1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier: Urea phosphate

Recommended uses:
- Industrial use of urea phosphate for formulation of preparations and end-use in industrial settings, including distribution and other activities related to the processes in industrial settings.
- Professional use of urea phosphate in fertilizers.

Consumer end-use of fertilizers containing urea phosphate.

Restrictions on uses: None

Supplier: SQM North America
2727 Paces Ferry Rd, Bldg Two, Suite 1425
Atlanta, GA 30339

Company Telephone/Fax: 770.916.9400 / 770.916.9404

Emergency Telephone Number: (800) 424 9300 (CHEMTREC)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification of the chemical in accordance with 29CFR §1910.1200

Hazard classes and Hazard categories

| Skin Corr. 1B | Causes severe skin burns and eye damage.
| Serious Eye Damage Cat. 1 | Causes serious eye damage

Label elements

Hazard pictograms

Signal word: Danger

Hazard Statements: Causes severe skin burns and eye damage

Precautionary Statements

Do not breathe dust/fumes.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and face thoroughly after handling.
IF SWALLOWED: Rinse mouth with water. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up
Dispose of contents/container according to local/state/federal regulations.

Other hazards

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS No</th>
<th>EC No</th>
<th>% by Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea phosphate</td>
<td>4861-19-2</td>
<td>225-464-3</td>
<td>&gt;97.9%</td>
</tr>
<tr>
<td>(additional identifier)</td>
<td>(4401-74-5)</td>
<td>(224-534-0)</td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General information

In case of persisting adverse effects consult a physician.
Never give anything by mouth to an unconscious person or a person with cramps.
**In case of inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician.

**In case of skin (or hair) contact**
Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse.
Immediately call a POISON CENTER or doctor/physician.

**In case of eye contact**
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.

**In case of ingestion**
Rinse mouth and drink plenty of water. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

**Most important symptoms and effects, both acute and delayed**
The following symptoms may occur:

**In case of inhalation**
May be corrosive/irritant to the respiratory tract

**In case of skin contact**
Causes severe skin burns

**In case of eye contact**
Causes severe eye damage (burns)

**In case of ingestion**
The substance is corrosive to mucous membranes, acute effects are related to this property.

**Indication of any immediate medical attention and special treatment needed**
Treat symptomatically.

### 5. FIREFIGHTING MEASURES

**Extinguishing media**
Suitable extinguishing media: Use any viable mean for extinguishing surrounding fire.
Unsuitable material: None, but attention should be paid to compatibility with chemicals in surrounding area.

**Specific hazards arising from the chemical**
Thermal decomposition can lead to the escape of toxic/irritating gases and vapours.
Thermal decomposition products: Carbon monoxide, carbon dioxide, nitrogen oxides, ammonia.

**Protective equipment and precautions for firefighters**
Firefighters should wear a self-contained breathing apparatus and chemical protective clothing.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Provide adequate ventilation. Avoid breathing dust. Avoid substance contact. Wear personal protection equipment.

**Environmental precautions**
Do not allow to enter into surface water or drains. Ensure waste is collected and contained.

**Methods and material for containment and cleaning up**
Take up mechanically, placing in appropriate containers for disposal or recovery.
Unsuitable material for taking up: None specified

**Other information**
No further measures are required.

### 7. HANDLING AND STORAGE

**Precautions for Safe Handling**
Avoid generation of dust. Provide adequate ventilation. Wear personal protective equipment. Avoid contact with skin and eyes.
Do not breathe dust. Wash hands and face thoroughly after handling, before breaks and at the end of workday.
Do not eat, drink or smoke when using this product.
Keep away from food, drink and animal feeding stuff. Good hygiene practices and housekeeping measures.
Incompatible with bases due to acid behavior when dissolved in water.

**Conditions for safe storage, including any incompatibilities**
Reseal carefully any opened container and set upright to avoid leakages.
Keep/store only in original container. Keep the product tightly closed in a dry, in well-ventilated and cool place.
Do not store together with: Strong oxidizing agents, reducing agents, bases.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines
Occupational exposure limits
Urea phosphate

<table>
<thead>
<tr>
<th></th>
<th>OSHA</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (8-h)</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
<tr>
<td>STEL/ceiling</td>
<td>Not Established</td>
<td>(2012 TLVs® and BEIs®)</td>
</tr>
</tbody>
</table>

Derived No-Effect Level (DNEL) suggested by the manufacturer

<table>
<thead>
<tr>
<th>Workers (industrial/professional):</th>
<th>DNEL Human, inhalation, long term (repeated)*:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.92 mg/m³/day</td>
</tr>
</tbody>
</table>

Derived No-Effect Level (DNEL) is the level of exposure to the substance above which humans should not be exposed.

*Urea phosphate occupational exposure limit, recommended by the manufacturer

Engineering controls
Use local exhaust ventilation to keep airborne concentrations below exposure limits.

Personal Protective Equipment

Eye/face protection
Tightly sealed safety goggles. Face protection if exposure is likely to occur.

Skin Protection
Nitrile rubber gloves, over 0.11 mm thickness, > 480 min breakthrough time. Skin coverage with appropriate barrier material based on potential for contact with the chemical.

Respiratory Protection
Wear respiratory protection, where airborne concentrations are expected to exceed exposure limits.

General Hygiene Considerations
Avoid contact with eyes and skin. Do not breathe dust. Wash hands and face thoroughly after handling. Take off immediately all contaminated clothing. Do not eat, drink or smoke when using this product. Provide an eye wash bath and emergency shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White crystalline powder</td>
</tr>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>Odour</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH value</td>
<td>2.75 (0.05% aqueous solution)</td>
</tr>
<tr>
<td>Melting point / freezing range</td>
<td>&gt;392 °F (&gt;200 °C at 1013 hPa)</td>
</tr>
<tr>
<td>Boiling temperature / boiling range</td>
<td>&gt;392 °F (&gt;200 °C at 1013 hPa)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapourisation rate / Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammable solids</td>
<td>Non flammable</td>
</tr>
<tr>
<td>Explosion limits (LEL, UEL)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 1.10E⁻³ Pa at 68 °F (20 °C)</td>
</tr>
<tr>
<td>Vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>1.77 g/cm³ at 68 °F (20 °C)</td>
</tr>
<tr>
<td>Solubility</td>
<td>&gt; 100 g/L at 68 °F (20 °C) (water)</td>
</tr>
<tr>
<td>Partition coefficient n-octanol /water</td>
<td>-1.73 at 68 °F/20 °C (urea)</td>
</tr>
<tr>
<td>Auto Decomposition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing</td>
</tr>
</tbody>
</table>

Other information
None
### 10. STABILITY AND REACTIVITY

**Reactivity**  
No hazardous reaction when handled and stored according to provisions.  

**Chemical stability**  
Stable under normal storage and temperature conditions.  

**Possibility of hazardous reactions**  
None identified  

**Conditions to avoid**  
Contact with incompatible materials. Avoid high temperatures.  

**Incompatible materials**  
Strong oxidizing agents, reducing agents, bases.  

**Hazardous decomposition products**  
The substance dissociates into urea and phosphoric acid (corrosive) in aqueous media.  

Thermal decomposition products: Carbon monoxide, carbon dioxide, nitrogen oxides, ammonia.

### 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects of the product or dissociation products.  

**Likely routes of exposure (inhalation, ingestion, skin and eye contact)**  
Eye contact and skin contact. Urea phosphate has a low vapour pressure and a high particle size, resulting in negligible inhalation exposure possible. Exposure by ingestion is not expected to occur through normal use of this product.  

**Symptoms related to the physical, chemical and toxicological characteristics**  
Urea phosphate causes severe skin burns and eye damage. May be corrosive/irritant to the respiratory tract. It is corrosive to mucous membranes, acute effects are related to its corrosivity.  

**Information on toxicological effects from short and long term exposure**  

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Species:</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50: 2600 mg/kg bw Rat.</td>
<td>OECD Guideline 423</td>
</tr>
<tr>
<td>Assessment / classification:</td>
<td>Data obtained by analogy conclusion</td>
<td></td>
</tr>
</tbody>
</table>

**Irritant and corrosive effects**  

<table>
<thead>
<tr>
<th>Primary irritation to the skin</th>
<th>Result:</th>
<th>Species:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin irritation in vitro (OECD Guideline 435)</td>
<td>Corrosive (PKG II)</td>
<td>Not applicable, in vitro</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Irritation to eyes</th>
<th>Result:</th>
<th>Species:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing data, skin corrosion</td>
<td>Corrosive</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Assessment / classification**  

Urea phosphate is classified and labelled as Corrosive to Skin, Category 1B, and as Serious Eye Damage Category 1, in accordance with Appendix A to 29CFR section 1910.1200.  

**Respiratory or skin sensitisation**  

<table>
<thead>
<tr>
<th>Skin sensitization</th>
<th>No information available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory sensitization</td>
<td>No information available.</td>
</tr>
<tr>
<td>Assessment / classification:</td>
<td>Urea phosphate is classified as corrosive, thus, no information on skin sensitization is deemed necessary.</td>
</tr>
</tbody>
</table>

**Genetic effects**  

<table>
<thead>
<tr>
<th>In-vitro mutagenicity</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gene-mutations microorganisms</td>
<td>OECD Guideline 471/EU B.13/14</td>
<td>negative</td>
</tr>
<tr>
<td>Data obtained by analogy conclusion (phosphoric acid and urea)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gene-mutations mammalian cells</td>
<td>OECD Guideline 476/EU B.17</td>
<td>negative</td>
</tr>
<tr>
<td>Data obtained by analogy conclusion (phosphoric acid and urea)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chromosome aberrations mammalian cells</td>
<td>OECD Guideline 473/EU B.10</td>
<td>negative</td>
</tr>
<tr>
<td>Data obtained by analogy conclusion (phosphoric acid and urea)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment / classification</td>
<td>Based on all available data, the classification criteria is not met.</td>
<td></td>
</tr>
</tbody>
</table>
Reproductive toxicity
Adverse effects on reproduction
OECD guideline 422
NOAEL(P and F): ≥ 1500 mg/kg bw/day
Data obtained by analogy conclusion (diammonium hydrogenorthophosphate, DAP)
Urea is naturally formed in the human body. Urea has shown essentially no toxicity in available studies. It is therefore considered that urea is unlikely to cause adverse effects on reproduction. A chemically related substance (DAP) showed no reproductive effects in OECD guideline study (at highest dose tested). Similar results were obtained with monosodium phosphate in a study similar to OECD guideline 414.
Adverse developmental effects
OECD guideline 422
NOAEL(development): ≥ 1500 mg/kg bw/day
Data obtained by analogy conclusion (diammonium hydrogenorthophosphate, DAP)
Urea is naturally formed in the human body. Urea has shown essentially no toxicity in available studies. It is therefore considered that urea is unlikely to cause adverse developmental effects. A chemically related substance (DAP) showed no adverse developmental effects in an OECD guideline study (at highest dose tested). Similar results were obtained with monosodium phosphate in a study similar to OECD guideline 414.

Specific target organ toxicity (single exposure)
Practical experience / human evidence
No relevant effect have been observed after single exposure to the substance.
Assessment / classification: Based on all available data, the classification criteria is not met.

Specific target organ toxicity (repeated exposure)
OECD guideline 422
NOAEL(C): 250 mg/kg bw/day
Data obtained by analogy conclusion (diammonium hydrogenorthophosphate, DAP)
Based on reliable study with DAP local effects were observed in the stomach at the lowest dose tested (250 mg/kg bw/day). However, the systemic NOAEL is determined to be 250 mg/kg bw/day based on horizontal banding of dental surface at mid dose (LOAEL), with effects on hematological and clinical chemistry parameters at highest dose level.
Assessment / classification: Based on all available data, the classification criteria is not met.

Aspiration hazard
Physicochemical data and toxicological information does not indicate an aspiration hazard.
Assessment / classification: Based on all available data, the classification criteria is not met.

Carcinogenicity
The carcinogenicity of urea was investigated in NCI 12 -month screening studies in the rat and mouse. No evidence of carcinogenicity or toxicity was seen in either study. There is no evidence of carcinogenicity or genotoxicity with phosphoric acid.
International Agency for Research on Cancer (IARC) Not listed as carcinogen or potential carcinogen
National Toxicology Program (NTP) Not listed as carcinogen or potential carcinogen
29 CFR part 1910, subpart Z Not listed as carcinogen or potential carcinogen
California Proposition 65 Based on all available data, the classification criteria is not met.

Other Toxicological Information
None

12. ECOLOGICAL INFORMATION

Ecotoxicity
Urea phosphate will dissociate into urea and phosphoric acid in aqueous environment.

Aquatic toxicity
Acute Toxicity
96-h LC50  > 9100 mg/L Fish Data obtained by analogy conclusion (literature information)
48-h EC50  > 100 mg/L Daphnia magna (Big water flea). EU C.2/OECD guideline 202
72-h EC50  > 100 mg/L Desmodesmus subspicatus EU C.3/OECD guideline 201
192-h NOEC 47 mg/L Microcystis aeruginosa. (literature information)
3-h EC50  > 100 mg/L (urea phosphate Aquatic micro-organisms OECD guideline 209/EU Method C.11
Assessment / classification: Product is considered as practically nontoxic to aquatic organisms (US EPA toxicity categories).
13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with applicable federal and state laws.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal method in compliance with applicable regulations.

Urea phosphate is not listed as a dangerous waste in Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

14. TRANSPORTATION INFORMATION

US DOT (49CFR part 172)
- UN-No.: UN 1759
- UN Proper Shipping Name: CORROSIVE SOLIDS, N.O.S. (urea phosphate)
- Hazard class: 8
- Packing group: II
- Hazard label(s): 8, Corrosive
- Special marking: None
- Special Provision: IB8; IP2; IP4; T3; TP33

International Maritime Organization (IMDG Code)
- UN-No.: UN 1759
- UN Proper Shipping Name: CORROSIVE SOLID, N.O.S. (urea phosphate)
- Hazard class: 8
- Packing group: II
- Marine pollutant: No
- Hazard label(s): 8, Corrosive
- Special marking: None
- Special Provision: 274

International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA)
- UN-No.: UN 1759
- UN Proper Shipping Name: CORROSIVE SOLID, N.O.S. (urea phosphate)
- Hazard class: 8
- Packing group: II
- Hazard label: 8, Corrosive
- Special marking: None

Special handling procedure
None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Other special precautions
None
15. REGULATORY INFORMATION

US Federal
SARA Title III Rules
Section 311/312 Hazard Classes
Acute Health Hazard Yes
Chronic Health Hazard No
Fire Hazard No
Release of Pressure No
Reactive Hazard No

Section 313 Toxic Chemicals
Not listed

Section 302 Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances
Urea phosphate is not listed.
Phosphoric acid is listed as CERCLA Hazardous Substance (RQ 5000 pounds (2270 kg)).

NFPA 704/2012: National Fire Protection Association
Health 3
Fire 0
Instability 0
Special None

US State Regulations
California Proposition 65 Not listed
Canada
Ingredient Disclosure List:
WHMIS Classification Class E - Corrosive Material

European Union
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Hazard classes and Hazard categories Hazard statements
Skin Corr. 1B H314 Causes severe skin burns and eye damage

Chemical Inventories
United States TSCA Listed
Canada DSL/NDSL The substance is specified on the Non-domestic Substances List and is subject to the New Substances Notifications Regulations (Chemicals and Polymers) of the Canadian Environmental Protection Act, 1999.

European Union (EINECS) Listed
China (IECS) Listed
Japan (METI) Listed

16. OTHER INFORMATION

This SDS complies with 29 CFR part 1910.1200 HCS 2012, Canada Controlled Products Regulations (2010) and ANSI Standard Z400.1-2004

Prepared by Regulatory Affairs Department, SQM
E-mail product_safety@sqm.com
ind-northamerica@sqm.com

Last revision date July 2013

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Indication of changes
All sections were reviewed and modified to comply with 29CFR part 1910 subpart Z (2012).