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

1.1 Product identifier

Identification of the substance: Formononetin
Article number: 9570
Registration number (REACH): This information is not available.
EC number: 207-623-9
CAS number: 485-72-3

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

Identified uses: laboratory chemical

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

1.4 Emergency telephone number

Emergency information service: Poison Centre Munich: +49/(0)89 19240

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>Classification acc. to GHS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section</strong></td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>3.2</td>
</tr>
<tr>
<td>3.3</td>
</tr>
<tr>
<td>3.8R</td>
</tr>
</tbody>
</table>
2.2 Label elements

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

**Signal word**: Warning

**Pictograms**

![](image)

**Hazard statements**

- **H315**: Causes skin irritation.
- **H319**: Causes serious eye irritation.
- **H335**: May cause respiratory irritation.

**Precautionary statements**

**Precautionary statements - prevention**

- **P261**: Avoid breathing dust.

**Precautionary statements - response**

- **P302+P352**: IF ON SKIN: wash with plenty of water.
- **P305+P351+P338**: IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Labelling of packages where the contents do not exceed 125 ml

**Signal word**: Warning

**Symbol(s)**

![](image)

2.3 Other hazards

There is no additional information.

**SECTION 3: Composition/information on ingredients**

### 3.1 Substances

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>Formononetin</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC number</td>
<td>207-623-9</td>
</tr>
<tr>
<td>CAS number</td>
<td>485-72-3</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>C₁₆H₁₂O₄</td>
</tr>
<tr>
<td>Molar mass</td>
<td>268,3 g/mol</td>
</tr>
</tbody>
</table>
For full text of abbreviations: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes
Take off contaminated clothing.

Following inhalation
Provide fresh air. In case of respiratory tract irritation, consult a physician.

Following skin contact
Rinse skin with water/shower.

Following eye contact
Irrigate copiously with clean, fresh water, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion
Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed
Irritation, Cough, Abdominal pain

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 fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Combustible.

Hazardous combustion products
In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO2)
5.3 Advice for firefighters
Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

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

6.3 Methods and material for containment and cleaning up

Advises on how to contain a spill
Covering of drains.

Advises 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.

Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid dust formation. Provide adequate ventilation.

• Measures to prevent fire as well as aerosol and dust generation
Removal of dust deposits.

Advice on general occupational hygiene
Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed. Store in a dry place.

Incompatible substances or mixtures
Observe hints for combined storage.

Consideration of other advice
Not required.

• Ventilation requirements
Use local and general ventilation.
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)

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of agent</th>
<th>CAS No</th>
<th>Notation</th>
<th>Identifier</th>
<th>TWA [mg/m³]</th>
<th>STEL [mg/m³]</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>dust</td>
<td>i</td>
<td>WEL</td>
<td>10</td>
<td></td>
<td></td>
<td>EH40/2005</td>
</tr>
<tr>
<td>UK</td>
<td>dust</td>
<td>r</td>
<td>WEL</td>
<td>4</td>
<td></td>
<td></td>
<td>EH40/2005</td>
</tr>
</tbody>
</table>

**Notation**

- i: Inhalable fraction
- r: Respirable fraction
- STEL: Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified
- TWA: Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection
Use safety goggles with side protection.

Skin protection

- **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.

- **type of material**
  NBR (Nitrile rubber)

- **material thickness**
  >0,11 mm.
Formononetin ROTICHROM® HPLC

• 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). P1 (filters at least 80 % of airborne particles, colour code: White).
  Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

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

Appearance

<table>
<thead>
<tr>
<th>Physical state</th>
<th>solid (powder)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>light grey</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Other physical and chemical parameters

<table>
<thead>
<tr>
<th>pH (value)</th>
<th>This information is not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point</td>
<td>253 - 263 °C</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>This information is not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non-flammable</td>
</tr>
</tbody>
</table>

Explosive limits

• lower explosion limit (LEL) | this information is not available |
• upper explosion limit (UEL) | this information is not available |
| Explosion limits of dust clouds | these information are not available |
| Vapour pressure           | This information is not available. |
| Density                  | This information is not available. |
| Vapour density           | This information is not available. |
| Relative density         | Information on this property is not available. |
There is no additional information.

**Dust explosibility**

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

Violent reaction with: Strong oxidiser

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

There is no additional information.

**Hazardous combustion products:** see section 5.

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

Causes skin irritation.

Causes serious eye irritation.

---

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

Dust explosibility

**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.

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**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

**Skin corrosion/irritation**

Causes skin irritation.

**Serious eye damage/eye irritation**

Causes serious eye irritation.
Respiratory or skin sensitisation
Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties
Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

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

• 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
abdominal pain

• If in eyes
Causes serious eye irritation

• If inhaled
Irritation to respiratory tract, cough

• If on skin
irritant effects

Other information
None.

SECTION 12: Ecological information

12.1 Toxicity
acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

12.2 Process of degradability
Theoretical Oxygen Demand: 2,028 mg/mg
Theoretical Carbon Dioxide: 2,625 mg/mg

12.3 Bioaccumulative potential
Does not significantly accumulate in organisms.

12.4 Mobility in soil
Data are not available.

12.5 Results of PBT and vPvB assessment
Data are not available.
12.6 Other adverse effects
Hazardous to water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/container in accordance with local/regional/national/international regulation.

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.

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
(not subject to transport regulations)

14.2 UN proper shipping name
not relevant

14.3 Transport hazard class(es)
not relevant

Class -

14.4 Packing group
not relevant

14.5 Environmental hazards
none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user
There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
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)
Not subject to ADR, RID and ADN.

• International Maritime Dangerous Goods Code (IMDG)
Not subject to IMDG.
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)

• Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)
  Not listed.
• Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)
  Not listed.
• Regulation 850/2004/EC on persistent organic pollutants (POP)
  Not listed.
• Restrictions according to REACH, Annex XVII
  not listed
• List of substances subject to authorisation (REACH, Annex XIV)
  not listed

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II
  not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)
  not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)
  not listed

National inventories
Substance is listed in the following national inventories:

  - EINECS/ELINCS/NLP (Europe)

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 européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</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>CMR</td>
<td>Carcinogenic, Mutagenic or toxic for Reproduction</td>
</tr>
<tr>
<td>EH40/2005</td>
<td>EH40/2005 Workplace exposure limits, Table 1: List of approved workplace exposure limits (<a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a>)</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
</tbody>
</table>
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.