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

#### 1.1. Product identifier

<table>
<thead>
<tr>
<th>Product form</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade name</td>
<td>Polyphosphoric Acid (All Grades)</td>
</tr>
<tr>
<td>Chemical name</td>
<td>Polyphosphoric acids 95%, 99%, 105%, 111%, 115%, 116%, 116% LA and 118%</td>
</tr>
<tr>
<td>CAS No</td>
<td>8017-16-1</td>
</tr>
<tr>
<td>Product code</td>
<td>SMC Spec 2720, 2720S, 2721, 2722, 2723, 2724, 2725, 2726, 2727</td>
</tr>
<tr>
<td>Formula</td>
<td>H_{n+2}P_{n}O_{3n+1}</td>
</tr>
<tr>
<td>Synonyms</td>
<td>acide polyphosphorique / acide superphosphorique / condensed phosphoric acid / Corrosive liquid, acidic, inorganic, n.o.s. / phospholeum / phosphoric acid, condensed / superphosphoric acid / tetraphosphoric acid</td>
</tr>
<tr>
<td>BIG no</td>
<td>15569</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Use of the substance/mixture</th>
<th>Chemical applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of the substance/mixture</td>
<td>Industrial use</td>
</tr>
<tr>
<td></td>
<td>Catalyst</td>
</tr>
<tr>
<td></td>
<td>Dyestuff/pigment: production</td>
</tr>
<tr>
<td></td>
<td>Chemical substance for research</td>
</tr>
</tbody>
</table>

#### 1.3. Details of the supplier of the safety data sheet

Special Materials Company  
70 West 40th Street, 2nd Floor  
New York, NY 10018

#### 1.4. Emergency telephone number

Emergency number: CHEMTREC - (800) 424-9300 | Outside the US: (703) 527-3887

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

**Classification (GHS-US)**  
Skin Corr. 1A H314

Full text of H-phrases: see section 16

#### 2.2. Label elements

**GHS-US labeling**

| Hazard pictograms (GHS-US) | ![GHS05] |

**Signal word (GHS-US)**: Danger

**Hazard statements (GHS-US)**: H314 - Causes severe skin burns and eye damage

**Precautionary statements (GHS-US)**:  
P260 - Do not breathe vapors, fume  
P264 - Wash hands, forearms and face thoroughly after handling  
P280 - Wear eye protection, face shield, protective clothing, protective gloves  
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a poison center or doctor/physician  
P363 - Wash contaminated clothing before reuse  
P405 - Store locked up
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P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2720 Polyphosphoric Acids (All Grades)</td>
<td>(CAS No) 8017-16-1</td>
<td>95 - 118</td>
<td>Skin Corr. 1A, H314</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

4.1. Description of first aid measures


First-aid measures after inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact: Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.


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

Symptoms/injuries: Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation: EXPOSURE TO HIGH CONCENTRATIONS: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Respiratory difficulties.

Symptoms/injuries after skin contact: Caustic burns/corrosion of the skin.

Symptoms/injuries after eye contact: Corrosion of the eye tissue.

Symptoms/injuries after ingestion: Burns to the gastric/intestinal mucosa.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: No unsuitable extinguishing media known. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

03/13/2015 EN (English US)
Reactivity

Decomposes exothermically on exposure to water (moisture). On burning: release of toxic and corrosive gases/vapours (phosphorus oxides). Reacts violently with many compounds e.g. with (some) bases, with (strong) oxidizers and with (strong) reducers. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).

5.3. Advice for firefighters

Precautionary measures fire

Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions

Cool tanks/drum with water spray/ remove them into safety. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting

Heat/fire exposure: compressed air/oxygen apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment


Emergency procedures


6.1.2. For emergency responders

Protective equipment

Equip cleanup crew with proper protection.

Emergency procedures

Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment


Methods for cleaning up

Take up liquid spill into absorbent material, e.g.: powdered limestone or soda ash. Scoop absorbed substance into closing containers. See “Material-handling” for suitable container materials. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

Keep only in the original container in a cool, well ventilated place away from: Keep container closed when not in use.

Incompatible products

Strong bases. Strong acids.

Incompatible materials

Sources of ignition. Direct sunlight.

Heat-ignition

KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage: KEEP SUBSTANCE AWAY FROM: metals. oxidizing agents. reducing agents. (strong) bases. water/moisture.


Special rules on packaging: SPECIAL REQUIREMENTS: closing. with pressure relief valve. dry. corrosion-proof. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.


7.3 Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection
8.1 Control parameters

Polyphosphoric Acid (All Grades) (8017-16-1)

<table>
<thead>
<tr>
<th>Control parameters</th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Personal protective equipment: Avoid all unnecessary exposure.

Materials for protective clothing: GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: No data available. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: No data available.

Hand protection: Gloves. Wear protective gloves.

Eye protection: Face shield. Chemical goggles or safety glasses.

Skin and body protection: Corrosion-proof clothing.

Respiratory protection: High gas/vapour concentration: gas mask with filter type B. Wear appropriate mask.

Other information: Do not eat, drink or smoke during use.

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>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odor</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>1 (1 %)</td>
</tr>
<tr>
<td>pH solution</td>
<td>1 %</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>See below</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>See below</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>&gt; 2</td>
</tr>
<tr>
<td>Relative density</td>
<td>2.1</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>See below</td>
</tr>
<tr>
<td>Solubility</td>
<td>Exothermically soluble in water. Decomposes on exposure to water. Soluble in ethanol.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Polyphosphoric Acid (All Grades)
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Viscosity, dynamic : See below
Explosive properties : No data available
Oxidizing properties : No data available
Explosive limits : No data available

<table>
<thead>
<tr>
<th>Grade</th>
<th>95</th>
<th>99</th>
<th>105</th>
<th>111</th>
<th>115</th>
<th>116</th>
<th>118</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Gravity 25°C</td>
<td>1.81</td>
<td>Not determined</td>
<td>1.93</td>
<td>2.00</td>
<td>2.04</td>
<td>2.06</td>
<td>2.08</td>
</tr>
<tr>
<td>Melting Point °F</td>
<td>80</td>
<td>84</td>
<td>61 -86</td>
<td>122 - 158</td>
<td>&lt;32</td>
<td>&lt;58</td>
<td>Not determined</td>
</tr>
<tr>
<td>Viscosity 25°C cP</td>
<td>151</td>
<td>Not determined</td>
<td>840</td>
<td>4,000</td>
<td>35,000</td>
<td>60,000</td>
<td>Not determined</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td>Liquid</td>
<td>Liquid</td>
<td>Solid</td>
<td>Liquid</td>
<td>Liquid</td>
<td>Liquid</td>
</tr>
<tr>
<td>Boiling Point °F</td>
<td>226</td>
<td>520</td>
<td>590</td>
<td>734</td>
<td>968</td>
<td>1022</td>
<td>1148</td>
</tr>
</tbody>
</table>

3.2. Other information
VOC content : Not applicable
Other properties : Gas/vapour heavier than air at 20°C. Clear. Hygroscopic. Physical properties depending on the concentration. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity
Decomposes exothermically on exposure to water (moisture). On burning: release of toxic and corrosive gases/vapours (phosphorus oxides). Reacts violently with many compounds e.g.: with (some) bases, with (strong) oxidizers and with (strong) reducers. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).

10.2. Chemical stability
Unstable on exposure to moisture. Not established.

10.3. Possibility of hazardous reactions
Not established.

10.4. Conditions to avoid
Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials
Strong acids. Strong bases. Strong oxidizers, alcohols, ketones, amines and combustible material.

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

<table>
<thead>
<tr>
<th>Polyphosphoric Acid (All Grades) (f)8017-16-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Causes severe skin burns and eye damage.
ph: 1 (1 %)

Serious eye damage/irritation : Not classified
ph: 1 (1 %)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified
Based on available data, the classification criteria are not met

Carcinogenicity : Not classified

Reproductive toxicity : Not classified
Based on available data, the classification criteria are not met

Specific target organ toxicity (single exposure) : Not classified

03/13/2015 EN (English US)  5/8
### Specific target organ toxicity (repeated exposure)
- **Aspiration hazard**: Not classified
- **Potential Adverse human health effects and symptoms**
  - Symptoms/injuries after inhalation: Based on available data, the classification criteria are not met. EXPOSURE TO HIGH CONCENTRATIONS: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Respiratory difficulties.
  - **Symptoms/injuries after skin contact**: Caustic burns/corrosion of the skin.
  - **Symptoms/injuries after eye contact**: Corrosion of the eye tissue.
  - **Symptoms/injuries after ingestion**: Burns to the gastric/intestinal mucosa.

### SECTION 12: Ecological information

#### 12.1. Toxicity
- **Ecology - air**: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
- **Ecology - water**: Slightly harmful to fishes (LC50 100-1000 mg/l). May cause eutrophication. Harmful to aquatic organisms. pH shift.

#### Polyphosphoric Acid (All Grades) (8017-16-1)
- TLM fish 1: 138 ppm (24 h; Gambusia affinis)

#### 12.2. Persistence and degradability
- **Persistence and degradability**: Biodegradability: not applicable. Not established.
- **Biochemical oxygen demand (BOD)**: Not applicable
- **Chemical oxygen demand (COD)**: Not applicable
- **ThOD**: Not applicable
- **BOD (% of ThOD)**: Not applicable

#### 12.3. Bioaccumulative potential
- **Polyphosphoric Acid (All Grades) (8017-16-1)**: Not bioaccumulative. Not established.

#### 12.4. Mobility in soil
- No additional information available

#### 12.5. Other adverse effects
- **Effect on ozone layer**: 
- **Other information**: Avoid release to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods
- **Waste disposal recommendations**: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Dilute. Neutralize. Precipitate/make insoluble. Remove to an authorized dump (Class I). Do not discharge into surface water. Dispose in a safe manner in accordance with local/national regulations.

- **Additional information**: Hazardous waste according to Directive 2008/98/EC.

- **Ecology - waste materials**: Avoid release to the environment.

### SECTION 14: Transport information

- **In accordance with DOT**
  - **Transport document description**: UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (polyphosphoric acid), 8, III
  - **UN-No.(DOT)**: UN3264
  - **Proper Shipping Name (DOT)**: Corrosive liquid, acidic, inorganic, n.o.s.
  - **Hazard Classes (DOT)**: 8 - Class 8 - Corrosive material 49 CFR 173.136
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Hazard labels (DOT) : 8 - Corrosive

DOT Symbols : G - Identifies PSN requiring a technical name
Packing group (DOT) : III - Minor Danger
DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

DOT Vessel Stowage Other : 40 - Stow “clear of living quarters”

Additional information
Other information : No supplementary information available.

ADR
Transport document description : UN 3264, 8, III, (E)
Packing group (ADR) : III
Class (ADR) : 8 - Corrosive substances
Hazard identification number (Kemler No.) : 80
Classification code (ADR) : C1
Hazard labels (ADR) : 8 - Corrosive substances

Orange plates : 80 3264

Tunnel restriction code (ADR) : E

Transport by sea
UN-No. (IMDG) : 3264
Proper Shipping Name (IMDG) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Class (IMDG) : 8 - Corrosive substances
Packing group (IMDG) : III - substances presenting low danger
EmS-No. (1) : F-A
EmS-No. (2) : S-B
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SECTION 15: Regulatory information

15.1. US Federal regulations

Polyphosphoric Acid (All Grades) (8017-16-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag: XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e., Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).

- RQ (Reportable quantity, section 304 of EPA's List of Lists): 5000 lb
- SARA Section 302 Threshold Planning Quantity (TPQ): None to our knowledge
- SARA Section 311/312 Hazard Classes: None to our knowledge
- SARA Section 313 - Emission Reporting: None to our knowledge

15.2. International regulations

- CANADA
  No additional information available

- EU-Regulations
  No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
C; R34
Full text of R-phrases: see section 16

15.2.2. National regulations

15.3. US State regulations

No additional information available

SECTION 16: Other information


Other information: None.

Full text of H-phrases:

<table>
<thead>
<tr>
<th>Skin Corr. 1A</th>
<th>Skin corrosion/irritation Category 1A</th>
</tr>
</thead>
<tbody>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.