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

1.1 Product identifier

GEH® 101, GEH® 102, GEH® 103, GEH® 104, GEH® 105, GEH®-FK
µ-GEH®

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

1.2.1 Relevant uses

Chemical raw material / Water treatment

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company: GEH Wasserchemie GmbH & Co. KG
Adolf-Köhne-Straße 4
49090 Osnabrück / GERMANY
Phone +49 (0) 541-122009
Fax +49 (0) 541-1811990
Homepage www.geh-wasserchemie.de
E-mail info@geh-wasserchemie.de

Address enquiries to
Technical information: info@geh-wasserchemie.de
Safety Data Sheet: sdb@chemiebuero.de

1.4 Emergency telephone number

Company: +49 (0) 541-122009 Mo-Fr 9:00 - 17:00

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (EC) No 1272/2008]

No classification.

2.2 Label elements

Hazard pictograms
The product does not require a hazard warning label in accordance with GHS/CLP-directives.

Hazard statements
none

2.3 Other hazards

Environmental hazards
Does not contain any PBT or vPvB substances.

Other hazards
none

SECTION 3: Composition / Information on ingredients

Product-type:
3.2 The product is a mixture.

<table>
<thead>
<tr>
<th>Range [%]</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 - 60</td>
<td>Iron hydroxide oxide yellow</td>
</tr>
</tbody>
</table>

CAS: 51274-00-1, EINECS/ELINCS: 257-098-5, Reg-No.: 01-2119457554-33-XXXX

Comment on component parts

No dangerous components.
Before the registration of iron hydroxide oxide yellow the following substance-identifiers have been used: CAS 20344-49-4 / EINECS 243-746-4
Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Take off contaminated clothing and wash before reuse.

Inhalation
Ensure supply of fresh air.
In the event of symptoms seek medical treatment.

Skin contact
When in contact with the skin, clean with soap and water.

Eye contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion
Rinse out mouth and give plenty of water to drink.
In the event of symptoms seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed
None known.

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Product itself is non-combustible. Fire extinguishing method of surrounding areas must be considered.

Extinguishing media that must not be used
Full water jet

5.2 Special hazards arising from the substance or mixture
None

5.3 Advice for firefighters

Use self-contained breathing apparatus.
Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
No special measures necessary.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Take up mechanically. Avoid production of dust.
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections
See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

The normal safety precautions for handling chemicals must be observed.

Wash hands before breaks and after work.
Use barrier skin cream.
Do not eat, drink, smoke or take drugs at work.
7.2 Conditions for safe storage, including any incompatibilities

- Keep only in original container.
- Do not store together with oxidizing agents.
- Do not store together with acids.
- Do not store together with food and animal food/diet.
- Recommended storage temperature: room temperature.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (GB)

- not applicable

DNEL

<table>
<thead>
<tr>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron hydroxide oxide yellow, CAS: 51274-00-1</td>
</tr>
</tbody>
</table>

Industrial, inhalative, Long-term - local effects: 10 mg/m³.

8.2 Exposure controls

Additional advice on system design

- Ensure adequate ventilation on workstation.
- Pay attention to dust limit value (ACGIH-2011: 10 mg/m³ particle inhalable; 3 mg/m³ particle respirable).
- Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.

Eye protection

- Safety glasses. (EN 166:2001)

Hand protection

- Leather (EN 388).
- The details concerned are recommendations. Please contact the glove supplier for further information.

Skin protection

- Protective clothing (EN 340)

Other

- Avoid contact with eyes and skin.

Respiratory protection

- Not required under normal conditions.

Thermal hazards

- none

Delimitation and monitoring of the environmental exposition

- Protect the environment by applying appropriate control measures to prevent or limit emissions.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>granules</td>
</tr>
<tr>
<td>Color</td>
<td>black</td>
</tr>
<tr>
<td>Odor</td>
<td>odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>not applicable</td>
</tr>
<tr>
<td>pH-value</td>
<td>not applicable</td>
</tr>
<tr>
<td>pH-value [1%]</td>
<td>5.5 - 7.5</td>
</tr>
<tr>
<td>Boiling point [°C]</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flash point [°C]</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas) [°C]</td>
<td>not applicable</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>not applicable</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>not applicable</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>no</td>
</tr>
<tr>
<td>Vapour pressure/gas pressure [kPa]</td>
<td>not applicable</td>
</tr>
<tr>
<td>Density [g/ml]</td>
<td>1.15</td>
</tr>
<tr>
<td>Bulk density [kg/m³]</td>
<td>1115</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>insoluble &lt; 0.1 g/l</td>
</tr>
<tr>
<td>Partition coefficient [n-octanol/water]</td>
<td>not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>not applicable</td>
</tr>
<tr>
<td>Relative vapour density determined in air</td>
<td>not applicable</td>
</tr>
<tr>
<td>Evaporation speed</td>
<td>not applicable</td>
</tr>
<tr>
<td>Melting point [°C]</td>
<td>&gt; 1000</td>
</tr>
<tr>
<td>Autoignition temperature [°C]</td>
<td>not applicable</td>
</tr>
<tr>
<td>Decomposition temperature [°C]</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

The product is stable under standard conditions.

10.3 Possibility of hazardous reactions

Reactions with acids.
Reactions with strong oxidizing agents.

10.4 Conditions to avoid

See SECTION 7.2.

10.5 Incompatible materials

Strong oxidizing agent.
Acids
10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE-mix, inhalativ (dust)</td>
<td>&gt; 5 mg/l 4h.</td>
</tr>
<tr>
<td>ATE-mix, dermal</td>
<td>&gt; 2000 mg/kg.</td>
</tr>
<tr>
<td>ATE-mix, oral</td>
<td>&gt; 2000 mg/kg.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron hydroxide oxide yellow, CAS: 51274-00-1</td>
<td>LD50, oral, Rat: &gt; 10000 mg/kg.</td>
</tr>
<tr>
<td></td>
<td>LC50, inhalative, Rat: &gt;195,7 mg/m³ (6h) (Lit.).</td>
</tr>
</tbody>
</table>

Serious eye damage/irritation

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Skin corrosion/irritation

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Respiratory or skin sensitisation

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Specific target organ toxicity — single exposure

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Specific target organ toxicity — repeated exposure

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Mutagenicity

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Reproduction toxicity

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Carcinogenicity

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.

Aspiration hazard

Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled.

General remarks

none

SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron hydroxide oxide yellow, CAS: 51274-00-1</td>
<td>EC50, (48h), Daphnia magna: &gt;100 mg/l (Lit.).</td>
</tr>
<tr>
<td></td>
<td>LC0, (96h), fish: &gt;100 000 mg/l (Lit.).</td>
</tr>
</tbody>
</table>
12.2 Persistence and degradability

- **Behaviour in environment compartments**: not determined
- **Behaviour in sewage plant**: Iron hydroxide oxide to adsorb nutrient, specially phosphate.
- **Biological degradability**: not applicable

12.3 Bioaccumulative potential

- **Bioaccumulative potential**: not applicable

12.4 Mobility in soil

- **No information available.**

12.5 Results of PBT and vPvB assessment

- **Not applicable**

12.6 Other adverse effects

- **None known.**

### SECTION 13: Disposal Considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

**Product**

For recycling, consult manufacturer.

**Waste no. (recommended)**

- 190206
- 190205*

**Contaminated packaging**

Uncontaminated packaging may be taken for recycling.

**Waste no. (recommended)**

- 150102
- 150110*

### SECTION 14: Transport Information

14.1 UN number

- **Transport by land according to ADR/RID**: not applicable
- **Inland navigation (ADN)**: not applicable
- **Marine transport in accordance with IMDG**: not applicable
- **Air transport in accordance with IATA**: not applicable
14.2 UN proper shipping name

Transport by land according to ADR/RID  NO DANGEROUS GOODS

Inland navigation (ADN)  NO DANGEROUS GOODS

Marine transport in accordance with IMDG  NOT CLASSIFIED AS "DANGEROUS GOODS"

Air transport in accordance with IATA  NOT CLASSIFIED AS "DANGEROUS GOODS"

14.3 Transport hazard class(es)

Transport by land according to ADR/RID  not applicable

Inland navigation (ADN)  not applicable

Marine transport in accordance with IMDG  not applicable

Air transport in accordance with IATA  not applicable

14.4 Packing group

Transport by land according to ADR/RID  not applicable

Inland navigation (ADN)  not applicable

Marine transport in accordance with IMDG  not applicable

Air transport in accordance with IATA  not applicable

14.5 Environmental hazards

Transport by land according to ADR/RID  no

Inland navigation (ADN)  no

Marine transport in accordance with IMDG  no

Air transport in accordance with IATA  no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

not applicable
SECTION 15: Regulatory information

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

EEC-REGULATIONS

TRANSPORT-REGULATIONS

NATIONAL REGULATIONS (GB):

- Observe employment restrictions for people
- VOC (2010/75/CE) 0%

15.2 Chemical safety assessment

For the following substances of this preparation a chemical safety assessment has been carried out: FeOOH

SECTION 16: Other information

16.1 Abbreviations and acronyms:
ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ATE = acute toxicity estimate
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
ELINGCS = European List of Notified Chemical Substances
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform Chemical Information Database
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
STP = Sewage Treatment Plant
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.2 Other information

Customs Tariff 28 21 10 00
Classification procedure none