

1.	IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING		
1.1	Product identifiers		
	Product name	:	Fumaryl chloride
	CAS-No.	:	627-63-4
1.2	Relevant identified uses of the substance or mixture and uses advised against		
	Identified uses	:	Laboratory chemicals, Manufacture of substances
2.	HAZARDS IDENTIFICATION		
2.1	Classification of the substance or mixture		
	Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]		
	Acute toxicity, Inhalation (Category 4)		
	Acute toxicity, Dermal (Category 4)		
	Acute toxicity, Oral (Category 4)		
	Skin corrosion (Category 1B)		
	Classification according to EU Directives 67/548/EEC or 1999/45/EC		
	Harmful by inhalation, in contact with skin and if swallowed. Causes burns. Irritating to respiratory system.		
2.2	Label elements		
	Labelling according Regulation (EC) No 1272/2008 [CLP]		
	Pictogram		
	Signal word	Danger	
	Hazard statement(s)		
	H302	Harmful if swallowed.	
	H312	Harmful in contact with skin.	
	H314	Causes severe skin burns and eye damage.	
	H332	Harmful if inhaled.	
	Precautionary statement(s)		
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.	
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
	P310	Immediately call a POISON CENTER or doctor/ physician.	
	Supplemental Hazard Statements	none	
	According to European Directive 67/548/EEC as amended.		
	Hazard symbol(s)		
	R-pharse(s)		
	R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.	
	R34	Causes burns.	
	R37	Irritating to respiratory system.	
	S-pharse(s)		
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.	
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.	
	S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).	
2.3	Other hazards		
	Lachrymator.		
3.	COMPOSITION/INFORMATION ON INGREDIENTS		
3.1	Substances		
	Formula	:	C4H2Cl2O2
	Molecular Weight	:	152,96 g/mol
	Component		Concentration
	Fumaroyl chloride		
	CAS-No.	627-63-4	-
	EC-No.	211-005-4	

4.	FIRST AID MEASURES		
4.1	Description of first aid measures		
	General advice		
	Consult a physician. Show this safety data sheet to the doctor in attendance.		
	If inhaled		
	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.		
	In case of skin contact		
	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.		
	In case of eye contact		
	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.		
	If swallowed		
	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.		
4.2	Most important symptoms and effects, both acute and delayed		
	Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea		
4.3	Indication of immediate medical attention and special treatment needed		
	no data available		

5.	FIRE-FIGHTING MEASURES		
5.1	Extinguishing media		
	Suitable extinguishing media		
	For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.		
5.2	Special hazards arising from the substance or mixture		
	Carbon oxides, Hydrogen chloride gas		
5.3	Precautions for fire-fighters		
	Wear self contained breathing apparatus for fire fighting if necessary.		
5.4	Further information		
	Use water spray to cool unopened containers.		

6.	ACCIDENTAL RELEASE MEASURES		
6.1	Personal precautions, protective equipment and emergency procedures		
	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.		
6.2	Environmental precautions		
	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.		
6.3	Methods and materials for containment and cleaning up		
	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.		
6.4	Reference to other sections		
	For disposal see section 13.		

7.	HANDLING AND STORAGE		
7.1	Precautions for safe handling		
	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.		
7.2	Conditions for safe storage, including any incompatibilities		
	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.		
	Recommended storage temperature: 2 - 8 °C		
	Moisture sensitive.		
7.3	Specific end uses		
	no data available		

8.	EXPOSURE CONTROLS/PERSONAL PROTECTION		
8.1	Control parameters		
	Components with workplace control parameters		
8.2	Exposure controls		
	Appropriate engineering controls		
	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.		
	Personal protective equipment		

Eye/face protection	
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).	
Skin protection	
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.	
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.	
Body Protection	
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.	
Respiratory protection	
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).	

respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9.

PHYSICAL AND CHEMICAL PROPERTIES

9.1

Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: light yellow
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting/freezing point	no data available
f)	Initial boiling point and boiling range	161 - 164 °C - lit.
g)	Flash point	77 °C - closed cup
h)	Evaporation rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	1,415 g/cm3 at 25 °C
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Autoignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2

Other safety information

no data available

10.

STABILITY AND REACTIVITY

10.	STABILITY AND REACTIVITY		
10.1	Reactivity		
	no data available		
10.2	Chemical stability		
	no data available		
10.3	Possibility of hazardous reactions		
	no data available		
10.4	Conditions to avoid		
	Heat, flames and sparks.		
10.5	Incompatible materials		
	Water, Alcohols, Oxidizing agents, Strong bases		
10.6	Hazardous decomposition products		
	Other decomposition products - no data available		

LD50 Dermal - rabbit - 1.991 mg/kg

Skin corrosion/irritation
Skin - rabbit - Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Severe eye irritation - 24 h

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	Harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Harmful if swallowed. Causes burns.
Skin	Harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

Additional Information
RTECS: LT2800000

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.	ECOLOGICAL INFORMATION		
12.1	Toxicity		
	no data available		
12.2	Persistence and degradability		
	no data available		
12.3	Bioaccumulative potential		
	no data available		
12.4	Mobility in soil		
	no data available		
12.5	Results of PBT and vPvB assessment		
	no data available		
12.6	Other adverse effects		
	no data available		

13.	DISPOSAL CONSIDERATIONS		
13.1	Waste treatment methods		
	Product		
	This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.		
	Contaminated packaging		
	Dispose of as unused product.		

14.	TRANSPORT INFORMATION		
14.1	UN-Number		
	ADR/RID: 1780	IMDG: 1780	IATA: 1780
14.2	UN proper shipping name		
	ADR/RID: FUMARYL CHLORIDE		
	IMDG: FUMARYL CHLORIDE		
	IATA: Fumaryl chloride		
14.3	Transport hazard class(es)		
	ADR/RID: 8	IMDG: 8	IATA: 8
14.4	Packaging group		
	ADR/RID: II	IMDG: II	IATA: II
14.5	Environmental hazards		
	ADR/RID: no	IMDG Marine pollutant: no	IATA: no
14.6	Special precautions for users		
	no data available		

15.	REGULATORY INFORMATION		
	This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.		
15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture		
	no data available		
15.2	Chemical Safety Assessment		
	no data available		

16.	OTHER INFORMATION		
	Further information		
	For R&D use only. Not for drug, household or other uses.		



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WARRANTY:
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