

SAFETY DATA SHEET

1. Identification

Product identifier: BENZYL CHLORIDE

Other means of identification

Product No.: 1076

Recommended use and restriction on use

Recommended use: Not available.

Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor Information

Manufacturer

Company Name: Avantor Performance Materials, Inc.
Address: 3477 Corporate Parkway, Suite 200
Center Valley, PA 18034

Telephone: Customer Service: 855-282-6867

Fax:
Contact Person: Environmental Health & Safety
e-mail: info@avantormaterials.com

Emergency telephone number:

24 Hour Emergency: 908-859-2151

Chemtrec: 800-424-9300

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Flammable liquids Category 4

Health Hazards

Acute toxicity (Oral) Category 4
Acute toxicity (Inhalation - vapor) Category 2
Skin Corrosion/Irritation Category 2
Serious Eye Damage/Eye Irritation Category 1
Carcinogenicity Category 1B
Specific Target Organ Toxicity - Single Exposure Category 3
Specific Target Organ Toxicity - Repeated Exposure Category 2

Environmental Hazards

Acute hazards to the aquatic environment Category 2

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Combustible liquid.
May cause cancer.
Causes skin irritation.
Causes serious eye damage.
Fatal if inhaled.
Harmful if swallowed.
Toxic to aquatic life.

Precautionary Statement

Prevention: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Wear protective gloves/protective clothing/eye protection/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands thoroughly after handling. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

Response: IF ON SKIN: Wash with plenty of soap and water. 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 INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
BENZYL CHLORIDE		100-44-7	60 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Get medical attention if symptoms occur. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Inhalation: Move to fresh air. Get medical attention if symptoms persist. If breathing stops, provide artificial respiration.

Skin Contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms: Fatal if inhaled. Irritating to eyes, respiratory system and skin.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: Combustible liquid. In case of fire and/or explosion do not breathe fumes.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Contact with metals may evolve flammable hydrogen gas. Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods and material for containment and cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures: Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling: Use personal protective equipment as required. Do not breathe mist or vapor. Do not taste or swallow. Do not eat, drink or smoke when using the product. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment. Avoid contact with eyes. Avoid contact with skin. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities: Store locked up. Keep in a cool, well-ventilated place. Store in a dry place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
BENZYL CHLORIDE	TWA	1 ppm	US. ACGIH Threshold Limit Values (2011)
	Ceil_Time	1 ppm 5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	1 ppm 5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	1 ppm 5 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield.

Skin Protection

Hand Protection: Chemical resistant gloves

Other: Wear suitable protective clothing.

Respiratory Protection: In case of inadequate ventilation use suitable respirator.

Hygiene measures: Provide eyewash station and safety shower. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Do not eat, drink or smoke when using the product. Wash contaminated clothing before reuse.

9. Physical and chemical properties

Appearance

Physical state: Liquid

Form: Liquid

Color:	Colorless to slightly yellow
Odor:	Pungent aromatic odor
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	-45 °C
Initial boiling point and boiling range:	179 °C
Flash Point:	67 °C (Closed Cup)
Evaporation rate:	No data available.
Flammability (solid, gas):	Class IIIA Combustible Liquid
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	7.1 %(V)
Flammability limit - lower (%):	1.3 %(V)
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	7.83 kPa (100 °C) 44.0 kPa (150 °C) 0.16 kPa (25 °C)
Vapor density:	4.36 AIR=1
Relative density:	1.10 (20 °C)
Solubility(ies)	
Solubility in water:	0.53 g/l (25 °C)
Solubility (other):	ethanol: Very Soluble chloroform: Very Soluble
Partition coefficient (n-octanol/water):	2.30
Auto-ignition temperature:	627 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Molecular weight:	126.58 g/mol (C7H7Cl)

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of Hazardous Reactions:	Hazardous polymerization does not occur.
Conditions to Avoid:	Heat, sparks, flames. Contact with incompatible materials.
Incompatible Materials:	Strong oxidizing agents. Water.
Hazardous Decomposition Products:	By heating and fire, harmful vapors/gases may be formed. Hydrogen Chloride. Oxides of Carbon. Phosgene.

11. Toxicological information

Information on likely routes of exposure

Ingestion:	Harmful if swallowed.
Inhalation:	Fatal if inhaled.
Skin Contact:	Causes skin irritation.
Eye contact:	Causes serious eye damage.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: LD 50 (Rat): 1,150 mg/kg

Dermal

Product: No data available.

Inhalation

Product: LC 50 (Mouse, 2 h): 0.39 mg/l
LC 50 (Rat, 2 h): 0.74 mg/l

Repeated Dose Toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: Causes skin irritation.

Serious Eye Damage/Eye Irritation

Product: Causes serious eye damage.

Respiratory or Skin Sensitization

Product: Not a skin sensitizer.

Carcinogenicity

Product: May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

BENZYL
CHLORIDE Overall evaluation: 2A. Probably carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No mutagenic components identified

In vivo

Product: No mutagenic components identified

Reproductive Toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: May cause respiratory irritation. May cause drowsiness or dizziness.

Specific Target Organ Toxicity - Repeated Exposure

Product: May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Product: Not classified

Other Effects:

None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

BENZYL CHLORIDE LC 50 (Ide, silver or golden orfe (*Leuciscus idus*), 96 h): 16 mg/l Mortality
LC 50 (Zebra danio (*Danio rerio*), 96 h): 4 mg/l Mortality
LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 4.4 - 5.6 mg/l Mortality

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

BENZYL CHLORIDE LC 50 (Water flea (*Daphnia magna*), 24 h): 8.4 mg/l Mortality
LC 50 (Northern white shrimp (*Penaeus setiferus*), 48 h): 3.5 - 5.8 mg/l Mortality

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: There are no data on the degradability of this product.

BOD/COD Ratio

Product: No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: 2.30

Mobility in Soil:

The product is water soluble and may spread in water systems.

Other Adverse Effects:

Toxic to aquatic life.

13. Disposal considerations

Disposal instructions:

Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated Packaging:

Since emptied containers retain product residue, follow label warnings even

after container is emptied.

14. Transport information

DOT

UN Number: UN 1738
 UN Proper Shipping Name: Benzyl chloride
 Transport Hazard Class(es)
 Class(es): 6.1, 8
 Label(s): 6.1, 8
 Packing Group: II
 Marine Pollutant: No

IMDG

UN Number: UN 1738
 UN Proper Shipping Name: BENZYL CHLORIDE
 Transport Hazard Class(es)
 Class(es): 6.1, 8
 Label(s): 6.1, 8
 EmS No.: F-A, S-B
 Packing Group: II
 Marine Pollutant: No

IATA

UN Number: UN 1738
 Proper Shipping Name: Benzyl chloride
 Transport Hazard Class(es):
 Class(es): 6.1, 8
 Label(s): 6.1, 8
 Marine Pollutant: No
 Packing Group: II

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

BENZYL CHLORIDE Reportable quantity: 100 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Acute (Immediate) Chronic (Delayed) Fire Reactive Pressure Generating

SARA 302 Extremely Hazardous Substance

Chemical Identity	RQ	Threshold Planning Quantity
BENZYL CHLORIDE	100 lbs.	500 lbs.

SARA 304 Emergency Release Notification

Chemical Identity	RQ
BENZYL CHLORIDE	100 lbs.

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
BENZYL CHLORIDE	500lbs

SARA 313 (TRI Reporting)

Chemical Identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
BENZYL CHLORIDE	10000 lbs	25000 lbs.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

BENZYL CHLORIDE Reportable quantity: 100 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

BENZYL CHLORIDE Carcinogenic.

US. New Jersey Worker and Community Right-to-Know Act

BENZYL CHLORIDE Listed

US. Massachusetts RTK - Substance List

BENZYL CHLORIDE Listed

US. Pennsylvania RTK - Hazardous Substances

BENZYL CHLORIDE Listed

US. Rhode Island RTK

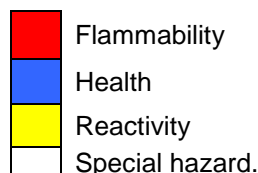
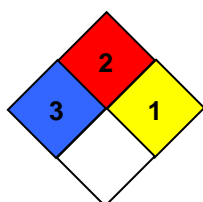
BENZYL CHLORIDE Listed

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Issue Date: 10-17-2014

Revision Date: No data available.

Version #: 1.0

Further Information: No data available.

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