

Creation Date 10-Nov-2010

Revision Date 22-Feb-2019

Revision Number 4

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1. Product identification**

**Product Description:** Isovaleryl chloride  
**Cat No. :** 169280000; 169280250; 169281000; 169285000  
**CAS-No** 108-12-3  
**Molecular Formula** C5 H9 Cl O

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

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

**1.3. Details of the supplier of the safety data sheet**

**Company** **UK entity/business name**  
 Fisher Scientific UK  
 Bishop Meadow Road, Loughborough,  
 Leicestershire LE11 5RG, United Kingdom

**EU entity/business name**  
 Acros Organics BVBA  
 Janssen Pharmaceuticaaan 3a  
 2440 Geel, Belgium

**E-mail address** begel.sdsdesk@thermofisher.com

**1.4. Emergency telephone number**

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1. Classification of the substance or mixture**

**CLP Classification - Regulation (EC) No 1272/2008**

**Physical hazards**

Flammable liquids Category 3 (H226)

**Health hazards**

Acute Inhalation Toxicity - Vapors Category 3 (H331)  
 Skin Corrosion/Irritation Category 1 B (H314)  
 Serious Eye Damage/Eye Irritation Category 1 (H318)

**Environmental hazards**

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Based on available data, the classification criteria are not met

## 2.2. Label elements



Signal Word

Danger

### Hazard Statements

- H226 - Flammable liquid and vapor
- H314 - Causes severe skin burns and eye damage
- H331 - Toxic if inhaled

### Precautionary Statements

- P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
- 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
- P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
- P240 - Ground/Bond container and receiving equipment

## 2.3. Other hazards

- Lachrymator (substance which increases the flow of tears)
- Stench

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

| Component                    | CAS-No   | EC-No.            | Weight % | CLP Classification - Regulation (EC) No 1272/2008                                       |
|------------------------------|----------|-------------------|----------|---|
| Butanoyl chloride, 3-methyl- | 108-12-3 | EEC No. 203-552-2 | >95      | Skin Corr. 1B (H314)<br>Eye Dam. 1 (H318)<br>Acute Tox. 3 (H331)<br>Flam. Liq. 3 (H226) |

Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

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|   |  |
|---|--|
| <b>Eye Contact</b>                        | Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  |
| <b>Skin Contact</b>                       | Immediate medical attention is required. Wash off immediately with plenty of water for at least 15 minutes.  |
| <b>Ingestion</b>                          | Do not induce vomiting. Call a physician immediately.  |
| <b>Inhalation</b>                         | Move to fresh air. Immediate medical attention is required. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If not breathing, give artificial respiration. |
| <b>Self-Protection of the First Aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.   |

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

Breathing difficulties. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Carbon dioxide (CO<sub>2</sub>). Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Chemical foam. Do not use a solid water stream as it may scatter and spread fire. Cool closed containers exposed to fire with water spray.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### 5.2. Special hazards arising from the substance or mixture

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### **Hazardous Combustion Products**

Hydrogen chloride gas, Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Phosgene.

### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Take precautionary measures against static discharges.

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## 6.2. Environmental precautions

See Section 12 for additional ecological information.

## 6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Ensure adequate ventilation. Wear personal protective equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation. Use explosion-proof equipment. Use only non-sparking tools. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Flammables area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Store under an inert atmosphere. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat and sources of ignition.

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### **Exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### **Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas

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chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

**Derived No Effect Level (DNEL)** No information available

| Route of exposure            | Acute effects (local) | Acute effects (systemic) | Chronic effects (local) | Chronic effects (systemic) |
|------------------------------|-----------------------|--------------------------|-------------------------|----------------------------|
| Oral<br>Dermal<br>Inhalation |                       |                          |                         |                            |

**Predicted No Effect Concentration (PNEC)** No information available.

## 8.2. Exposure controls

### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

**Eye Protection** Safety glasses with side-shields Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

| Glove material | Breakthrough time                 | Glove thickness | EU standard | Glove comments        |
|----------------|-----------------------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers recommendations | -               | EN 374      | (minimum requirement) |
| Butyl rubber   |                                   |                 |             |                       |
| Nitrile rubber |                                   |                 |             |                       |
| Neoprene       |                                   |                 |             |                       |
| PVC            |                                   |                 |             |                       |

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Particulates filter conforming to EN 143 Acid gases filter Type E Yellow conforming to EN14387

**Small scale/Laboratory use** Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141  
 When RPE is used a face piece Fit Test should be conducted

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**Environmental exposure controls** No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

|  |                               |  |
|--|-------------------------------|--|
| <b>Appearance</b>                              | Light yellow                  |  |
| <b>Physical State</b>                          | Liquid                        |  |
| <b>Odor</b>                                    | Stench                        |  |
| <b>Odor Threshold</b>                          | No data available             |  |
| <b>pH</b>                                      | No information available      |  |
| <b>Melting Point/Range</b>                     | No data available             |  |
| <b>Softening Point</b>                         | No data available             |  |
| <b>Boiling Point/Range</b>                     | 115 - 117 °C / 239 - 242.6 °F | @ 760 mmHg                               |
| <b>Flash Point</b>                             | 27 °C / 80 °F                 | <b>Method</b> - No information available |
| <b>Evaporation Rate</b>                        | No data available             |  |
| <b>Flammability (solid,gas)</b>                | Not applicable                | Liquid                                   |
| <b>Explosion Limits</b>                        | No data available             |  |
| <b>Vapor Pressure</b>                          | No data available             |  |
| <b>Vapor Density</b>                           | No data available             | (Air = 1.0)                              |
| <b>Specific Gravity / Density</b>              | 0.980                         |  |
| <b>Bulk Density</b>                            | Not applicable                | Liquid                                   |
| <b>Water Solubility</b>                        | decomposes                    |  |
| <b>Solubility in other solvents</b>            | No information available      |  |
| <b>Partition Coefficient (n-octanol/water)</b> |                               |  |
| <b>Autoignition Temperature</b>                | No data available             |  |
| <b>Decomposition Temperature</b>               | No data available             |  |
| <b>Viscosity</b>                               | No data available             |  |
| <b>Explosive Properties</b>                    | No information available      | explosive air/vapour mixtures possible   |
| <b>Oxidizing Properties</b>                    | No information available      |  |

### 9.2. Other information

|                          |            |
|--------------------------|------------|
| <b>Molecular Formula</b> | C5 H9 Cl O |
| <b>Molecular Weight</b>  | 120.58     |

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

None known, based on information available

### 10.2. Chemical stability

Stable under normal conditions, Moisture sensitive.

### 10.3. Possibility of hazardous reactions

|                                 |                           |
|---------------------------------|---------------------------|
| <b>Hazardous Polymerization</b> | No information available. |
| <b>Hazardous Reactions</b>      | No information available. |

### 10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.

### 10.5. Incompatible materials

Water. Strong bases. Alcohols.

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## 10.6. Hazardous decomposition products

Hydrogen chloride gas. Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Phosgene.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Product Information

#### (a) acute toxicity;

|            |                   |
|------------|-------------------|
| Oral       | No data available |
| Dermal     | No data available |
| Inhalation | Category 3        |

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

#### (d) respiratory or skin sensitization;

|             |                   |
|-------------|-------------------|
| Respiratory | No data available |
| Skin        | No data available |

(e) germ cell mutagenicity; No data available

#### (f) carcinogenicity;

No data available  
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; No data available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

Ecotoxicity effects

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## 12.2. Persistence and degradability

### Persistence

Soluble in water, Persistence is unlikely, based on information available.

## 12.3. Bioaccumulative potential

Bioaccumulation is unlikely

## 12.4. Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

## 12.5. Results of PBT and vPvB assessment

No data available for assessment.

## 12.6. Other adverse effects

### Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance

This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### Waste from Residues / Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

#### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

#### European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

#### Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not dispose of waste into sewer. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

#### 14.1. UN number

UN2920

#### 14.2. UN proper shipping name

Corrosive liquid, flammable, n.o.s

#### Technical Shipping Name

Isovaleryl chloride

#### 14.3. Transport hazard class(es)

8

#### Subsidiary Hazard Class

3

#### 14.4. Packing group

II

### ADR

#### 14.1. UN number

UN2920

#### 14.2. UN proper shipping name

Corrosive liquid, flammable, n.o.s

#### Technical Shipping Name

Isovaleryl chloride

#### 14.3. Transport hazard class(es)

8

#### Subsidiary Hazard Class

3

#### 14.4. Packing group

II



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## IATA

|  |                                    |
|--|------------------------------------|
| <b>14.1. UN number</b>   | UN2920                             |
| <b>14.2. UN proper shipping name</b>   | Corrosive liquid, flammable, n.o.s |
| <b>Technical Shipping Name</b>   | Isovaleryl chloride                |
| <b>14.3. Transport hazard class(es)</b>  | 8                                  |
| <b>Subsidiary Hazard Class</b>   | 3                                  |
| <b>14.4. Packing group</b>   | II                                 |
| <b>14.5. Environmental hazards</b>   | No hazards identified              |
| <b>14.6. Special precautions for user</b>  | No special precautions required    |
| <b>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable, packaged goods     |

## SECTION 15: REGULATORY INFORMATION

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

**International Inventories** X = listed.

| Component                    | EINECS    | ELINCS | NLP | TSCA | DSL | NDSL | PICCS | ENCS | IECSC | AICS | KECL         |
|------------------------------|-----------|--------|-----|------|-----|------|-------|------|-------|------|--------------|
| Butanoyl chloride, 3-methyl- | 203-552-2 | -      |     | X    | X   | -    | X     | X    | -     | X    | KE-2358<br>5 |

### **National Regulations**

| Component                    | Germany - Water Classification (VwVwS) | Germany - TA-Luft Class |
|------------------------------|--|-------------------------|
| Butanoyl chloride, 3-methyl- | WGK 1                                  |                         |

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

### 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3

H226 - Flammable liquid and vapor  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H331 - Toxic if inhaled

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

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**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/MDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - Volatile Organic Compounds

## Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

|                         |                 |
|-------------------------|-----------------|
| <b>Creation Date</b>    | 10-Nov-2010     |
| <b>Revision Date</b>    | 22-Feb-2019     |
| <b>Revision Summary</b> | Not applicable. |

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**