

SAFETY DATA SHEET

Preparation Date: 06/04/2015

Revision Date: 06/04/2015

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: B2003
Product Name: BENZENESULFONYL CHLORIDE

Other means of identification

Synonyms: BSC-refine D
 Benzenesulfochloride
 Benzene sulfochloride
 Benzene sulfonechloride
 Benzenesulfon chloride
 Benzenesulfonic (acid) chloride
 Benzenesulfonic chloride
 Benzenesulfonic(acid)chloride
 Benzenesulphonyl chloride
 Benzenosulfochlorek [Polish]
 Benzenosulfochloride
 Benzenosulphochloride
 Benzolsulfochloride
 Phenylsulfonyl chloride

CAS #: 98-09-9
RTECS # DB8750000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Chemical intermediate. Laboratory reagent.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

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

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1

Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Corrosive to metals	Category 1

Label elements

Danger

Hazard statements

Harmful if swallowed
 Causes severe skin burns and eye damage
 May cause an allergic skin reaction
 May be corrosive to metals



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Reacts with water to evolve heat and corrosive gases

Precautionary Statements - Prevention

Do not eat, drink or smoke when using this product
 Wear protective gloves/protective clothing/eye protection/face protection
 Do not breathe dust/fume/gas/mist/vapors/spray
 Wash face, hands and any exposed skin thoroughly after handling
 Contaminated work clothing should not be allowed out of the workplace
 Keep only in original container

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician
Specific treatment (see .? on this label)
 Absorb spillage to prevent material damage
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 Immediately call a POISON CENTER or doctor/physician.
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 Wash contaminated clothing before reuse
 If skin irritation or rash occurs: Get medical advice/attention
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up
Store in corrosive resistant/ .? container with a resistant inner liner

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Benzenesulfonyl Chloride 98-09-9	98-09-9	100	*

4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Skin Contact:

Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Eye Contact:

Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Inhalation:

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion:

Harmful if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms

Causes severe skin burns and eye damage. May cause allergic skin reaction. May cause irritation of respiratory tract. Harmful if swallowed. Nose and throat irritation. May affect the liver. May cause pulmonary edema. Coughing. Dyspnea (Shortness of breath and difficulty breathing).

Indication of any immediate medical attention and special treatment needed

Notes to Physician:

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:	Dry chemical. Carbon dioxide (CO ₂). Water spray mist or foam.
Unsuitable Extinguishing Media:	No information available.
<u>Specific hazards arising from the chemical</u>	
Hazardous Combustion Products:	Carbon oxides; Sulfur oxides; Hydrogen chloride; Chlorine
Specific hazards:	May be ignited by heat, sparks or flames When heated to decomposition it emits toxic gases and irritating fumes Containers may explode when heated Dimethyl sulfoxide reacts violently or explosively with benzenesulfonyl chloride
<u>Special Protective Actions for Firefighters</u>	
Specific Methods:	No information available.
Special Protective Equipment 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, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition. All equipment used when handling the product must be grounded. Do not get water inside containers.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container.

Methods for cleaning up Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. All equipment used when handling the product must be grounded. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Do not smoke. Avoid shock and friction. Protect from moisture. Never add water to this product. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Moisture sensitive. Keep tightly closed in a dry, cool and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Metals. Alkalis. Moisture. Ammonia. aliphatic amines. Dimethyl sulfoxide. Methyl formamide. Water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Benzenesulfonyl Chloride 98-09-9	None	None	None	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Benzenesulfonyl Chloride 98-09-9	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
Benzenesulfonyl Chloride 98-09-9	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles Face-shield

Skin and body protection: Chemical resistant protective suit. Boots. Gloves.

Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Liquid.	Appearance: Oily.	Color: Clear. Colorless. Brown.
Odor: Pungent.	Taste No information available	Molecular/Formula weight: 176.62
Formula: C6H5SO2Cl	Flammability: No information available	Flash point (°C): 110°C
Flashpoint (°C/°F): 110°C/ 230°F	Flash Point Tested according to: Closed cup	Autoignition Temperature (°C/°F): 450°C/ 842°F
Lower Explosion Limit (%): No information available	Upper Explosion Limit (%): No information available	pH: No information available
Melting point/range(°C/°F): 14.5°C/ 58.1°F	Boiling point/range(°C/°F): 252°C/ 485.6°F	Bulk density: No information available
Decomposition temperature(°C/°F): No information available	Density (g/cm3): No information available	Specific gravity: 1.38
Vapor pressure @ 20°C (kPa): 0.8	Evaporation rate: No information available	Vapor density: 6.1
VOC content (g/L): No information available	Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): No information available
Viscosity: No information available	Miscibility: No information available	Solubility: Insoluble in cold water Insoluble in hot water Soluble in Ether Soluble in Alcohol

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents, metals, bases
Corrosive and water-reactive. Incompatible with ammonia, aliphatic amines, dimethyl sulfoxide, methyl formamide, water or moisture.
Decomposes in hot water to produce corrosive and toxic hydrochloric acid, benzenesulfonic acid
Rate of reaction decreases as temperature decreases.
Corrosive to metals in presence of water due to formation of hydrochloric acid and benzenesulfonic acid.

Chemical stability

Stability:

Moisture Sensitive. Stable under recommended storage conditions.

Possibility of Hazardous Reactions:

The product may undergo hazardous decomposition, condensation or polymerization, it may react violently with water to emit toxic gases or it may become self-reactive under conditions of shock or increase in temperature or pressure.

Conditions to avoid:

Heat. Ignition sources. Incompatible materials. Exposure to moisture. Exposure to water.

Incompatible Materials:

Oxidizing agents. Metals. Alkalis. Moisture. Ammonia. aliphatic amines. Dimethyl sulfoxide. Methyl formamide. Water.

Hazardous decomposition products:

Carbon oxides. Sulfur oxides. Hydrogen chloride. Benzenesulfonic acid. Chlorine.

Other Information

Corrosivity:

No information available

Product code: B2003

Product name: BENZENESULFONYL
CHLORIDE

6 / 12

Special Remarks on Corrosivity: Corrosive to metals in presence of water due to formation of hydrochloric acid and benzenesulfonic acid

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Skin. Eyes.

Acute Toxicity

Component Information

Benzenesulfonyl Chloride - 98-09-9

LD50/oral/rat = 1615 mg/kg [RTECS]

1960 mg/kg Oral LD50 Rat

LD50/oral/mouse = 828 mg/kg

LD50/dermal/rat = No information available

LD50/dermal/rabbit = No information available

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = 76 mg/kg Intrap. LD50 Rat

Product Information

LD50/oral/rat =

VALUE- Acute Tox Oral = 1615mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = 828mg/kg

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat

VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes severe irritation and burns.

Eye Contact: Causes severe eye irritation and possible burns.

Inhalation Causes chemical burns to the respiratory tract. May cause pulmonary edema and severe respiratory disturbances (dyspnea).
Ingestion Harmful if swallowed. Causes gastrointestinal tract irritation and burns. May cause perforation of the digestive tract. May affect behavior (somnolence- general depressed activity), and respiration (respiratory depression).

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity No information available

Sensitization: May cause sensitization by skin contact

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Benzenesulfonyl Chloride	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available
STOT - repeated exposure No information available
Target Organs: No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: May be harmful to the aquatic environment.

Benzenesulfonyl Chloride - 98-09-9

Freshwater Fish Species Data: 3 mg/L LC50 Salmo trutta 48 h static 1

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Benzenesulfonyl Chloride	None	None	None	U020 Corrosive waste, Reactive waste

14. TRANSPORT INFORMATION

DOT

UN-No: UN2225
Proper Shipping Name: Benzene sulfonyl chloride
Hazard Class: 8
Subsidiary Risk:
Packing Group: III
ERG No: 156
Marine Pollutant: No data available
DOT RQ (lbs): No information available

Symbol(s):**TDG (Canada)**

UN-No: UN2225
Proper Shipping Name: Benzenesulfonyl chloride
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Description: No information available

ADR

UN-No: UN2225
Proper Shipping Name: Benzenesulphonyl chloride
Hazard Class: 8
Packing Group: III
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN2225
Proper Shipping Name: Benzenesulphonyl chloride
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-A
MFAG: No information available

14. TRANSPORT INFORMATION

Maximum Quantity: No information available

RID

UN-No: UN2225
Proper Shipping Name: Benzenesulphonyl chloride
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN2225
Proper Shipping Name: Benzenesulphonyl chloride
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Description: No information available

IATA

UN-No: UN2225
Proper Shipping Name: Benzenesulphonyl chloride
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
ERG Code: 8L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Benzenesulfonyl Chloride</i>	Present T	Present KE-02638	Present	Present (3)-1955 (3)-1893	Present	Present	Present 202-636-6

U.S. Regulations

Benzenesulfonyl Chloride

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 0202
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
Pennsylvania RTK - Special Hazardous Substances: Present
New York Release Reporting - List of Hazardous Substances:
 = 1 lb RQ
Louisiana Reportable Quantity List for Pollutants: Listed

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Benzenesulfonyl Chloride	Not Listed	Not Listed	Not Listed	Not Listed

Product code: B2003

Product name: BENZENESULFONYL
CHLORIDE

10 / 12

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
<i>Benzenesulfonyl Chloride</i>	= 100 lb final RQ = 45.4 kg final RQ	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
<i>Benzenesulfonyl Chloride</i>	Not Applicable	03/07/1986 12/19/1995

Canada**WHMIS hazard class:**

- E Corrosive material
- F Dangerously reactive material

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
<i>Benzenesulfonyl Chloride</i>	1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
<i>Benzenesulfonyl Chloride</i>	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
<i>Benzenesulfonyl Chloride</i>	Not listed	Not listed

EU Classification**R-phrase(s)**

- R22 - Harmful if swallowed.
- R34 - Causes burns.

S -phrase(s)

- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S28 - After contact with skin, wash immediately with plenty of water
- S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S36/39 - Wear suitable protective clothing and eye/face protection.

Components	Classification	Concentration Limits:	Safety Phrases
<i>Benzenesulfonyl Chloride</i>		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

C - Corrosive.



16. OTHER INFORMATION

Preparation Date: 06/04/2015
Revision Date: 06/04/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet