1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Substance name: Potassium ferrate (VI)
Trade name: ENVIFER
Reach registration number: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.: Reaction mass of 13718-66-6 and 12160-44-0

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

Identified uses: Elimination and removing of organic compound, arsenic, selenium and other contaminants from wastewaters.

1.3 Details of the supplier of the Safety Data Sheet

- Supplier: NANO IRON, s.r.o.
- Street address: Štefánikova 116
- Country ID/Postcode/Place: (CZ) Czech Republic/66461/Rajhrad
- Telephone number/Fax: +420 513 033 633 /+420 547 230 212
- E-mail address: info@nanoiron.cz
- National contact: +420 513 033 633
- Identification number: 28298055

1.4 Emergency telephone number: +420 224 919 293 or +420 224 915 402 (non-stop medical service), TIS Praha, Na Bojišti 1, 128 08 Prague 2, Czech republic.

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Oxidizing solids (Category 2)

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Contact with combustible material may cause fire.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

Pictogram

Signal word

Danger

Hazard statement(s)

H272 May intensify fire; oxidiser.

Precautionary statement(s)

P220 Keep/Store away from clothing/ combustible materials.

P232 Protect from moisture.

P233 Keep container tightly closed.

P270 Do not eat, drink or smoke when using this product

Supplemental Hazard

Statements

None


Hazard symbol(s)
R-phrase(s)
R 8 Contact with combustible material may cause fire.

S-phrase(s)
S17 Keep away from combustible material.
  S36 Wear suitable protective clothing.

2.3 Other hazards – none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Formula : K2FeO4
Molecular Weight : 198.04 g/mol

4. FIRST AID MEASURES

4.1 Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
5.2 Special hazards arising from the substance or mixture
Potassium oxides, Iron oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for fire-fighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate person to safe areas.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition
- No smoking. Keep away from heat and sources of ignition. Normal measures for preventive fire protection.
- Do not eat, drink or smoke during work. Before break and after work, wash your hands and take off contaminated clothing.
- Store this clothing separately.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
- Store under inert gas. Sensitive to moisture.

7.3 Specific end uses
No data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters

8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment
Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection
Impervious clothing, the type of protective equipment must be selected according to the concentration
and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle
respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering
controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use
respirators and components tested and approved under appropriate government standards such
as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
a) Appearance Form: powder
b) Colour: black
c) Odour Threshold: no data available
d) pH: no data available
e) Melting point/freezing point: Melting point/range: > 400 °C - lit.
f) Boiling point and boiling range: no data available
g) Flash point: no data available
h) Evaporation rate: no data available
i) Flammability (solid, gas): no data available
j) Upper/lower flammability or explosive limits: no data available
k) Vapour pressure: no data available
l) Vapour density: no data available
m) Relative density: no data available
n) Solubility (ies): no data available
o) Partition coefficient: n-octanol/water: no data available
p) Auto-ignition temperature: no data available
q) Decomposition temperature: no data available
r) Viscosity: no data available
s) Explosive properties: no data available
t) Oxidizing properties: The substance or mixture is classified as oxidizing with the category 2.

9.2 Other information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available
10.2 Chemical stability
No data available
10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
Avoid moisture.
10.5 Incompatible materials
Organic materials, powdered metals
10.6 Hazardous decomposition products
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
no data available
Skin corrosion/irritation
no data available
Serious eye damage/eye irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
Safety data sheet according to regulation EC No. 1907/2006

ENVIFER


no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Potential health effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
No data available

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: 1479  IMDG: 1479  IATA: 1479
14.2 UN proper shipping name
ADR/RID: OXIDIZING SOLID, N.O.S. (Potassium ferrate(VI))
IMDG: OXIDIZING SOLID, N.O.S. (Potassium ferrate(VI))
IATA: Oxidizing solid, n.o.s. (Potassium ferrate(VI))

14.3 Transport hazard class(es)
ADR/RID: 5.1
IMDG: 5.1
IATA: 5.1

14.4 Packaging group
ADR/RID: II
IMDG: II
IATA: II

14.5 Environmental hazards
ADR/RID: yes
IMDG Marine pollutant: yes
IATA: no

14.6 Special precautions for user
No data available

15. REGULATORY INFORMATION

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

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available

15.2 Chemical Safety Assessment
No data available

16. OTHER INFORMATION

16.1 The full text of R-phrases mentioned within point 2, paragraph 2.2

8 Contact with combustible material may cause fire.

16.2 Explanatory notes

Material Safety Data Sheet (MSDS) had been prepared according to Act No. 356/2003 Coll., Public notice No. 231/2004 Coll. and to the requirements of the European Parliament and Council regulation No. 1907/2006, on registration, evaluation, authorization and restriction of chemicals and on European Chemicals Agency establishing - Title IV, Article 31, Annex II (material safety data sheets preparation instructions). According to the Czech Ministry of Environment opinion, MSDS prepared this way is considered to be in accordance with EC Regulation No. 1907/2006 until the Act, which incorporate this EC Regulation No. 1907/2006 into Czech legislation, become into force.

The products classification was carried out via conventional calculation method according to public notice No. 232/2004 Coll., as amended. This was based on data provided by manufacturers or importers of individual components within their material safety data sheets.

Ecotoxicological and toxicological data were obtained from ESIS (European Chemical Substances Information System), specifically from IUCLID (International Uniform Chemical Information Data Base). The database lists the properties of substances that are classified in Annex I of Directive 67/548/EEC, as well as substances for substances without this classification. For additional information was also used the chemical database of Merck company.

Material safety data sheet contains necessary data for ensuring of health protection at work and environmental protection. These data correspond to the current state of knowledge and experience and are in compliance with applicable laws and regulations. They cannot be considered as a guarantee for appropriateness and usability for particular application.

Material Safety Data Sheet is a property of private or legal person referred in section 1, paragraph 1.3 and is protected by copyright. Any copying, distribution or sale without the owner's agreement is strictly prohibited.

16.3 Legislation
- Act No. 371/2008 Coll., which amend Act No. 356/2003 Coll., on chemical substances and chemical preparations as amended
- Public notice No. 369/2005 Coll., which amend Public notice No. 232/2004 Coll., which implement certain provisions of the Act on chemical substances and chemical preparations and on certain acts amending relate to the classification, packaging and to labeling of hazardous chemicals and chemical preparations
- Government decree No. 178/2001 Coll., which set the health protection conditions of workers at work
- Act No. 185/2001 Coll., on waste and on certain other acts amending, as amended
- Act No. 94/2004 Coll., which amend Act No. 477/2001 Coll., on packaging and on some acts amending (Act on packaging), as amended
- Act No. 254/2001 Coll., on waters and on certain other acts amending (Water Act)
- Act No. 258/2000 Coll., on the public health protection and on some related acts amending, as amended
- European Agreement about international transport of dangerous goods (ADR), announced under No. 64/1987 Coll., as amended
- Convention on International Transport (COTIF), announced under No. 8 / 1985 Coll., As amended
- Act No. 61/2000 Coll., on nautical navigation, as amended
- Act No. 86/2002 Coll., on Air protection, as amended
- Public notice No. 355/2002 Coll., which set emission limits and other operation conditions for other stationary sources of air pollution, which emit volatile organic compounds from processes employing organic solvents and from petrol storage and distribution
Czech MSDS prepared by:

Translation into English by: