SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Material number : 1400602
Trade name : 1400602
PTCR ETH 850-1100°C (7 mm), 600/Box

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

Use of the Substance/Mixture : Ceramic coating suited for firing, for glass and ceramics.

1.3 Details of the supplier of the safety data sheet

Company : Ferro GmbH
Gutleutstraße 215
60327 Frankfurt am Main

Telephone : +4969271160
Telefax : +496927116333
E-mail address : sdb@ferro.com
Responsible/issuing person

1.4 Emergency telephone number

In-Country Number : +(44)-870-8200418
CHEMTREC Global Number : +(1)-703-527-3887(Call Collect)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

This document has been developed with the exclusive purpose of complying with the obligation of informing the supply chain according to article 32 of the Reach regulation, because this material is not classified and does not require a material safety data sheet.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature: inorganic metal-nonmetal compound
               metal oxide/hydroxide
               synthetic polymer
               glass/frit
               water

Hazardous components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>silicon dioxide, synthetic in glasses/pigments</td>
<td>7631-86-9</td>
<td>231-545-4</td>
<td></td>
<td>&gt;= 25 - &lt; 50</td>
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<tr>
<td>aluminium oxide</td>
<td>1344-28-1</td>
<td>215-691-6</td>
<td></td>
<td>&gt;= 20 - &lt; 25</td>
</tr>
<tr>
<td>diiron trioxide</td>
<td>1309-37-1</td>
<td>215-168-2</td>
<td>01-2119457614-35-xxxx</td>
<td>&lt; 10</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice: Do not leave the victim unattended.

If inhaled: If unconscious place in recovery position and seek medical advice.
            If symptoms persist, call a physician.

In case of skin contact: Take off contaminated clothing and shoes immediately.
                        Wash off with soap and plenty of water.

In case of eye contact: Flush eyes with water as a precaution.
                        Remove contact lenses.
                        Protect unharmed eye.
                        Keep eye wide open while rinsing.
                        If eye irritation persists, consult a specialist.

If swallowed: Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: None known.
Risks: None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: No hazardous combustion products are known

5.3 Advice for firefighters

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.

Further information: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 Environmental precautions

Environmental precautions: No special environmental precautions required.
6.3 Methods and material for containment and cleaning up

Methods for cleaning up:
- Pick up and arrange disposal without creating dust.
- Sweep up and shovel.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling:
- For personal protection see section 8.
- No special handling advice required.
- Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion:
- Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures:
- General industrial hygiene practice.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:
- Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.

Advice on common storage:
- No special restrictions on storage with other products.
- No materials to be especially mentioned.

Other data:
- No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s):
- Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Expressed as</th>
<th>Basis</th>
</tr>
</thead>
</table>
### Further information

For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust. The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m\(^{-3}\) 8-hour TWA of inhalable dust or 4 mg.m\(^{-3}\) 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition, and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3. Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.
<table>
<thead>
<tr>
<th>Further information</th>
<th>TWA (inhalable dust)</th>
<th>6 mg/m³ (Silica)</th>
<th>Silica</th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td>For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust. The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m⁻³ 8-hour TWA of inhalable dust or 4 mg.m⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3. Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.</td>
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</tbody>
</table>

<table>
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<th>Silica</th>
<th>GB EH40</th>
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<tbody>
<tr>
<td>For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust. The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m⁻³ 8-hour TWA of inhalable dust or 4 mg.m⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3. Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.</td>
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| aluminium oxide | 1344-28-1 | TWA (Inhalable) | 10 mg/m³ | GB EH40 |
Further information

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<th>TWA (Respirable)</th>
<th>4 mg/m³</th>
<th>GB EH40</th>
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<tbody>
<tr>
<td>TWA (inhalable dust)</td>
<td>10 mg/m³</td>
<td>GB EH40</td>
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</table>

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<tr>
<th>TWA (Respirable dust)</th>
<th>4 mg/m\textsuperscript{3}</th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td>diiron trioxide</td>
<td>1309-37-1</td>
<td>10 mg/m\textsuperscript{3}</td>
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<table>
<thead>
<tr>
<th>TWA (Respirable)</th>
<th>4 mg/m³</th>
<th>GB EH40</th>
</tr>
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<tbody>
<tr>
<td>Further information</td>
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<td></td>
</tr>
<tr>
<td>------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>TWA (inhalable dust)</td>
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</tr>
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<tr>
<th>TWA (Respirable dust)</th>
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<td></td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

**Engineering measures**

No data available

**Personal protective equipment**

Eye protection: Safety glasses

Hand protection
SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

<table>
<thead>
<tr>
<th>Product specification</th>
<th>Revision Date</th>
<th>Version</th>
<th>Print Date</th>
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<tr>
<td>RS_FP_304482</td>
<td>23.06.2016</td>
<td>1.4</td>
<td>29.06.2016</td>
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<td>Material number</td>
<td></td>
<td>1400602</td>
<td></td>
</tr>
</tbody>
</table>

1400602 PTCR ETH 850-1100°C (7 mm), 600/Box

Remarks : For prolonged or repeated contact use protective gloves.

Skin and body protection : Protective suit

Respiratory protection : No personal respiratory protective equipment normally required.

Protective measures : Wear suitable protective equipment.
When using do not eat, drink or smoke.

Environmental exposure controls
General advice : No special environmental precautions required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance : pellets

Colour : green

Odour : characteristic

Odour Threshold : No data available

pH : Not applicable

Melting point/range : No data available

Boiling point.boiling range : Not applicable

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : No data available

Burning rate : No data available

Auto-ignition temperature : No data available

Upper explosion limit : No data available

Lower explosion limit : Not applicable

Vapour pressure : No data available

Relative vapour density : Not applicable

Relative density : No data available
SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Stable under recommended storage conditions.
No decomposition if stored and applied as directed.

10.2 Chemical stability
No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions
Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid
Conditions to avoid : No data available

10.5 Incompatible materials
Materials to avoid : No data available

10.6 Hazardous decomposition products
Hazardous decomposition products : Stable under normal conditions.
SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

**Acute toxicity**
Not classified based on available information.

**Product:**
Acute oral toxicity : Remarks: No data available
Acute inhalation toxicity : Remarks: No data available
Acute dermal toxicity : Remarks: No data available

**Components:**
diiron trioxide:
Acute oral toxicity : LD50 Oral (Rat): > 10.000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

**Skin corrosion/irritation**
Not classified based on available information.

**Product:**
Remarks: According to the classification criteria of the European Union, the product is not considered as being a skin irritant.

**Serious eye damage/eye irritation**
Not classified based on available information.

**Product:**
Remarks: According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

**Respiratory or skin sensitisation**
Skin sensitisation: Not classified based on available information.
Respiratory sensitisation: Not classified based on available information.

**Product:**
Remarks: No data available

**Germ cell mutagenicity**
Not classified based on available information.
Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Not classified based on available information.

STOT - single exposure
Not classified based on available information.

STOT - repeated exposure
Not classified based on available information.

Aspiration toxicity
Not classified based on available information.

Further information

Product:
Remarks: No data available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Product:
Ecotoxicology Assessment
Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Components:
silicon dioxide, synthetic in glasses/pigments:
Toxicity to fish : LC50 (Fish): 5.000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): 7.600 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (algae): 440 mg/l
Exposure time: 72 h

12.2 Persistence and degradability

Product:
Biodegradability : Remarks: No data available

Components:
aluminium oxide:  
Biodegradability : Remarks: No data available

diiron trioxide:  
Biodegradability : Remarks: No data available

12.3 Bioaccumulative potential

Product:  
Bioaccumulation : Remarks: No data available

Components:  
aluminium oxide:  
Bioaccumulation : Remarks: No data available

diiron trioxide:  
Bioaccumulation : Remarks: No data available

12.4 Mobility in soil

Product:  
Distribution among environmental compartments : Remarks: No data available

Components:  
aluminium oxide:  
Distribution among environmental compartments : Remarks: No data available

diiron trioxide:  
Distribution among environmental compartments : Remarks: No data available

12.5 Results of PBT and vPvB assessment

Product:  
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:  
Additional ecological information : Remarks: No data available

There is no data available for this product.
SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product: Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging: Empty remaining contents. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number
Not regulated as a dangerous good

14.2 UN proper shipping name
Not regulated as a dangerous good

14.3 Transport hazard class(es)
Not regulated as a dangerous good

14.4 Packing group
Not regulated as a dangerous good

14.5 Environmental hazards
Not regulated as a dangerous good

14.6 Special precautions for user
Remarks: Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Ship type: N/A
Pollution category: N/A

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
International Chemical Weapons Convention (CWC): Neither banned nor restricted
Schedules of Toxic Chemicals and Precursors: Neither banned nor restricted
REACH - Restrictions on the manufacture, placing on the market and use: Neither banned nor restricted
the market and use of certain dangerous substances, preparations and articles (Annex XVII)

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

: Neither banned nor restricted

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

: This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

REACH - List of substances subject to authorisation (Annex XIV)

: Neither banned nor restricted

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer

: Neither banned nor restricted

Regulation (EC) No 850/2004 on persistent organic pollutants

: Neither banned nor restricted


Not applicable

The components of this product are reported in the following inventories:

REACH : On the inventory, or in compliance with the inventory

CH INV : Not in compliance with the inventory

TSCA : Not On TSCA Inventory

DSL : This product contains the following components that are not on the Canadian DSL nor NDSL.

AICS : Not in compliance with the inventory

NZIoC : On the inventory, or in compliance with the inventory

ENCS : Not in compliance with the inventory

ISHL : Not in compliance with the inventory

KECI : Not in compliance with the inventory

PICCS : Not in compliance with the inventory

IECSC : Not in compliance with the inventory

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECl (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA), CH INV (Switzerland), MY INV (Malaysia), TR INV (Turkey), TW INV (Taiwan)

15.2 Chemical Safety Assessment
Not applicable

SECTION 16: OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.