

## 1: Identification of substance / mixture

### 1. Product Identifier

Substance

Product Name **Metformin Hydrochloride**  
Product Code 053354  
CAS Number 657-24-9  
Other Names 1,1-Dimethylbiguanide Hydrochloride  
IUPAC  
MFCD Number  
EC/EINECS 214-230-6  
REACH Number

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

Research and Development

### 3. Details of the supplier of the safety data sheet

Fluorochem Ltd  
Unit 14, Graphite Way  
Hadfield  
Derbyshire  
SK13 1QH  
UK

Telephone: +44(0)1457 860111  
Fax: +44(0)1457 892799  
Email: sds@fluorochem.co.uk



### 4. Emergency telephone number

+44(0)7855 268577 -

## 2. Hazards Identification

### 1. Classification of the substance or mixture

H302	Acute Tox. 4	R22, R20/22, R20/21/22, R21/22, R68/20/22, R68/21/22, R68/20/21/22
H315	Skin Irrit. 2	R38, R36/38, R36/37/38, R37/38
H319	Eye Irrit. 2	R36, R36/37, R36/38, R36/37/38
H335	STOT SE 3a	R37, R36/37, R36/37/38, R37/38

No Resource File

### 2. Label elements

Signal Word **Warning**



### Hazard Statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

### Precautionary Phrases

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

### 3. Other Hazards

Additional precautionary phrases are located throughout the safety data sheet

## 3. Composition / Information on Ingredients

## 1. Substances

Metformin Hydrochloride

Assay:100% CAS Number :657-24-9

## 2. Mixtures

Not Relevant

## 4. First Aid Measures

### 1. Description of first aid measures

*Skin Contact* P302 + P352: IF ON SKIN: Wash with plenty of soap and water.  
P332 + P313: If skin irritation occurs: Get medical advice/attention.

*Eye Contact* P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313: If eye irritation persists: Get medical advice/attention.

*Ingestion* P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

*Inhalation* P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

### 2. Most important symptoms and effects

There may be irritation and redness.

### 3. Indication of any immediate medical attention

No additional measures required

## 5. Firefighting measures

### 1. Extinguishing Media

*Suitable* Carbon dioxide.  
Dry chemical powder.  
Alcohol resistant foam.

*Unsuitable* no data

### 2. Special Hazards arising from the substance or mixture

In combustion toxic fumes may form.

### 3. Advice for Fire Fighters

Wear self-contained breathing apparatus.  
Wear protective clothing to prevent contact with skin and eyes.

## 6. Accidental Release Measures

### 1. Personal Precautions

Do not attempt to take action without suitable protective clothing – see section 8 of SDS.  
Evacuate the area immediately.

### 2. Environmental Precautions

Do not discharge into drains or rivers.  
Contain the spillage using bunding.

### 3. Methods & Materials

Mix with sand or vermiculite.  
Transfer to a closable, labelled salvage container for disposal by an appropriate method.

### 4. Preventing the occurrence of secondary hazards.

No Special Measures Required

## 7. Handling and Storage

### 1. Personal Precautions

*Safe Handling* Ensure there is sufficient ventilation of the area.  
P264: Wash hands thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.

*Protection against explosions and fires* P362: Take off contaminated clothing and wash before reuse.

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

*Managing Storage Risks* Store in cool, well ventilated area.  
Keep container tightly closed.

*Storage Controls* No special requirements

*Maintaining Integrity* P233: Keep container tightly closed.

*Other advice* P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

### 3. Specific End Uses

The end use(s) have not been fully determined. The substance is supplied for Research and Development purposes by professionals only.

## 8. Exposure Controls/Personal Protection

### 1. Control Parameters

No Data Available

### 2. Exposure Controls

*General protective and hygiene measures* P280: Wear protective gloves/protective clothing/eye protection/face protection.  
Wash hands during breaks and at the end of handling the material  
Immediately remove any contaminated clothing

*Engineering measures* P271: Use only outdoors or in a well-ventilated area.

*Eye / Face Protection* Safety Glasses with side-shields.

*Hand protection* Protective gloves.

*Respiratory protection* P260: Do not breathe dust/fume/gas/mist/vapours/spray.  
Use breathing protection with high concentrations

*Skin protection* Handle with gloves.  
Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practice.  
Wash and dry hands.  
Protective clothing.

*Other personal protection advice* no data

## 9. Physical and Chemical Properties

### 1. Physical and Chemical Properties

Appearance	White to almost white powder
Odour	No Data Available
Odour threshold	No Data Available
PH	No Data Available
Melting point / Freezing point	221°C
Initial boiling point and boiling range	No Data Available
Flash point	No Data Available
Evaporation rate	No Data Available
Flammability(solid,gas)	No Data Available
Upper/lower flammability or explosive limits	No Data Available
Vapour pressure	No Data Available

Vapour density	No Data Available
Relative density	No Data Available
Solubility(ies):	Water. Slightly in Ethanol
Partition coefficient: n-octanol/water	-2.64
Auto-ignition temperature	No Data Available
Decomposition temperature	No Data Available
Viscosity	No Data Available
Explosive properties	No Data Available
Oxidising properties	No Data Available

## 2. Other Information

No additional information available

## 10. Stability and Reactivity

### 1. Reactivity

no unusual reactivity

### 2. Stability

Stable under normal conditions.

### 3. Possibility of Hazardous Reactions

no hazardous reactions known

### 4. Conditions to Avoid

no specific conditions to avoid

### 5. Incompatible Materials

Oxidising agents.

### 6. Hazardous Decomposition Products

In combustion emits toxic fumes.  
 In combustion emits toxic fumes of carbon dioxide / carbon monoxide.  
 In combustion emits toxic fumes of nitrogen oxides.  
 In combustion emits toxic fumes of hydrogen chloride / phosgene.

## 11. Toxicology information

### 1. Information

<i>Acute Toxicity</i>	orl-rat LD50:1 g/kg ipr-rat LD50:500 mg/kg scu-rat LD50:300 mg/kg ivn-mus LD50:180 mg/kg
<i>Skin corrosion/irritation</i>	irritant for skin and mucous membranes skn-rbt 500 mg MLD
<i>Serious eye              Damage/irritation</i>	irritant effect eye-rbt 100 mg MLD
<i>Respiratory or skin              sensitisation</i>	No sensitizing effect known
<i>Germ Cell mutagenicity</i>	not known
<i>Carcinogenicity</i>	not known
<i>Reproductive toxicity</i>	not known
<i>STOT-single exposure</i>	not known
<i>STOT-repeated exposure</i>	not known
<i>Aspiration hazard</i>	not known

### 2. Additional

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
No classification data on carcinogenic properties of this material is available from the EPA, IARC,NTP,OSHA or ACGIH

## 12. Ecological Information

### 1. Toxicity

not known

### 2. Persistence and degradability

not known

### 3. Bio-Accumulative Potential

3.2

### 4. Mobility and Soil

Log Pow: -2.64

Soil adsorption (Koc): 110

Henry's Law constant(PaM3/mol):  $7.7 \times 10^{-11}$

### 5. Results of PBT & vPvB assessment

not known

### 6. Other adverse effects

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.

## 13. Disposal Considerations

### 1. Waste Treatment Methods

*Disposal Operations*

*Disposal of Packaging* Disposal must be made according to official regulations.

## 14. Transport Information

### Air (ICAO)

1. **UN Number:**
2. **Shipping Name:** Non Hazardous
3. **Transport hazard class(es):** : Sub Class :
  
4. **Packing group:**
5. **Environmental hazards:**
6. **Special Precautions for user:**
7. **Transport in bulk:**

### Road (ADR)

1. **UN Number:**
2. **Shipping Name:** None Hazardous
3. **Transport hazard class(es):** : Sub Class :
  
4. **Packing group:**
5. **Environmental hazards:**
6. **Special Precautions for user:**
7. **Transport in bulk:**

### Sea (IMDG)

1. **UN Number:**
2. **Shipping Name:** Non Hazardous
3. **Transport hazard class(es):** : Sub Class :
  
4. **Packing group:**
5. **Environmental hazards:**
6. **Special Precautions for user:**
7. **Transport in bulk:**

## 15. Safety, health, environmental and national regulations

### 1. Safety, health, environmental and national regulations:

product is not subject to any additional regulations or provisions

### 2. Safety Assessment

No Chemical Safety Assessment

## 16. Other Information

### 1. Other Information:

ADR: Accord Europeen sur le transport des marchandises Dangereuses par Route(European Agreement concerning the International Carriage of Dangerous Goods by road)  
RID:Reglement International concernant le transport des marchandises dangereuses par chemin de fer (Regulations concerning the International transport of Dangerous Goods by Rail)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA-DGR: Dangerous Goods Regulations by the International Air Transport Association  
ICAO:International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the ICAO  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
CAS:Chemical Abstracts Service

### 2. Associated risk phrases according to european directive 67/548/EEC

R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R20/22	Harmful by inhalation and if swallowed.
R21/22	Harmful in contact with skin and if swallowed.
R22	Harmful if swallowed.
R36	Irritating to eyes.
R36/37	Irritating to eyes and respiratory system.
R36/37/38	Irritating to eyes, respiratory system and skin.
R36/38	Irritating to eyes and skin.
R37	Irritating to respiratory system.
R37/38	Irritating to respiratory system and skin.
R38	Irritating to skin.
R68/20/21/22	Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.
R68/20/22	Harmful: possible risk of irreversible effects through inhalation and if swallowed.
R68/21/22	Harmful: possible risk of irreversible effects in contact with skin and if swallowed.



### 3. Disclaimer

The product listed is for research and development purposes only and not for human or animal use. As such, in most cases, the toxicological, ecological and physicochemical properties have not been fully determined and the product should be treated with respect and always handled under suitable conditions by appropriately qualified personnel. The responsible party shall use this datasheet only in conjunction with other sources of information gathered by them, and should make an independent judgement of suitability, to ensure proper use and protect the health and safety of employees. This information is furnished without warranty and any use of the product not in conformance with this material safety data sheet, or in combination with any other product or process, is the responsibility of the user.