SAFETY DATA SHEET

1. Identification

Product identifier **Benzylidene Chloride (Benzal Chloride)**

Other means of identification None.

Recommended use Not available.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Valtris Specialty Chemicals	
Address	170 U.S.Route 130 South Bridgeport, NJ 08014 United States	
Telephone	Customer Service	(216) 875-7284
Website	www.valtris.com	
E-mail	sdsquestions@valtris.com	
Contact person	Valtris Technical Center	
Emergency phone number	CHEMTREC	1-800-424-9300
	CHEMTREC Contract No	717950

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 4
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 4
	Acute toxicity, inhalation	Category 1
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1
	Carcinogenicity	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Combustible liquid. Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Fatal if inhaled. May cause respiratory irritation. May cause cancer. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from flames and hot surfaces-No smoking. Do not breathe vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response	If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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/doctor. Specific treatment is urgent (see this label). If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	99% of the mixture consists of component(s) of unknown acute dermal toxicity. 93.5% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 1% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Benzene, (dichloromethyl)-		98-87-3	80 - < 95
BENZENE CHLOROMETHYL-		100-44-7	1 - < 10
Dichloromethylbenzene		29797-40-8	1 - < 5
Benzaldehyde		100-52-7	0 - < 1
Benzyltrichloride		98-07-7	0 - < 1

Impurities

Chemical name	Common name and synonyms	CAS number	%
propylene oxide		75-56-9	0.0002

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Occupational Exposure Limits for impurities are listed in Section 8.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim 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. Call a physician or poison control center immediately.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical advice/attention if you feel unwell. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical advice/attention if you feel unwell.
Most important symptoms/effects, acute and delayed	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Combustible liquid.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe vapors or spray mist. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	Use water spray to reduce vapors or divert vapor cloud drift. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Prevent product from entering drains. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. 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	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from open flames, hot surfaces and sources of ignition. Do not breathe vapors or spray mist. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
BENZENE CHLOROMETHYL- (CAS 100-44-7)	PEL	5 mg/m3
		1 ppm

Impurities	Type	Value
propylene oxide (CAS 75-56-9)	PEL	240 mg/m3
		100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
BENZENE CHLOROMETHYL- (CAS 100-44-7)	TWA	1 ppm
Benzyltrichloride (CAS 98-07-7)	Ceiling	0.1 ppm

US. ACGIH Threshold Limit Values

Impurities	Type	Value
propylene oxide (CAS 75-56-9)	TWA	2 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
BENZENE CHLOROMETHYL- (CAS 100-44-7)	Ceiling	5 mg/m3
		1 ppm

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
Benzaldehyde (CAS 100-52-7)	STEL	17.4 mg/m3
		4 ppm
	TWA	8.7 mg/m3
		2 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

Benzyltrichloride (CAS 98-07-7) Can be absorbed through the skin.

Appropriate engineering controls 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. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Color Brown or Black.

Odor Pungent.

Odor threshold Not available.

pH Not available.

Melting point/freezing point -49 °F (-45 °C) estimated

Initial boiling point and boiling range 354.2 °F (179 °C) estimated

Flash point 180.0 °F (82.2 °C) Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.69 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	1085 °F (585 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.25 g/cm3 estimated
Explosive properties	Not explosive.
Flammability class	Combustible IIIA estimated
Oxidizing properties	Not oxidizing.
Percent volatile	97 % estimated
Specific gravity	1.25 estimated
VOC	97 % estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Aluminum.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity	Fatal if inhaled. Harmful in contact with skin. May cause respiratory irritation. May cause an allergic skin reaction.

Components	Species	Test Results
Benzaldehyde (CAS 100-52-7)		
Acute		
Dermal		
LD50	Rabbit	> 1250 mg/kg
BENZENE CHLOROMETHYL- (CAS 100-44-7)		
Acute		
Oral		
LD50	Rat	1150 mg/kg
Benzyltrichloride (CAS 98-07-7)		
Acute		
Oral		
LD50	Rat	6 g/kg

Impurities	Species	Test Results
propylene oxide (CAS 75-56-9)		
Acute		
Oral		
LD50	Rat	380 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

ACGIH sensitization

PROPYLENE OXIDE (CAS 75-56-9) Dermal sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

BENZENE CHLOROMETHYL- (CAS 100-44-7)	2A Probably carcinogenic to humans.
Benzene, (dichloromethyl)- (CAS 98-87-3)	2A Probably carcinogenic to humans.
Benzyltrichloride (CAS 98-07-7)	2A Probably carcinogenic to humans.
propylene oxide (CAS 75-56-9)	2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Benzyltrichloride (CAS 98-07-7)	Reasonably Anticipated to be a Human Carcinogen.
propylene oxide (CAS 75-56-9)	Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

Components		Species	Test Results
Benzaldehyde (CAS 100-52-7)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	0.8 - 1.44 mg/l, 96 hours
BENZENE CHLOROMETHYL- (CAS 100-44-7)			
Aquatic			
Fish	LC50	Zebra danio (Danio rerio)	4 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Benzaldehyde	1.48
BENZENE CHLOROMETHYL-	2.3
Benzene, (dichloromethyl)-	3.217
Benzyltrichloride	2.92

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste P List: Reference

BENZENE CHLOROMETHYL- (CAS 100-44-7) P028

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number UN1886

UN proper shipping name Benzylidene Chloride (Benzene, (dichloromethyl)- RQ = 5587 LBS, BENZENE CHLOROMETHYL- RQ = 1818 LBS)

Transport hazard class(es)

Class 3

Subsidiary risk -

Label(s) 3

Packing group III

Special precautions for user Not available.

Special provisions B1, B52, IB3, T4, TP1, TP29

Packaging exceptions 150

Packaging non bulk 203

Packaging bulk 242

IATA

UN number UN1886

UN proper shipping name Benzylidene Chloride (Benzene, (dichloromethyl)-, BENZENE CHLOROMETHYL-)

Transport hazard class(es)

Class 6.1

Subsidiary risk -

Packing group II

Environmental hazards	No.
Special precautions for user	Not available.

IMDG

UN number	UN1886
UN proper shipping name	Benzylidene Chloride (Benzene, (dichloromethyl)-, Benzene, (dichloromethyl)-)
Transport hazard class(es)	
Class	6.1
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-A
Special precautions for user	Not available.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

BENZENE CHLOROMETHYL- (CAS 100-44-7)	Listed.
Benzene, (dichloromethyl)- (CAS 98-87-3)	Listed.
Benzyltrichloride (CAS 98-07-7)	Listed.
propylene oxide (CAS 75-56-9)	Listed.

SARA 304 Emergency release notification

BENZAL CHLORIDE (CAS 98-87-3)	5000 LBS
BENZOTRICHLORIDE (CAS 98-07-7)	10 LBS
BENZYL CHLORIDE (CAS 100-44-7)	100 LBS
Oxirane, methyl- (CAS 75-56-9)	100 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Benzene, (dichloromethyl)-	98-87-3	5000	500		
BENZENE CHLOROMETHYL-	100-44-7	100	500		
Benzyltrichloride	98-07-7	10	100		
propylene oxide	75-56-9	100	10000		

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number/Category	% by wt.
BENZAL CHLORIDE	98-87-3	80 - < 95
BENZOIC TRICHLORIDE (BENZOTRICHLORIDE)	98-07-7	0 - < 1
BENZYL CHLORIDE	100-44-7	1 - < 10

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

BENZENE CHLOROMETHYL- (CAS 100-44-7)
Benzyltrichloride (CAS 98-07-7)
propylene oxide (CAS 75-56-9)

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

propylene oxide (CAS 75-56-9)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

BENZENE CHLOROMETHYL- (CAS 100-44-7) 8570

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Benzaldehyde (CAS 100-52-7) 50 %WV
BENZENE CHLOROMETHYL- (CAS 100-44-7) 20 %WV

DEA Exempt Chemical Mixtures Code Number

Benzaldehyde (CAS 100-52-7) 8256
BENZENE CHLOROMETHYL- (CAS 100-44-7) 8568

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

Benzaldehyde (CAS 100-52-7) High priority

US state regulations

California Proposition 65

WARNING: WARNING: This product contains a chemical known to the State of California to cause cancer.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

BENZENE CHLOROMETHYL- (CAS 100-44-7) Listed: January 1, 1990
Benzyltrichloride (CAS 98-07-7) Listed: July 1, 1987
propylene oxide (CAS 75-56-9) Listed: October 1, 1988

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

BENZENE CHLOROMETHYL- (CAS 100-44-7)
Benzene, (dichloromethyl)- (CAS 98-87-3)
Benzyltrichloride (CAS 98-07-7)

Dichloromethylbenzene (CAS 29797-40-8)
propylene oxide (CAS 75-56-9)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

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

Issue date 07-23-2019

Revision date 07-23-2019

Version # 02

NFPA ratings Health: 4
Flammability: 2
Instability: 0

Disclaimer Valtris Specialty Chemicals cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision information Physical & Chemical Properties: Multiple Properties
Transport Information: Material Transportation Information