

4-CHLOROBUTYRYL CHLORIDE EXTRA PURE

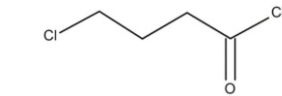
Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Issue date: 30-09-2022 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form Trade name : Substance
name EC-No. : 4-CHLOROBUTYRYL CHLORIDE EXTRA PURE
CAS-No. : 225-059-1
Product code : 4635-59-0
Formula : 2741T
Chemical structure : C₄H₆Cl₂O



Synonyms : 4-Chlorobutanoyl chloride, 4-Chlorobutyryl chloride, 4-Chlorobutyric acid chloride

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals
Manufacture of substances

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4	H302
Acute toxicity (inhal.), Category 2	H330
Skin corrosion/irritation, Category 1, Sub-Category 1A	H314
Full text of H- and EUH-statements: see section 16	

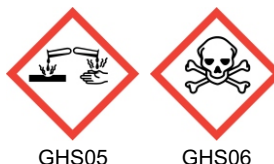
Adverse physicochemical, human health and environmental effects

Fatal if inhaled. Harmful if swallowed. Causes severe skin burns and eye damage.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS06

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Signal word (CLP)	: Danger
Hazard statements (CLP)	: H302 - Harmful if swallowed. H314 - Causes severe skin burns and eye damage. H330 - Fatal if inhaled.
Precautionary statements (CLP)	: P280 - Wear protective clothing, eye protection, face protection, protective gloves. P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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 doctor. P234 - Keep only in original packaging.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%
4-CHLOROBUTYRYL CHLORIDE	CAS-No.: 4635-59-0 EC-No.: 225-059-1	100

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a physician immediately. Call a doctor.
First-aid measures after skin contact	: Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

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5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Do not breathe dust, fume, gas, mist, spray, vapours. Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Use only outdoors or in a well-ventilated area. Do not breathe dust, fume, gas, mist, spray, vapours. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures No additional information available

8.1.3. Air contaminants formed No additional information available

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1. DNEL and PNEC

No additional information available

8.1.5. Control banding

8.2. Exposure controls

1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

1. Personal protection equipment

Personal protective equipment symbol(s):



1. Eye and face protection

Eye protection:

Chemical goggles or safety glasses

1. Skin protection

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

Wear appropriate mask

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear liquid.
Molecular mass	: 141 g/mol
Colour	: Colourless to yellow.
Odour	: stinging.
Odour threshold	: No data available
pH	: Acidic
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: -49 – -47 °C
Boiling point	: 173 °C
Flash point	: 85 °C
Auto-ignition temperature	: 440 °C
Decomposition temperature	: > 120 °C
Flammability (solid, gas)	: Not applicable
Vapour pressure	: 4 hPa (20°C)
Relative vapour density at 20 °C	: 4.86 (Air = 1.0)
Relative density	: 1.25

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Solubility	: Water: Reacts with water Ethanol: Miscible in Ethanol
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 1.82 mPa.s at 20 °C - OECD Test Guideline 114 :
Explosive properties	No data available
Oxidising properties	: No data available
Lower explosive limit (LEL)	: 5.5 vol %
Upper explosive limit (UEL)	: 11.7 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal) Acute toxicity (inhalation)	: Not classified : Fatal if inhaled.
Skin corrosion/irritation	: Causes severe skin burns. pH: Acidic
Serious eye damage/irritation	: Assumed to cause serious eye damage pH: Acidic
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	

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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.
Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1 UN number

UN-No. (ADR) : UN 2922 :
UN-No. (IMDG) UN 2922 :
UN-No. (IATA) UN 2922 :
UN-No. (ADN) UN 2922 :
UN-No. (RID) UN 2922

14.2. UN proper shipping name

Proper Shipping Name (ADR) : CORROSIVE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IMDG) : CORROSIVE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IATA) : Corrosive liquid, toxic, n.o.s.
Proper Shipping Name (ADN) : CORROSIVE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (RID) : CORROSIVE LIQUID, TOXIC, N.O.S.
Transport document description (ADR) : UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (4-CHLOROBUTYRYL CHLORIDE), 8 (6.1), I, (C/D)
Transport document description (IMDG) : UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (4-CHLOROBUTYRYL CHLORIDE), 8 (6.1), I
Transport document description (IATA) : UN 2922 Corrosive liquid, toxic, n.o.s. (4-CHLOROBUTYRYL CHLORIDE), 8 (6.1), I
Transport document description (ADN) : UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (4-CHLOROBUTYRYL CHLORIDE), 8 (6.1), I
Transport document description (RID) : UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (4-CHLOROBUTYRYL CHLORIDE), 8 (6.1), I

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14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 8 (6.1)
Danger labels (ADR) : 8, 6.1 :



IMDG

Transport hazard class(es) (IMDG) : 8 (6.1)
Danger labels (IMDG) : 8, 6.1 :



IATA

Transport hazard class(es) (IATA) : 8 (6.1)
Danger labels (IATA) : 8, 6.1
:



ADN

Transport hazard class(es) (ADN) : 8 (6.1)
Danger labels (ADN) : 8, 6.1 :



RID

Transport hazard class(es) (RID) : 8 (6.1)
Danger labels (RID) : 8, 6.1 :



14.4. Packing group

Packing group (ADR) : I :
Packing group (IMDG) I : I
Packing group (IATA) : I :
Packing group (ADN) I
Packing group (RID)

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR) : CT1

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Special provisions (ADR) : 274
Limited quantities (ADR) : 0
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P001
Mixed packing provisions (ADR) : MP8, MP17
Portable tank and bulk container instructions (ADR) : T14
Portable tank and bulk container special provisions : TP2, TP27 (ADR)

Tank code (ADR) : L10BH
Vehicle for tank carriage : AT
Transport category (ADR) : 1
Special provisions for carriage - Loading, unloading : CV13, CV28
and handling (ADR)
Special provisions for carriage - Operation (ADR) : S14
Hazard identification number (Kemler No.) : 886
Orange plates :



Tunnel restriction code (ADR) EAC code : C/D
APP code : 2X
: B

Transport by sea

Special provisions (IMDG)
Limited quantities (IMDG) : 274
Excepted quantities (IMDG) : 0
Packing instructions (IMDG) : E0
Tank instructions (IMDG) : P001
Tank special provisions (IMDG) EmS-No. : T14
(Fire) : TP2, TP13, TP27
EmS-No. (Spillage) : F-A
Stowage category (IMDG) : S-B
Stowage and handling (IMDG) Properties : B
and observations (IMDG) : SW2
: Causes burns to skin, eyes and mucous membranes. Toxic if swallowed, by skin contact or by inhalation.

Air transport

PCA Excepted quantities (IATA)
PCA Limited quantities (IATA) : E0
PCA limited quantity max net quantity (IATA) : Forbidden :
PCA packing instructions (IATA) : Forbidden :
PCA max net quantity (IATA) : 850
CAO packing instructions (IATA) : 0.5L
CAO max net quantity (IATA) : 854
Special provisions (IATA) : 2.5L
ERG code (IATA) : A3, A803
: 8P

Inland waterway transport Classification code (ADN)

Special provisions (ADN) : CT1
Limited quantities (ADN) : 274, 802
Excepted quantities (ADN) Carriage : 0
permitted (ADN) Equipment required (ADN) : E0
Ventilation (ADN) : T
Number of blue cones/lights (ADN) : PP, EP, TOX, A :

Rail transport Classification code (RID)

Special provisions (RID) Limited quantities (RID) : 2
: CT1
: 274
: 0

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Excepted quantities (RID)	: E0
Packing instructions (RID)	: P001
Mixed packing provisions (RID)	: MP8, MP17
Portable tank and bulk container instructions (RID)	: T14
Portable tank and bulk container special provisions (RID)	: TP2, TP27
(RID)	
Tank codes for RID tanks (RID)	: L10BH
Special provisions for RID tanks (RID)	: TU38, TE22
Transport category (RID)	: 1
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW28
Hazard identification number (RID)	: 886

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)

Reference code	Applicable on
3(b)	4-CHLOROBUTYRYL CHLORIDE EXTRA PURE

REACH Annex XIV (Authorisation List)

4-CHLOROBUTYRYL CHLORIDE EXTRA PURE is not on the REACH Annex XIV List

REACH Candidate List (SVHC)

4-CHLOROBUTYRYL CHLORIDE EXTRA PURE is not on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

4-CHLOROBUTYRYL CHLORIDE EXTRA PURE is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

POP Regulation (Persistent Organic Pollutants)

4-CHLOROBUTYRYL CHLORIDE EXTRA PURE is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Ozone Regulation (1005/2009)

4-CHLOROBUTYRYL CHLORIDE is not subject to REGULATION (EU) No 1005/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 September 2009 on substances that deplete the ozone layer.

Explosives Precursors Regulation (2019/1148)

Contains no substance subject to Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on drug precursors)

15.1.2. National regulations

Germany

Employment restrictions	: Observe restrictions according Act on the Protection of Working Mothers (MuSchG). Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG).
Water hazard class (WGK)	: WGK 1, Slightly hazardous to water (Classification according to AwSV; ID No. 7399).

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Chemicals Prohibition Ordinance (ChemVerbotsV) : This product is subject to ChemVerbotsV Annex 2 Entry 1. The following requirements must be observed: authorization requirement (according to § 6 paragraph 1 sentence 1), basic requirements for carrying out the delivery (according to § 8 paragraph 1, 3 and 4), identification and documentation (according to § 9 paragraph 1 to 3) and exclusion of the shipping route (according to § 10).

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard Store unit Classification remarks : Class III-1
: 50 liter
: Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

Switzerland

Storage class (LK) : LK 6.1 - Toxic materials
Chemicals Ordinance (SR 813.11) : Group 1

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration

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Abbreviations and acronyms:	
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.