

SAFETY DATA SHEET**FORMI®**

Formi® contains potassium diformate and silicon dioxide

1. Identification of the substance / preparation and company / undertaking

| | |
|--|--|
| Product name | FORMI® |
| Chemical product name | Preparation of potassium diformate and silicon dioxide |
| Synonyms | potassium diformate |
| Supplier | ADDCON EUROPE GmbH Kaiserstraße 1 D-53113 Bonn |
| Emergency Telephone number | +49 (0) 228 919100 |
| e-mail-address of person responsible for this SDS | thomas.ohlmann@addcon.net |
| Recommended use | Preservative, feed additive |

2. Hazards identification

The preparation is classified as dangerous according to directive 67/548/EEC and its amendments.

| | |
|------------------------------------|--|
| Classification | Xi, irritating |
| Human health hazards | Risk for serious damage to eyes. |
| Environmental hazards | Based on the available data of this product no hazardous properties are known. |
| Physical / chemical hazards | Based on the available data of this product no hazardous properties are known. |

3. Composition / information on ingredients

Substance / preparation : preparation

| Chemical name | CAS no. | % | EC- no. * | classification |
|--|------------|-------|-----------|----------------|
| potassium diformate See section 16 for the full text of the R-phrases declared above. | 20642-05-1 | ~ 97 | 243-934-6 | Xi, R41 |
| Silicon dioxide See section 16 for the full text of the R-phrases declared above. | 7631-86-9 | ~ 1,5 | 231-545-4 | |

* EC-No. means EINECS- or ELINCS-number.

4. First-aid measures**Effects and symptoms**

| | |
|------------------------------|--|
| Inhalation | Over-exposure by inhalation may cause respiratory irritation (coughing). |
| Ingestion | There is no known acute effect after over-exposure to this product. |
| Skin contact | Slight irritant (redness). |
| Eye contact | irritant |
| First-aid measures | |
| General | Move exposed person to fresh air. Remove contaminated clothing. |
| Inhalation | If inhaled, remove to fresh air. Obtain medical attention if symptoms occur. |
| Ingestion | If swallowed, rinsed mouth with water (only if the person is conscious). Obtain medical attention if symptoms occur. |
| Skin contact | Rinse with plenty of running water. Remove contaminated clothes and shoes. Obtain medical attention if symptoms occur. |
| Eye contact | Rinse immediately with plenty of running water. Consult medical attention for eyes immediately. |
| First-aid facilities: | No special recommendations. |

5. Fire-fighting measures**Extinguishing media**

| | |
|---|--|
| Small fire suitable | Use dry chemical or CO ₂ . |
| Large fire suitable | Use water, foam or dry chemical powder- |
| Unusual fire / explosion hazards | Based on the available data of this product no hazardous properties are known. |
| Hazardous thermal decomposition products | In case of fire, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, sodium oxide. |

5. Fire-fighting measures

| | |
|---|--|
| Special fire-fighting procedures | No special measures required. |
| Protection of fire-fighters | Wear suitable protective clothing. Self-contained breathing apparatus. |

6. Accidental release measures

| | |
|----------------------------------|---|
| Personal precautions | Ensure good ventilation. Avoid formation of dust and inhalation of dust. See protective measures under point 7 and 8. |
| Environmental precautions | Do not allow to enter drains/surface water/ground-water. |
| Clean-up methods | |
| Small spill and leak | Wash with plenty of water. |
| Large spill and leak | Collect spill in suitable containers by mechanical means. Avoid dust formation. |

Note: See section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

| | |
|----------------------------|--|
| Handling | Use with adequate ventilation. No special technical protective measures are necessary. |
| Storage | Store in a dry, cool and well-ventilated area (due to limited adsorption properties). The product has been produced and packaged in accordance with strict quality practices. Maintain this quality level by storing this product away from other chemicals. |
| Remarks | The product should be handled with the care usual when dealing with chemicals. |
| Packaging materials | |
| Suitable | Polyethylene or Material, chemical-resistant. |

Note: See section 10 for stability and reactivity.

8. Exposure controls / personal protection

| | |
|---|--|
| Engineering measures | See section 7. No additional measures necessary. |
| Hygiene measures | When using do not eat, drink or smoke. Wash hands after handling compounds and before eating, smoking and using the lavatory at the end of the day. |
| Personal protective equipment – Production scale | |
| Respiratory system | Breathing protection if breathable aerosols/dust is formed. Particle filter with medium efficiency for solid and liquid particles (e.g. EN 143 or 149, Type P2 or FFP2). |
| Skin and body | Working clothes |
| Eyes | Safety glasses with side shields. Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact and other. |
| Hands | Supplementary note: The specifications are based on own tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the determined permeation time. |
| Recommended material(s) | > 8 hours (breakthrough time): Nitril rubber, butyl rubber, neoprene, Viton, PVC. Replace damaged gloves. |

Advice on personal protection is applicable for high exposure levels. Select proper personal protection based on a risk assessment of the actual situation.

9. Physical and chemical properties

| | |
|------------------------------|------------------------------------|
| Physical state | Powder, crystalline |
| Colour | white to white-yellow |
| Odour | faint odour |
| pH | 4.1- 4.4 (concentration 10%) |
| Boiling point | 465 °C |
| Melting point | > 109 °C (partially decomposition) |
| Flash point | Not available. |
| Lower explosion limit | Not available. |
| Upper explosion limit | Not available. |

9. Physical and chemical properties

| | |
|-------------------------------|---|
| Auto-ignition temperature | > 150 °C (Wire basket) |
| Density (g/cm ³) | Not available. |
| Bulk density | 0.9 – 1.0 g/cm ³ |
| Solubility in water | soluble |
| Solubility | Easy soluble in the following materials: cold water. Partially soluble in the following materials: methanol. |
| Molecular weight | 113 g/Mol |
| Minimum ignition energy | Not available. |
| Dust explosion class | Not available. |
| Remarks | More detailed information on the physical and chemical properties can be requested from the supplier. |

10. Stability and reactivity

| | |
|----------------------------------|---|
| Stability | Stable under recommended storage and handling conditions (see section 7). |
| Conditions to avoid | Exposure to sources of heat, sources of ignition, open flame. |
| Materials to avoid | Oxidizing substances, inorganic acids, moisture |
| Hazardous decomposition products | In case of fire: see section 5. |

11. Toxicological information

Potential acute health effects

| | |
|--------------|---|
| Inhalation | No known significant effects or critical hazards. |
| Ingestion | No known significant effects or critical hazards. |
| Skin contact | No known significant effects or critical hazards. |
| Eye contact | No known significant effects or critical hazards. |

Acute toxicity

| Product / ingredient name | Result | Species | Dose | Exposure |
|---------------------------|-----------------|---------|--------------|----------|
| potassium diformate | LD50 oral | rat | > 2000 mg/kg | - |
| | LC50 inhalation | rat | > 5.15 mg/l | 4 hours |

Primary irritation

| Product / ingredient name | Test | Species | Evaluation | Method |
|---------------------------|------|---------|--------------|----------------|
| potassium diformate | Skin | Rabbit | not irritant | EEC 84/449, B4 |
| | Eye | Rabbit | irritant | EEC 84/449, B5 |

Sensitization No sensitizing effect admits. [OECD Guideline 406]

Potential chronic health effects

| | |
|-----------------------|---|
| Chronic effects | No known significant effects or critical hazards. |
| Carcinogenicity | No known significant effects or critical hazards. |
| Mutagenicity | No known significant effects or critical hazards. |
| Teratogenicity | No known significant effects or critical hazards. |
| Developmental effects | No known significant effects or critical hazards. |
| Fertility effects | No known significant effects or critical hazards. |

Chronic toxicity No specific data.

Carcinogenicity No specific data.

Mutagenicity No mutagenic effect was found in various tests with mammalian cell culture and mammals.

| Product / ingredient name | Test | Experiment | Result |
|---------------------------|-----------|--------------------|----------|
| potassium diformate | Ames-Test | In vitro; Bacteria | Negative |

Teratogenicity No specific data.

Reproductive toxicity The results of animals studies gave no indication of a fertility impairing effect

Conclusion / summary No indications for carcinogenicity. No indications for reproduction toxicity. The product has not been tested. The statement has derived from products of similar structure and composition.

12. Ecological information

Environmental effects Readily biodegradable. This product shows a low bioaccumulation potential.

Aquatic ecotoxicity

| Product / ingredient name | Test | Result | Species | Exposure |
|---------------------------|-----------|-----------------------|---------|----------|
| potassium diformate | Mortality | Acute LC50 3500 mg/l | Fish | 96 hours |
| | Mortality | Acute EC50 540 mg/l | Daphnia | 48 hours |
| | Mortality | Acute LC50 >1000 mg/l | Algae | 2 hours |

Readily biodegradable (according to OECD criteria).

Elimination information:

Test method: OECD 301D; EEC 92/69, C.4-E (aerobic), activated sludge, domestic.

Method of analysis: BOD of the ThOD.

Degree of elimination: >90 % (28 d).

Persistence / degradability

Other adverse effects

No known significant effects or critical hazards.

AOX

The product does not contain organically bound halogens which could lead to an AOX (Absorbable Organically bound Halogens) value in waste water.

Mobility

Dissolves readily in water.

13. Disposal considerations

Methods of disposal (waste of residues; contaminated packaging) Waste must be disposed of in accordance with national and local environmental regulations. Controlled biodegradation in waste water treatment is possible.

14. Transport information

International transport regulations

| Regulatory information | UN - Number | Proper shipping name | class | PG* | Label | Additional information |
|------------------------|----------------|----------------------|-------|-----|-------|------------------------|
| ADR/RID Class | Not regulated. | - | - | - | - | - |
| ADNR Class | Not regulated | - | - | - | - | - |
| IMDG Class | Not regulated | - | - | - | - | - |
| IATA Class | Not regulated | - | - | - | - | - |

PG* : Packing group

15. Regulatory information

According to EU directives 67/548/EEC and 1999/45/EC this product does to labelling as

EC-regulations



Xi, irritant

Risk phrases

R41 – risk of serious damage to eyes

S22 – do not breathe dust

S25 – avoid contact with eyes

Safety phrases

S26 – in case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S39 – wear eye/face protection

Remarks

16. Other information

Full text of R phrases referred to in sections 2 and 3 – United Kingdom (UK)

R41 – risk of serious damage to eyes

Full text of classifications referred to in sections 2 and 3 – United Kingdom (UK)

Xi - irritant

Information

Department QS, AS
Tel.: +49 (0) 3493 737 90

Internal code

SDB_Formi_E_0002

16. Other information

History

| | |
|-------------------------|------------|
| Date of printing | 14.09.2009 |
| Date of issue | 14.09.2009 |
| Version | 4 |

Notice to reader

The information contained in the Safety Data Sheet is based on our data available on the data of publication. The information is intended to aid the user in controlling the handling risks; it is not to be construed as a warranty or specification of the product quality. The information may not be or may not altogether be applicable to combinations of the product with other substances or to particular applications.

The user is responsible for ensuring that appropriate precautions are taken and for satisfying them that the data are suitable and sufficient for the product's intended purpose. In case of any unclarity we advise consulting the supplier or an expert.

Training advice Handling of this substance or preparation is restricted to skilled personal only.

Source of key data Literature data and/or investigation reports are available through the manufacturer.

Alterations compared to the previous version Alterations compared to the previous version are marked with a little (blue) triangle.