Safety data sheet  
according to 1907/2006/EC, Article 31  

Printing date 06.08.2013  
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: Phosphoric acid, 85% aqueous solution
Stock number: A18067, L14440

1.2 Relevant identified uses of the substance or mixture and uses advised against.
Identified use:
SU24   Scientific research and development

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier: Alfa Aesar GmbH & Co.KG
A Johnson Matthey Company
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com
Informing department: Product safety Tel + +049 (0) 7275 988687-0
In Case of emergency:
Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz: www.giftinfo.uni-mainz.de  Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture  
Classification according to Regulation (EC) No 1272/2008
GHS05 corrosion
Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC
C; Corrosive
R34: Causes burns.

Information concerning particular hazards for human and environment:
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Other hazards that do not result in classification
No information known.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.

Hazard pictograms
GHS05

Signal word
Danger

Hazard-determining components of labelling:
Orthophosphoric acid

Hazard statements
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. 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.
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Dangerous components:
CAS: 7664-38-2 Orthophosphoric acid 85,0%
EINECS: 231-633-2

Additional information
None known.

Non-Hazardous Ingredients
CAS: 7732-18-5 Water 15,0%
EINECS: 231-791-2

SECTION 4: First aid measures

4.1 Description of first aid measures
General information
Immediately remove any clothing soiled by the product. Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After inhalation
Seek immediate medical advice.

After skin contact
Rinse opened eye for several minutes under running water. Then consult doctor.

After eye contact
Seek medical treatment.

After swallowing
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents
Use fire fighting measures that suit the environment.

5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Phosphorus oxides

5.3 Advice for firefighters
Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.
**Trade name** Phosphoric acid, 85% aqueous solution

### SECTION 6: Accidental release measures

**6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.

**6.2 Environmental precautions:**
Do not allow material to be released to the environment without proper governmental permits.
Do not allow product to reach sewage system or water bodies.
Do not allow to enter the ground/soil.

**6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
No special measures required.
See Section 7 for information on safe handling.
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

### SECTION 7: Handling and storage

**7.1 Precautions for safe handling**
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustation at the workplace.

**7.2 Conditions for safe storage, including any incompatibilities**
No special requirements.
Store away from oxidizing agents.
Store away from strong bases.

**7.3 Specific end use(s)**
No further relevant information available.

### SECTION 8: Exposure controls/personal protection

**Additional information about design of technical systems:**
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>Critical Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-38-2 Orthophosphoric acid (85.0%)</td>
<td>2 E mg/m³</td>
<td>MAK (TRGS 900) (Germany)</td>
</tr>
<tr>
<td></td>
<td>1 mg/m³</td>
<td>EU</td>
</tr>
<tr>
<td></td>
<td>1 mg/m³</td>
<td>PEL (USA)</td>
</tr>
<tr>
<td></td>
<td>Short-term value: 3 mg/m³</td>
<td>REL (USA)</td>
</tr>
<tr>
<td></td>
<td>Short-term value: 1 mg/m³</td>
<td>TLV (USA)</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Information:**
No data

**8.2 Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**
The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Do not inhale dust / smoke / mist. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment.

**Breathing equipment:**
Use a respirator with organic vapor/acid gas cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

**Protection of hands:**
Use protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Material of gloves**
Nitrile rubber, NBR

**Penetration time of glove material**
Not determined

**Eye protection:**
Tightly sealed safety glasses.
Full face protection

**Body protection:**
Protective work clothing.

### SECTION 9: Physical and chemical properties

**9.1 Information on basic physical and chemical properties**

**General Information**

**Appearance:**
Viscous liquid

**Form:**
Not determined

**Colour:**
Colourless

**Smell:**
Not determined

**Odour threshold:**
Not determined

**pH-value:**
Not determined

**Change in condition**

**Melting point/Melting range:**
Not determined

**Boiling point/Boiling range:**
Not determined

**Sublimation temperature / start:**
Not determined

**Inflammability (solid, gaseous)**
Not applicable.
Trade name  Phosphoric acid, 85% aqueous solution

Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Product is not selfigniting.

Critical values for explosion:
Lower: Not determined
Upper: Not determined
Steam pressure at 20 °C: 23 hPa
Density at 20 °C: 1.7 g/cm³
Relative density: Not determined.
Vapour density: Not determined.
Evaporation rate: Not determined.
Solubility in / Miscibility with
Water: Fully miscible
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not determined.
kinematic: Not determined.

Solvent content:
Organic solvents: 0.0 %

9.2 Other information
No further relevant information available.

SECTION 10: Stability and reactivity
10.1 Reactivity
No information known.
10.2 Chemical stability
Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:
No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions
No dangerous reactions known
10.5 Incompatible materials:
Oxidizing agents
Bases
10.6 Hazardous decomposition products:
Phosphorus oxides (e.g. P2O5)

SECTION 11: Toxicological information
11.1 Information on toxicological effects
Acute toxicity:
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.
LD/LC50 values that are relevant for classification:
7664-38-2 Orthophosphoric acid
Oral
LD50 1.25 gm/kg (mouse)
1.25 gm/kg (rat)
Inhalative
LC50 25.5 mg/m³ (mouse)
25.5 mg/m³ (rat)

Skin irritation or corrosion:
Causes severe skin burns.
Eye irritation or corrosion:
Carcinogenicity:
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity:
No effects known.
Specific target organ system toxicity - repeated exposure:
No effects known.
Specific target organ system toxicity - single exposure:
No effects known.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
Corrosive.

SECTION 12: Ecological information
12.1 Toxicity
Aquatic toxicity:
No further relevant information available.
12.2 Persistence and degradability
No further relevant information available.
12.3 Bioaccumulative potential
No further relevant information available.
12.4 Mobility in soil
No further relevant information available.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects
No further relevant information available.

SECTION 13: Disposal considerations
13.1 Waste treatment methods
Recommendation:
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.
Uncleaned packagings:
Recommendation:
Disposal must be made according to official regulations.
Recommended cleaning agent:
Water, if necessary with cleaning agent.

SECTION 14: Transport information
UN-Number
ADR, IMDG, IATA
1805 PHOSPHORIC ACID, SOLUTION
### 14.3 Transport hazard class(es)

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 (C1) Corrosive substances.</td>
<td>8</td>
</tr>
</tbody>
</table>

**Class Label**

<table>
<thead>
<tr>
<th>IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Corrosive substances.</td>
</tr>
</tbody>
</table>

**Packing group**

<table>
<thead>
<tr>
<th>ADR, IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
</tr>
</tbody>
</table>

### 14.5 Environmental hazards:

**Marine pollutant**: No

### 14.6 Special precautions for user

**Warning**: Corrosive substances.

**Kemler Number**: 80

**EMS Number**: F-A,S-B

**Segregation groups**: Acids

### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

### Transport/Additional information:

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exempted quantities (EQ)</td>
<td>E1</td>
</tr>
<tr>
<td>Limited quantities (LQ)</td>
<td>5L</td>
</tr>
<tr>
<td>Transport category</td>
<td>3</td>
</tr>
<tr>
<td>Tunnel restriction code</td>
<td>E</td>
</tr>
</tbody>
</table>

**UN "Model Regulation":**

UN1805, PHOSPHORIC ACID, SOLUTION, 8, III

### SECTION 15: Regulatory information

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

**Australian Inventory of Chemical Substances**

All ingredients are listed.

**Standard for the Uniform Scheduling of Drugs and Poisons**

7664-38-2 | Orthophosphoric acid | S5, S6 |

**National regulations**

**Information about limitation of use**: Employment restrictions concerning young persons must be observed. For use only by technically qualified individuals.

**Classification according to VbF**: Not applicable

**Water hazard class**: Water hazard class 1 (Self-assessment): slightly hazardous for water.

**Other regulations, limitations and prohibitive regulations**

**ELINCS (European List of Notified Chemical Substances)**

None of the ingredients is listed.

**Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients are listed.

**REACH - Pre-registered substances**

All ingredients are listed.

#### 15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Relevant phrases**

- **H314**: Causes severe skin burns and eye damage.
- **R34**: Causes burns.

**Department issuing SDS:** Health, Safety and Environmental Department.

**Abbreviations and acronyms:**

- RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
- ICAO: International Civil Aviation Organization
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent