PRODUCT: Steel Seal Head Gasket Fix

REVISION: 3  DATED: 23/03/18

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

1.1 Product Identifier

Product Name: Steel Seal

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

Identified use(s)

Repair of blown head gasket in vehicles with an enclosed cooling system.

Uses advised against: None known

1.3 Details of the supplier of the safety data sheet

Steel Seal Ltd
30 Bidavon Industrial Estate
Waterloo Road
Bidford
B50 4JN
Tel: +44(0)1789 330668
Email: info@steelseal.co.uk

1.4 Emergency telephone number

Tel: +44(0)1789 330668 (during usual office hours 8am-5:00pm)
2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification
H302: Harmful if swallowed acute toxicity Category 4
H319: Serious eye damage/irritation Category 2
H315: Skin corrosion/irritation Category 2

Hazard summary

Alkaline. Irritating to eyes and skin

2.2 Label Elements

⚠️

Signal Word: Warning

Hazard Statements
H302: Harmful if swallowed
H319: Causes serious eye irritation.
H315: Causes skin irritation.

Precautionary Statements

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing.
P302 + 352: Rinse skin with water/shower.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P362: Take off contaminated clothing and wash before reuse
P332 + P313: IF SKIN irritation occurs: Get medical advice/attention.
P337 + P313: IF eye irritation persists: Get medical advice/attention.
P501: Dispose of contents/container in accordance with local regulations.
2.3 Other hazards Not classified as PBT or vPvB

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EINECS Number</th>
<th>REACH Registration Number</th>
<th>Classification according to Regulation 1272/2008</th>
<th>Content (W/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Ingredient*</td>
<td></td>
<td></td>
<td></td>
<td>H319: Eye Irrit. 2 H315: Skin Irrit.2;</td>
<td>90%</td>
</tr>
<tr>
<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>203-473-3</td>
<td></td>
<td>H302 Acute Tox.4</td>
<td>&lt;10%</td>
</tr>
</tbody>
</table>

* The exact identity of some of the ingredients and their concentrations are being withheld as a trade secret

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation
Remove patient from exposure, keep warm and at rest. Obtain medical attention.

Skin contact
Wash affected skin with plenty of water. If symptoms develop, obtain medical attention.

Eye contact
Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.

Ingestion
Do not induce vomiting. Wash out mouth with water and give 200-300ml (half a pint) of water to drink. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Alkaline - Irritating to eyes and skin. The toxicity of potassium silicate is dependent on the silica to alkali ratio and on the pH.
4.3 Indication of any immediate medical attention and special treatment needed

Obtain immediate medical attention.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media: Compatible with all standard firefighting techniques.

Unsuitable extinguishing media: None known

5.2 Special hazards arising from the substance or mixture

Not applicable. Aqueous solution. Non-combustible.

5.3 Advice for fire-fighters

None.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear suitable protective clothing. Wear eye/face protection

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

6.3 Methods and material for containment and cleaning up

Caution-spillages may be slippery. Contain spillages with sand, earth or any suitable absorbent material. Transfer to container for disposal or recovery

6.4 Reference to other sections

See section 8

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with eyes, skin and clothing. Avoid generation of mist. Provide adequate ventilation.
Emergency shower and eyewash should be readily available. See Also Section 8.

7.2 Conditions for safe storage, including any incompatibilities

Keep at room temperature not exceeding (50°C) Do not allow material to freeze. Provide an adequate bund wall. Unsuitable containers: Aluminium See section 10

7.3 Specific end use(s)

See Annex to the extended Safety Data Sheet

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>STD</th>
<th>TWA – 8hrs</th>
<th>STEL – 15mins</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol (CAS: 107-21-1)</td>
<td>WEL</td>
<td>10mg/m3</td>
<td>104 mg/m3</td>
<td>SK</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Wear protective equipment to comply with good occupational hygiene practice. Do not eat, drink or smoke at the work place.

Appropriate engineering controls

Engineering methods to prevent or control exposure are preferred.

Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

Respiratory protection

Respiratory protection not normally required. Advice on respiratory protective equipment is given in the HSE (Health and Safety Executive) publication HS(G)53.

Eye protection

Chemical goggles (EN 166)

Skin & hand protection

Wear suitable protective clothing and gloves. Plastic or rubber gloves. For example EN374-3, level 6 breakthrough time (>480min). Wear suitable overalls. For example EN ISO 13982 (dust), EN 14605 (liquid splashes)

8.2.3 Environmental exposure controls

The primary hazard of potassium silicate is the alkalinity. Avoid release to the environment.
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>Appearance</td>
<td>Liquid. Almost colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH value</td>
<td>Alkaline 11.2</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>100°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive limit ranges</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure (mm Hg)</td>
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</tr>
<tr>
<td>Vapour density (Air=1)</td>
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</tr>
<tr>
<td>Density</td>
<td>No data</td>
</tr>
<tr>
<td>Solubility (Water)</td>
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<tr>
<td>Solubility (Other)</td>
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</tr>
<tr>
<td>Partition of coefficient</td>
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<td>Auto-ignition temperature</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not applicable</td>
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<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

10.1 Reactivity
See section 10.3

10.2 Chemical stability
Stable
10.3 Possibility of hazardous reactions
When arc welding vessels containing aqueous solutions of this material, take care to control any explosion risk from hydrogen evolved by electrolysis. Aqueous solutions will react with aluminium, zinc, tin, and their alloys evolving hydrogen gas which can form an explosive mixture with air. Can react violently if in contact with acids. Can react with sugar residue to form carbon monoxide.

10.4 Conditions to avoid
See section 10.3

10.5 Incompatible materials
See section 10.3

10.6 Hazardous decomposition products
None known

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Oral Toxicity
All symptoms of acute toxicity are due to high alkalinity. Material cause irritation. Oral LD50 (rat) >5000 mg/kg bw

Acute inhalation toxicity
Mist is irritation to the respiratory tract. All symptoms of acute toxicity are due to high alkalinity. Inhalation LC50 (rat) >2.06 g/m³.

Acute Dermal Toxicity
Skin contact- Repeated and/or prolonged skin contact may cause slight irritation. Dermal LD50 (rat) >5000mg/kg bw
Eye contact- Liquid or mist may cause discomfort and mild irritation

Skin Corrosion/Irritation
Repeated or prolonged skin contact may cause slight irritation

Serious eye damage/eye irritation
Liquid or mist may cause discomfort and mild irritation

Sensitisation
Not sensitising

Mutagenicity
No evidence of genotoxicity. In vitro/in vivo negative

**Carcinogenicity**

No structural alerts.

**Reproductive toxicity**

No evidence of reproductive toxicity or development toxicity.

**STOT- single exposure**

Not classified

**STOT-repeated exposure**

Not classified. NOAEL oral (rat) 159mg/kg bw/d

**Aspiration hazard**

Not classified

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**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**

Fish (Leuciscus idus) LC50 (48 hour) >146 mg/l Aquatic invertebrates: (Daphnia magna) EC50 (24 hour) >146 mg/l

**12.2 Persistence and degradability**

Inorganic. Soluble silicates, upon dilution, rapidly depolymerise into molecular species indistinguishable from natural dissolved silica.

**12.3 Bio accumulative potential**

Inorganic. The substance has no potential for bioaccumulation.

**12.4 Mobility in soil**

Not applicable

**12.5 Results of PBT and vPvB assessment**

Not classified as PBT or vPvB,

**12.6 Other adverse effects**

The alkalinity of this material will have a local effect on ecosystems sensitive to changes in pH.
13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Discharge of this product to sewage treatment works is dependent on local regulations with regard to pH controls. Dispose of this material and its containers to hazardous or special waste collection point. This material is classified as hazardous waste under EC Directive 2008/98/EC (and amendments). This material is classified as hazardous waste under the Hazardous Waste (England and Wales) Regulations SI 2005 No. 894. Disposal should be in accordance with local, state or national legislation.

14. TRANSPORT INFORMATION

14.1 UN Number
Not classified according to the United Nations ‘Recommendations on the Transport of Dangerous Goods’

14.2 Proper Shipping Name
Not applicable

14.3 Transport hazard class
Not applicable

14.4 Packing group
Not applicable

14.5 Environmental
Not classified as a Marine Pollutant

14.6 Special precautions for users
Unsuitable packaging - Aluminium

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. REGULATORY INFORMATION

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

Glossary
H302: Harmful if swallowed
H319: Causes serious eye irritation.
H315: Causes skin irritation.
DNE: Derived No Effect Level
PNEC: Predicted No Effect Concentration

Source of key data used to compile the data sheet
Supplier information

Disclaimer
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Modifications from last revision
N/A
Date: 23/03/18