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

1.1 Product identifier

Identification of the substance

- **Germanium (IV) oxide** ROTI®METIC
- **Article number**: 1L52
- **Registration number (REACH)**: It is not required to list the identified uses because the substance is not subject to registration according to REACH (< 1 t/a).
- **EC number**: 215-180-8
- **CAS number**: 1310-53-8

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

- **Relevant identified uses**: Laboratory chemical, Laboratory and analytical use
- **Uses advised against**: Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

- Carl Roth GmbH + Co KG
- Schoemperlenstr. 3-5
- D-76185 Karlsruhe
- Germany
- **Telephone**: +49 (0) 721 - 56 06 0
- **Telefax**: +49 (0) 721 - 56 06 149
- **e-mail**: sicherheit@carlroth.de
- **Website**: www.carlroth.de
- Competent person responsible for the safety data sheet: Department Health, Safety and Environment
- **e-mail (competent person)**: sicherheit@carlroth.de

1.4 Emergency telephone number

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

<table>
<thead>
<tr>
<th>Section</th>
<th>Hazard class</th>
<th>Category</th>
<th>Hazard class and category</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1O</td>
<td>Acute toxicity (oral)</td>
<td>4</td>
<td>Acute Tox. 4</td>
<td>H302</td>
</tr>
<tr>
<td>3.1I</td>
<td>Acute toxicity (inhal.)</td>
<td>4</td>
<td>Acute Tox. 4</td>
<td>H332</td>
</tr>
</tbody>
</table>

For full text of abbreviations: see SECTION 16

2.2 Label elements

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

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Safety data sheet
according to Regulation (EC) No. 1907/2006 (REACH)

Germanium (IV) oxide ROTI®METIC
article number: 1L52

Pictograms

GHS07

Hazard statements
H302+H332 Harmful if swallowed or if inhaled

Precautionary statements
Precautionary statements - prevention
P261 Avoid breathing dust

Precautionary statements - response
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing

Labelling of packages where the contents do not exceed 125 ml
Signal word: Warning
Symbol(s)

2.3 Other hazards
Results of PBT and vPvB assessment
According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances
Name of substance Germanium (IV) oxide
Molecular formula GeO₂
Molar mass 104,6 g/mol
CAS No 1310-53-8
EC No 215-180-8

Substance, Specific Conc. Limits, M-factors, ATE

<table>
<thead>
<tr>
<th>Specific Conc. Limits</th>
<th>M-Factors</th>
<th>ATE</th>
<th>Exposure route</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>500 mg/kg &gt;3,1 mg/l/4h</td>
<td>oral inhalation: dust/mist</td>
</tr>
</tbody>
</table>

Malta (en) Page 2 / 13
SECTION 4: First aid measures

4.1 Description of first aid measures

General notes
Take off contaminated clothing.

Following inhalation
Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact
Rinse skin with water/shower.

Following eye contact
Rinse cautiously with water for several minutes.

Following ingestion
Rinse mouth with water (only if the person is conscious). Call a doctor.

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

4.3 Indication of any immediate medical attention and special treatment needed
none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
co-ordinate firefighting measures to the fire surroundings
water, foam, alcohol resistant foam, dry extinguishing powder, ABC-powder

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Non-combustible.

5.3 Advice for firefighters
In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reason-able distance. Wear self-contained breathing apparatus.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Avoid contact with skin, eyes and clothes. Do not breathe dust.

6.2 Environmental precautions
Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill
Covering of drains. Take up mechanically.

Advice on how to clean up a spill
Take up mechanically. Control of dust.

Other information relating to spills and releases
Place in appropriate containers for disposal.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid dust formation.

Advice on general occupational hygiene
Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities
Store in a dry place.

Incompatible substances or mixtures
Observe hints for combined storage.

Consideration of other advice:

Ventilation requirements
Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted.

Specific designs for storage rooms or vessels
Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)
No information available.
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Data are not available.

Human health values

<table>
<thead>
<tr>
<th>Relevant DNELs and other threshold levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endpoint</td>
</tr>
<tr>
<td>DNEL</td>
</tr>
<tr>
<td>DNEL</td>
</tr>
</tbody>
</table>

Environmental values

<table>
<thead>
<tr>
<th>Relevant PNECs and other threshold levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endpoint</td>
</tr>
<tr>
<td>PNEC</td>
</tr>
<tr>
<td>PNEC</td>
</tr>
<tr>
<td>PNEC</td>
</tr>
<tr>
<td>PNEC</td>
</tr>
<tr>
<td>PNEC</td>
</tr>
<tr>
<td>PNEC</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

- [Icon of safety goggle]
- [Icon of gloves]
• hand protection
Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 °C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material
NBR (Nitrile rubber)

• material thickness
>0,11 mm

• breakthrough times of the glove material
>480 minutes (permeation: level 6)

• other protection measures
Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P2 (filters at least 94 % of airborne particles, colour code: White).

Environmental exposure controls
Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>powder</td>
</tr>
<tr>
<td>Colour</td>
<td>white</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>1.086 – 1.115 °C</td>
</tr>
<tr>
<td>Boiling point or initial boiling point and boiling range</td>
<td>not determined</td>
</tr>
<tr>
<td>Flammability</td>
<td>non-combustible</td>
</tr>
<tr>
<td>Lower and upper explosion limit</td>
<td>not determined</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>not determined</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>not relevant</td>
</tr>
<tr>
<td>pH (value)</td>
<td>not applicable</td>
</tr>
</tbody>
</table>
**Germanium (IV) oxide ROTI®METIC**

**article number: 1L52**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinematic viscosity</td>
<td>not relevant</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>4,228 g/l at 25 °C</td>
</tr>
<tr>
<td><strong>Partition coefficient</strong></td>
<td></td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (log value):</td>
<td>not relevant (inorganic)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>not determined</td>
</tr>
<tr>
<td>Density</td>
<td>4,32 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>Information on this property is not available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>1.430 kg/m³</td>
</tr>
<tr>
<td>Particle characteristics</td>
<td>No data available.</td>
</tr>
<tr>
<td><strong>Other safety parameters</strong></td>
<td></td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>none</td>
</tr>
</tbody>
</table>

9.2 **Other information**

Information with regard to physical hazard classes: hazard classes acc. to GHS (physical hazards): not relevant

Other safety characteristics: There is no additional information.

**SECTION 10: Stability and reactivity**

10.1 **Reactivity**

This material is not reactive under normal ambient conditions.

10.2 **Chemical stability**

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 **Possibility of hazardous reactions**

Violent reaction with: strong oxidiser

10.4 **Conditions to avoid**

There are no specific conditions known which have to be avoided.

10.5 **Incompatible materials**

There is no additional information.

10.6 **Hazardous decomposition products**

Hazardous combustion products: see section 5.
SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Classification according to GHS (1272/2008/EC, CLP)

**Acute toxicity**
Harmful if swallowed. Harmful if inhaled.

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Method</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral</td>
<td>LD50</td>
<td>&gt;2.000 mg/kg</td>
<td>rat</td>
<td></td>
<td>ECHA</td>
</tr>
<tr>
<td>inhalation: dust/mist</td>
<td>LC50</td>
<td>&gt;3.100 mg/m³/4h</td>
<td>rat</td>
<td></td>
<td>ECHA</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**
Shall not be classified as corrosive/irritant to skin.

**Serious eye damage/eye irritation**
Shall not be classified as seriously damaging to the eye or eye irritant.

**Respiratory or skin sensitisation**
Shall not be classified as a respiratory or skin sensitiser.

**Germ cell mutagenicity**
Shall not be classified as germ cell mutagenic.

**Carcinogenicity**
Shall not be classified as carcinogenic.

**Reproductive toxicity**
Shall not be classified as a reproductive toxicant.

**Specific target organ toxicity - single exposure**
Shall not be classified as a specific target organ toxicant (single exposure).

**Specific target organ toxicity - repeated exposure**
Shall not be classified as a specific target organ toxicant (repeated exposure).

**Aspiration hazard**
Shall not be classified as presenting an aspiration hazard.

**Symptoms related to the physical, chemical and toxicological characteristics**

- **If swallowed**
gastrointestinal complaints

- **If in eyes**
Data are not available.

- **If inhaled**
causes slight to moderate irritation

- **If on skin**
Data are not available.
11.2 Endocrine disrupting properties
Not listed.

11.3 Information on other hazards
There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity
Shall not be classified as hazardous to the aquatic environment.

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50</td>
<td>&gt;96 mg/l</td>
<td>fish</td>
<td>ECHA</td>
<td>96 h</td>
</tr>
<tr>
<td>EC50</td>
<td>67.5 mg/l</td>
<td>aquatic invertebrates</td>
<td>ECHA</td>
<td>48 h</td>
</tr>
<tr>
<td>ErC50</td>
<td>206.7 µg/l</td>
<td>algae</td>
<td>ECHA</td>
<td>72 h</td>
</tr>
</tbody>
</table>

Aquatic toxicity (chronic)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50</td>
<td>&gt;1,000 mg/l</td>
<td>microorganisms</td>
<td>ECHA</td>
<td>3 h</td>
</tr>
</tbody>
</table>

Biodegradation
The methods for determining the biological degradability are not applicable to inorganic substances.

12.2 Process of degradability
Data are not available.

12.3 Bioaccumulative potential
Data are not available.

12.4 Mobility in soil
Data are not available.

12.5 Results of PBT and vPvB assessment
Data are not available.

12.6 Endocrine disrupting properties
Not listed.

12.7 Other adverse effects
Data are not available.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information
Do not empty into drains.

13.2 Relevant provisions relating to waste
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Waste catalogue ordinance (Germany).

13.3 Remarks
Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number or ID number
not subject to transport regulations

14.2 UN proper shipping name
not assigned

14.3 Transport hazard class(es)
none

14.4 Packing group
not assigned

14.5 Environmental hazards
non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user
There is no additional information.

14.7 Maritime transport in bulk according to IMO instruments
The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations
Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information
Not subject to ADR, RID and ADN.

International Maritime Dangerous Goods Code (IMDG) - Additional information
Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information
Not subject to ICAO-IATA.
SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII
not listed

List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list
Not listed.

Seveso Directive

<table>
<thead>
<tr>
<th>2012/18/EU (Seveso III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Deco-Paint Directive

<table>
<thead>
<tr>
<th>VOC content</th>
<th>0 %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 g/l</td>
</tr>
</tbody>
</table>

Industrial Emissions Directive (IED)

<table>
<thead>
<tr>
<th>VOC content</th>
<th>0 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC content</td>
<td>0 g/l</td>
</tr>
</tbody>
</table>

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
not listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)
not listed

Water Framework Directive (WFD)
not listed

Regulation on the marketing and use of explosives precursors
not listed

Regulation on drug precursors
not listed

Regulation on substances that deplete the ozone layer (ODS)
not listed

Regulation concerning the export and import of hazardous chemicals (PIC)
not listed

Regulation on persistent organic pollutants (POP)
not listed
National inventories

<table>
<thead>
<tr>
<th>Country</th>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>AICS</td>
<td>substance is listed</td>
</tr>
<tr>
<td>CA</td>
<td>DSL</td>
<td>substance is listed</td>
</tr>
<tr>
<td>CN</td>
<td>IECSC</td>
<td>substance is listed</td>
</tr>
<tr>
<td>EU</td>
<td>ECSI</td>
<td>substance is listed</td>
</tr>
<tr>
<td>EU</td>
<td>REACH Reg.</td>
<td>substance is listed</td>
</tr>
<tr>
<td>JP</td>
<td>CSCL-ENCS</td>
<td>substance is listed</td>
</tr>
<tr>
<td>KR</td>
<td>KECI</td>
<td>substance is listed</td>
</tr>
<tr>
<td>NZ</td>
<td>NZIoC</td>
<td>substance is listed</td>
</tr>
<tr>
<td>TW</td>
<td>TCSI</td>
<td>substance is listed</td>
</tr>
<tr>
<td>US</td>
<td>TSCA</td>
<td>substance is listed</td>
</tr>
</tbody>
</table>

Legend

AICS  Australian Inventory of Chemical Substances
CSCL-ENCS List of Existing and New Chemical Substances (CSCL-ENCS)
DSL  Domestic Substances List (DSL)
ECSI  EC Substance Inventory (EINECS, ELINCS, NLP)
IECS  Inventory of Existing Chemical Substances Produced or Imported in China
KECI  Korea Existing Chemicals Inventory
NZIoC New Zealand Inventory of Chemicals
REACH Reg. REACH registered substances
TCSI  Taiwan Chemical Substance Inventory
TSCA  Toxic Substance Control Act

15.2 Chemical Safety Assessment
No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute Toxicity Estimate</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CLP</td>
<td>Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No-Effect Level</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval</td>
</tr>
<tr>
<td>EC No</td>
<td>The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
</tbody>
</table>
**Abbr.** | **Descriptions of used abbreviations**
---|---
ErC50 | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA | International Air Transport Association
IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO | International Civil Aviation Organization
IMDG | International Maritime Dangerous Goods Code
LC50 | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
NLP | No-Longer Polymer
PBT | Persistent, Bioaccumulative and Toxic
PNEC | Predicted No-Effect Concentration
REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals
RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
SVHC | Substance of Very High Concern
VOC | Volatile Organic Compounds
vPvB | Very Persistent and very Bioaccumulative

**Key literature references and sources for data**

**List of relevant phrases (code and full text as stated in chapter 2 and 3)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled.</td>
</tr>
</tbody>
</table>

**Disclaimer**
This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.