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

1.1. Product identifier
markSolid 015.M9LP

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture
Firing coating for metals

1.3. Details of the supplier of the safety data sheet
Company name: Pigmentum GmbH
Street: Schillerstr. 35
Place: D-90547 Stein
Telephone: +49 (0) 911-2126-0
Telefax: +49 (0) 911-21260-10
e-mail: office@markSolid.de
Responsible Department: Responsible for the safety data sheet: sds@gbk-ingelheim.de
Emergency telephone: +49 (0) 6132 / 84463 (GBK Gefahrgut Buero GmbH, Ingelheim)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Indications of danger: Harmful, Irritant
R-phrases:
Irritating to eyes and respiratory system.
Limited evidence of a carcinogenic effect.

GHS classification
Hazard categories:
Serious eye damage/eye irritation: Eye Irrit. 2
Carcinogenicity: Carc. 2
Specific target organ toxicity - single exposure: STOT SE 3

Hazard Statements:
Causes serious eye irritation.
Suspected of causing cancer.
May cause respiratory irritation.

2.2. Label elements
Signal word: Warning
Pictograms: GHS07-GHS08

Hazardous components which must be listed on the label
molybdenum trioxide

Hazard statements
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
H335 May cause respiratory irritation.

Precautionary statements
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if
2.3. Other hazards

High risk of slipping due to leakage/spillage of product. After contact with eyes: Do not rub eyes - contains inorganic fillers, which irritate the eyes mechanically like other inert materials.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Pigment dispersion based on Nickel iron chromite black spinel

Hazardous components

<table>
<thead>
<tr>
<th>EC No</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>molybdenum trioxide</td>
<td>25 - 30%</td>
</tr>
</tbody>
</table>

Full text of R and H phrases: see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated clothes and wash before re-use. Take away from danger area and lay down affected person. In the event of persistent symptoms receive medical treatment.

After inhalation

Move to fresh air in case of accidental inhalation of vapours.
In the event of symptoms refer for medical treatment.

After contact with skin

Wash off immediately with soap and plenty of water.
Consult a doctor if skin irritation persists.

After contact with eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Consult a physician.

After ingestion

Never give anything by mouth to an unconscious person. Do not induce vomiting.
Rinse out mouth and give plenty of water to drink.
Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Irritating to eyes and respiratory system. After contact with eyes: Do not rub eyes - contains inorganic fillers, which irritate the eyes mechanically like other inert materials.

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

Treat symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam, carbon dioxide (CO2), dry chemical, water-spray.
5.2. Special hazards arising from the substance or mixture
In case of fire and/or explosion do not breathe fumes.

5.3. Advice for firefighters
In case of fire, wear suitable respiratory equipment with positive air supply.

Additional information
Product itself does not burn. Aqueous solution. Use fire fighting measures that suit the environment and products stored Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
In case of vapour formation use respirator. Avoid contact with skin, eyes and clothing. Skin or eye contact may cause temporary mechanical irritation. Observe protective instructions (see Sections 7 and 8).

6.2. Environmental precautions
Do not discharge into the drains or bodies of water.

6.3. Methods and material for containment and cleaning up
Take up with absorbent material (e.g. sand, kieselguhr, acid binder, general-purpose binder, sawdust). Shovel into suitable container for disposal.

6.4. Reference to other sections
Information for disposal look up chapter 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with the skin and the eyes.

Advice on protection against fire and explosion
No special measure necessary.

Further information on handling
Take the usual precautions when handling with chemicals.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep container tightly closed in a dry, cool and well-ventilated place.

Advice on storage compatibility
Incompatible with oxidizing agents.

Further information on storage conditions
Keep away from food, drink and animal feeding stuffs. Keep from freezing.

7.3. Specific end use(s)
Firing, ceramic coating for anodized aluminum

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Safety Data Sheet

according to Regulation (EC) No 1907/2006

Pigmentum GmbH

Print date: 08.10.2012

Product code: 00429-0024

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Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>ml/m³</th>
<th>mg/m³</th>
<th>F/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1332-58-7</td>
<td>Kaolin respirable dust</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td>Molybdenum compounds (as Mo), soluble compounds</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Occupational exposure controls

Provide sufficient air exchange and/or exhaust in work rooms.

Protective and hygiene measures

At work do not eat, drink, smoke or take drugs.
Wash hands before breaks and immediately after handling the product.
Avoid contact with eyes and skin.

Respiratory protection

Breathing apparatus (particle filter) only if dust is formed.

Hand protection

Chemical-resistant gloves (EN 374)
Follow the recommendations of the glove manufacturer for breakthrough properties especially for workplace conditions involving mechanical stress and contact duration.

Eye protection

Safety goggles with side protection.

Skin protection

Protection clothes

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: pasty
Colour: Grey
Odour: Odourless

Test method
pH-Value (at 20 °C): 4.2

Changes in the physical state
Melting point: n.a.
Boiling point: 100-110 °C
Flash point: n.a.

Oxidizing properties
Not combustible.

Water solubility: Aqueous suspension

9.2. Other information

No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.
10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
None under normal processing.

10.4. Conditions to avoid
Keep from freezing. Keep away from heat and sources of ignition.

10.5. Incompatible materials
Strong oxidizing agents.

10.6. Hazardous decomposition products
No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Toxicokinetics, metabolism and distribution
Harmful.

Acute toxicity

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Exposure routes</th>
<th>Method</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1313-27-5</td>
<td>molybdenum trioxide</td>
<td>oral</td>
<td>LD50</td>
<td>2690 mg/kg</td>
<td>Ratte</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalative (4 h)</td>
<td>LC50</td>
<td>&gt; 5,840 mg/l</td>
<td>Ratte</td>
<td></td>
</tr>
</tbody>
</table>

Irritation and corrosivity
Irritating to eyes and respiratory system.

Severe effects after repeated or prolonged exposure
STOT - Single exposure: 3
STOT - Repeated exposure: Not classified.
Aspiration hazard: Not classified.

Carcinogenic/mutagenic/toxic effects for reproduction
Carcinogenicity: 2. Limited evidence of a carcinogenic effect.
Mutagenicity: Not classified.
Reproductive toxicity: Not classified.

Additional information on tests
After contact with eyes: Do not rub eyes - contains inorganic fillers, which irritate the eyes mechanically like other inert materials.

Further information
Classification in compliance with the assessment procedure specified in the EC guidelines 1999/45/EG.

SECTION 12: Ecological information

12.1. Toxicity
Ecological data are not available.
12.2. Persistence and degradability
Not determined

12.3. Bioaccumulative potential
Not determined

12.4. Mobility in soil
Not determined

12.5. Results of PBT and vPvB assessment
Not determined

12.6. Other adverse effects
Low hazard to waters.

Further information
Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Advice on disposal
Where possible recycling is preferred to disposal.

Waste disposal number of waste from residues-unused products
080120 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF
COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND
PRINTING INKS; wastes from MFSU and removal of paint and varnish; aqueous suspensions
containing paint or varnish other than those mentioned in 08 01 19

Contaminated packaging
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be
taken for reuse. Packaging that cannot be cleaned should be disposed of like the product.

SECTION 14: Transport information

Land transport (ADR/RID)
Other applicable information (land transport)
No hazardous material as defined by the transport regulations.

Inland waterways transport (ADN)
Other applicable information (inland waterways transport)
No hazardous material as defined by the transport regulations.

Marine transport (IMDG)
Other applicable information (marine transport)
No hazardous material as defined by the transport regulations.

Air transport (ICAO)
Other applicable information (air transport)
No hazardous material as defined by the transport regulations.

14.5. Environmental hazards
Dangerous for the environment: no

14.6. Special precautions for user
Handle in accordance with good industrial hygiene and safety practice.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
The transport takes place only in approved and appropriate packaging.

SECTION 15: Regulatory information

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

National regulatory information

Water contaminating class (D): 1 - slightly water contaminating

Additional information
The substance resp. all components are in:

- TSCA: listed
- EINECS/ELINCS: listed
- DSL: listed
- AICS: listed
- ENCS/MITI: listed
- PICCS (PH): listed
- KECl (KR): listed
- HSNO listed
- IECS listed

15.2. Chemical safety assessment
Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes
Changes in chapter:

Full text of R phrases referred to under Sections 2 and 3
36/37 Irritating to eyes and respiratory system.
40 Limited evidence of a carcinogenic effect.

Full text of H statements referred to under Sections 2 and 3
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

Further Information
Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.
The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.
The delivery specifications are contained in the corresponding product sheet.
This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.
(n.a. = not applicable; n.d. = not determined)
Safety Data Sheet

according to Regulation (EC) No 1907/2006

markSolid 015.M9LP flüssig

Print date: 08.10.2012  Product code: 00429-0024

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)