SAFETY DATA SHEET

Revision Date 10-Feb-2015
Revision Number 1

1. Identification

Product Name 5-Fluoro-2-methylbenzenesulfonyl chloride
Cat No.: TL00317DA; TL00317EA; TL00317EB; TL00317ZZ
Synonyms No information available
Recommended Use Laboratory chemicals.
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company Maybridge Thermo Fisher Scientific
Bishop Meadow Rd
Loughborough, Leicestershire, Great Britain
LE115RG
Tel: 01509 231166
Website: www.maybridge.com

Emergency Telephone Number
For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US:001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No.US:001-800-424-9300 / Europe:001-703-527-3887

2. Hazard(s) Identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| Skin Corrosion/irritation | Category 1 B |
| Serious Eye Damage/Eye Irritation | Category 1 |

Label Elements

Signal Word Danger

Hazard Statements
Causes severe skin burns and eye damage

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection

Response
Immediately call a POISON CENTER or doctor/physician

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Storage
Store locked up

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Reacts violently with water
Contact with water liberates toxic gas

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3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Fluoro-2-methylbenzenesulfonyl chloride</td>
<td>445-05-6</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

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4. First-aid measures

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

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation
Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion
Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. Call a physician immediately. If possible drink milk afterwards.

Most important symptoms/effects
Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician
Treat symptomatically

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5. Fire-fighting measures

Suitable Extinguishing Media
Carbon dioxide (CO₂). Dry chemical. chemical foam.

Unsuitable Extinguishing Media
No information available

Flash Point
Method -
No information available
No information available

Autoignition Temperature
Explosion Limits
Upper
No information available
No data available
5-Fluoro-2-methylbenzenesulfonyl chloride

Revision Date 10-Feb-2015

Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Water reactive. Contact with water liberates toxic gas.

Hazardous Combustion Products
Hydrogen chloride gas Carbon monoxide (CO) Carbon dioxide (CO₂) Sulfur oxides Hydrogen fluoride

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.

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
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<tbody>
<tr>
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<td>0</td>
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<td>W</td>
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</table>

6. Accidental release measures

Personal Precautions
Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak.

Environmental Precautions
See Section 12 for additional ecological information.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Shovel or sweep up. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling
Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation.

Storage
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

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.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State Liquid
Appearance Clear
10. Stability and reactivity

Reactive Hazard  Yes
Stability  Moisture sensitive.
Conditions to Avoid  Incompatible products. Exposure to moist air or water.
Incompatible Materials  Strong oxidizing agents, Strong bases, Water
Hazardous Decomposition Products  Hydrogen chloride gas, Carbon monoxide (CO), Carbon dioxide (CO₂), Sulfur oxides, Hydrogen fluoride
Hazardous Polymerization  No information available.
Hazardous Reactions  None under normal processing.

11. Toxicological information

Acute Toxicity  No acute toxicity information is available for this product
Product Information  No information available
Component Information  No information available
Toxicologically Synergistic Products  No information available
Delayed and immediate effects as well as chronic effects from short and long-term exposure
Irritation  No information available
Sensitization  No information available
Carcinogenicity  The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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<td>445-05-6</td>
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</table>

Mutagenic Effects  No information available
Reproductive Effects  No information available.
5-Fluoro-2-methylbenzenesulfonyl chloride

Developmental Effects
No information available.

Teratogenicity
No information available.

STOT - single exposure
None known

STOT - repeated exposure
None known

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability
Reacts with water. Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation
No information available.

Mobility
No information available.

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.

14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Hazard Class</th>
<th>Subsidiary Hazard Class</th>
<th>Packing Group</th>
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<tr>
<td>UN3094</td>
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<td>4.3</td>
<td>II</td>
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TDG

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IATA

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IMDG/IMO

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<td></td>
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15. Regulatory information

International Inventories

Legend:
X - Listed
5-Fluoro-2-methylbenzenesulfonyl chloride

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**

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Not Applicable</th>
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<tbody>
<tr>
<td>TSCA 12(b)</td>
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<tr>
<td>SARA 313</td>
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<tr>
<td>SARA 311/312 Hazardous Categorization</td>
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<tr>
<td>Acute Health Hazard</td>
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<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
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<tr>
<td>Fire Hazard</td>
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<tr>
<td>Sudden Release of Pressure Hazard</td>
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</tr>
<tr>
<td>Reactive Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Clean Water Act</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Clean Air Act</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>OSHA Occupational Safety and Health Administration</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>California Proposition 65</td>
<td>This product does not contain any Proposition 65 chemicals</td>
</tr>
<tr>
<td>State Right-to-Know</td>
<td>Not Applicable</td>
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</table>

**U.S. Department of Transportation**

<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
<td>Reportable Quantity (RQ):</td>
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</tr>
<tr>
<td>DOT Marine Pollutant</td>
<td>N</td>
</tr>
<tr>
<td>DOT Severe Marine Pollutant</td>
<td>N</td>
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</tbody>
</table>

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico - Grade</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>E</td>
<td>Corrosive material</td>
</tr>
<tr>
<td>F</td>
<td>Dangerously reactive material</td>
</tr>
</tbody>
</table>
16. Other information

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

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

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 SDS