4; HC7001GAL; 22-110-676

**Synonyms**  
Xylol; Methyltoluene.; Dimethylbenzene (Histological/Laboratory/Certified ACS/Scintanalyzed)

**Recommended Use**  
Laboratory chemicals

---

2. HAZARDS IDENTIFICATION

**Target Organs**  
Central nervous system (CNS), Eyes, Respiratory system, Skin, Liver, Kidney, Blood

**Potential Health Effects**

**Acute Effects**

**Principle Routes of Exposure**

<table>
<thead>
<tr>
<th>Eyes</th>
<th>Skin</th>
<th>Inhalation</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritating to eyes.</td>
<td>Harmful in contact with skin. Irritating to skin. Prolonged skin contact may defat the skin and produce dermatitis.</td>
<td>Harmful by inhalation. Irritating to respiratory system. Inhalation may cause central nervous system effects.</td>
<td>Aspiration hazard. May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.</td>
</tr>
</tbody>
</table>

**WARNING!**

Flammable liquid and vapor. Possible cancer hazard. May cause cancer based on animal data. Harmful if absorbed through skin or if inhaled. Causes eye, skin, and respiratory tract irritation. Inhalation may cause central nervous system effects. Aspiration hazard if swallowed - can enter lungs and cause damage.

**Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300

CHEMTREC®, Outside the USA: 001-703-527-3887
Chronic Effects

Possible cancer hazard based on tests with laboratory animals. Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse liver effects. May cause adverse kidney effects. Prolonged skin contact may defat the skin and produce dermatitis.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

Central nervous system disorders. Preexisting eye disorders. Skin disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>1330-20-7</td>
<td>96</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>100-41-4</td>
<td>4</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.

Ingestion
Do not induce vomiting. Obtain medical attention.

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point
25.6 - 32.2°C / 78.1 - 90°F

Autoignition Temperature
527°C / 980.6°F

Explosion Limits
- Upper 7.0 vol %
- Lower 1.1 vol %

Suitable Extinguishing Media
CO₂, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media
Water may be ineffective

Hazardous Combustion Products
No information available.

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Remove all sources of ignition. Soak up with inert absorbent material. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Use only under a chemical fume hood. Wear personal protective equipment. Use explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>TWA: 100 ppm STEL: 150 ppm</td>
<td>(Vacated) TWA: 100 ppm (Vacated) TWA: 435 mg/m³ (Vacated) STEL: 100 ppm (Vacated) STEL: 655 mg/m³ TWA: 100 ppm TWA: 435 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>TWA: 100 ppm STEL: 125 ppm</td>
<td>(Vacated) TWA: 100 ppm (Vacated) TWA: 435 mg/m³ (Vacated) STEL: 125 ppm (Vacated) STEL: 545 mg/m³ TWA: 100 ppm TWA: 435 mg/m³ IDLH: 800 ppm TWA: 100 ppm TWA: 435 mg/m³ STEL: 125 ppm STEL: 545 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>TWA: 100 ppm TWA: 434 mg/m³ STEL: 150 ppm STEL: 651 mg/m³</td>
<td>TWA: 100 ppm TWA: 435 mg/m³ STEL: 150 ppm STEL: 655 mg/m³</td>
<td>TWA: 100 ppm STEL: 150 ppm</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>TWA: 100 ppm TWA: 434 mg/m³ STEL: 125 ppm STEL: 543 mg/m³</td>
<td>TWA: 100 ppm TWA: 435 mg/m³ STEL: 125 ppm STEL: 545 mg/m³</td>
<td>TWA: 100 ppm STEL: 125 ppm</td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection
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 and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State
Liquid
Appearance
Clear
Odor
aromatic
Odor Threshold
No information available.
pH
Not applicable
Vapor Pressure
8.29 mmHg @ 25 °C
Vapor Density
(Air = 1.0)
Viscosity
No information available.
Boiling Point/Range
136 - 140°C / 276.8 - 284°F
Melting Point/Range
-34°C / -29.2°F
Decomposition temperature
No information available.
Flash Point
25.6 - 32.2°C / 78.1 - 90°F
Evaporation Rate
(Butyl Acetate = 1.0)
Specific Gravity
0.865 (H2O=1)
Solubility
Insoluble in water
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>106.17</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C8H10</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

- **Stability**: Stable under normal conditions.
- **Conditions to Avoid**: Incompatible products. Heat, flames and sparks.
- **Incompatible Materials**: Strong oxidizing agents, Strong acids
- **Hazardous Decomposition Products**: Carbon monoxide (CO), Carbon dioxide (CO₂), Aldehydes, Hydrocarbons
- **Hazardous Polymerization**: Hazardous polymerization does not occur
- **Hazardous Reactions**: None under normal processing.

11. TOXICOLOGICAL INFORMATION

**Acute Toxicity**

<table>
<thead>
<tr>
<th>Component Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component</strong></td>
</tr>
<tr>
<td>Xylenes (ο-, m-, p- isomers)</td>
</tr>
<tr>
<td>Ethyl benzene</td>
</tr>
</tbody>
</table>

**Irritation**: Irritating to eyes, respiratory system and skin

**Toxicologically Synergistic Products**: No information available.

**Chronic Toxicity**

**Carcinogenicity**: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl benzene</td>
<td>A3</td>
<td>Group 2B</td>
<td>Not listed</td>
<td>X</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

ACGIH: (American Conference of Governmental Industrial Hygienists)
- A1 - Known Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)
- Group 1 - Carcinogenic to Humans
- Group 2A - Probably Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans

**Sensitization**: No information available.
12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>Not listed</td>
<td>7.711-9.591 mg/L LC50 96 h</td>
<td>EC50 = 0.0084 mg/L 24 h</td>
<td>0.6 mg/L LC50 = 48 h 3.82 mg/L EC50 = 48 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30.26-40.75 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.53-29.97 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.661-4.093 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.5-17.3 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.1-16.5 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>780 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>19 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.4 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>1.7 - 7.6 mg/L EC50 96 h</td>
<td>9.6 mg/L LC50 96 h</td>
<td>EC50 = 9.68 mg/L 30 min</td>
<td>1.8 - 2.4 mg/L EC50 48 h</td>
</tr>
<tr>
<td></td>
<td>2.6 - 11.3 mg/L EC50 72 h</td>
<td>11.0-18.0 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.6 mg/L EC50 = 72 h</td>
<td>7.55-11 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>438 mg/L EC50 &gt; 96 h</td>
<td>9.1-15.6 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>32 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.2 mg/L LC50 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available

Mobility

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>3.15</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>3.118</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - U Series Wastes</th>
<th>RCRA - P Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers) - 1330-20-7</td>
<td>U239</td>
<td>-</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
UN-No UN1307
14. TRANSPORT INFORMATION

Proper Shipping Name: XYLENES
Hazard Class: 3
Packing Group: III

TDG
UN-No: UN1307
Proper Shipping Name: XYLENES
Hazard Class: 3
Packing Group: III

IATA
UN-No: UN1307
Proper Shipping Name: XYLENES
Hazard Class: 3
Packing Group: III

IMDG/IMO
UN-No: UN1307
Proper Shipping Name: XYLENES
Hazard Class: 3
Packing Group: III

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>215-535-7</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>T</td>
<td>X</td>
<td>-</td>
<td>202-849-4</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>1330-20-7</td>
<td>96</td>
<td>1.0</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>100-41-4</td>
<td>4</td>
<td>0.1</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Categorization

- **Acute Health Hazard**: Yes
- **Chronic Health Hazard**: Yes
- **Fire Hazard**: Yes
- **Sudden Release of Pressure Hazard**: No
- **Reactive Hazard**: No

Clean Water Act

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>X</td>
<td>100 lb</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>X</td>
<td>1000 lb</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

OSHA

Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>100 lb</td>
<td>-</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>1000 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

California Proposition 65

This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl benzene</td>
<td>100-41-4</td>
<td>Carcinogen</td>
<td>54 µg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>41 µg/day</td>
</tr>
</tbody>
</table>

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes (o-, m-, p- isomers)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

- **Reportable Quantity (RQ)**: Y
- **DOT Marine Pollutant**: N
- **DOT Severe Marine Pollutant**: N
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade
Serious risk, Grade 3

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
B2  Flammable liquid
D2A Very toxic materials
D2B  Toxic materials

16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date
12-Feb-2010

Print Date
05-Feb-2013

Revision Summary
“***”, and red text indicates revision

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS