**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product identifier**  
Potassium nitrate / Krista K / Ultrasol K / Champion

**Identified uses**  
Industrial use of potassium nitrate for formulation of preparations, intermediate use and end-use in industrial settings

Industrial end-use as energy storage salt

Professional use in formulation of fertilizer preparations and end-use as fertilizer

**Non Recommended Uses**  
Food additive; Reagent in waste water treatment

**Supplier**  
SQM North America
2727 Paces Ferry Rd, Building Two, Suite 1425  
Atlanta, GA 30339

**Company Telephone/Fax**  
(770) 916 9400 / (770) 916 9404

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

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**2. HAZARDS IDENTIFICATION**

**Emergency Overview**  
Crystals/Prills, white, odorless

**WARNING**

Oxidizer. Contact with combustible materials will not cause spontaneous ignition, however, sodium nitrate will enhance an existing fire.

May cause skin and eye irritation.

** NFPA 704: National Fire Protection Association**

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
<th>Special Oxidizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Oxidizer</td>
</tr>
</tbody>
</table>

**OSHA Regulatory Status**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Potential Health Effects**

**Likely routes of exposure:** Eye contact, skin contact, inhalation.

In case of inhalation  
Irritation to respiratory tract

In case of skin contact  
May cause redness or irritation

In case of eye contact  
May cause redness or irritation

In case of ingestion  
Ingestion of large amounts may cause: Gastrointestinal disturbances

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS No</th>
<th>EC No</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium nitrate</td>
<td>7757-79-1</td>
<td>231-818-8</td>
<td>&gt; 94 %</td>
</tr>
<tr>
<td>Sodium nitrate</td>
<td>7631-99-4</td>
<td>231-554-3</td>
<td>0.01 - 5 %</td>
</tr>
<tr>
<td>Sulphate (SO(_4^{2-}))</td>
<td>&lt; 1 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloride (Cl(^-))</td>
<td>&lt; 0.6 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium (Mg(^{2+}))</td>
<td>&lt; 0.5 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrite (NO(_2^-))</td>
<td>&lt; 0.02 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium (Ca(^{2+}))</td>
<td>&lt; 0.2 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perchlorate (ClO(_4^-))</td>
<td>&lt; 0.01%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iodate (IO(_3^-))</td>
<td>0.005 - 0.01 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For specific details on composition according to the product grade, see product data sheet

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**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 to fresh air and keep at rest in a position comfortable for breathing. Get medical attention for any breathing difficulty.

**In case of skin contact**

Wash with plenty of soap and water. Remove contaminated clothing. If skin irritation occurs: Get medical advice/attention.

**In case of eye contact**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.

**In case of ingestion**

Induce vomiting. Rinse mouth immediately and drink plenty of water.
Most important symptoms and effects, both acute and delayed

The following symptoms may occur:

- **In case of inhalation**: Irritation to respiratory tract. Delayed lung effects after short term exposure to thermal degradation products.
- **In case of skin contact**: May cause redness or irritation.
- **In case of eye contact**: May cause redness or irritation.
- **In case of ingestion**: Ingestion of large amounts may cause gastrointestinal disturbances.

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

### 5. FIRE FIGHTING MEASURES

**Flammable properties**
Not flammable.

**Extinguishing media**
- Suitable extinguishing media: Use any suitable mean for extinguishing surrounding fire. Spray water for small fires. For large fires flood with abundant water.
- Unsuitable material: None, but attention should be paid to compatibility with chemicals surrounding.

**Protection for firefighters**
- Specific hazards arising from the chemical: Thermal decomposition can lead to the escape of toxic/corrosive gases and vapours.
- Products of combustion: thermal decomposition products: refer to section 10.
- Protective equipment and precautions for firefighters: Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Provide adequate ventilation. Wear personal protective equipment (Section 8).

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

**Methods for containment and cleaning up**
- Take up mechanically, placing in appropriate containers for disposal or recovery.
- Unsuitable material for containment/taking up: Do not absorb in saw-dust or other combustible absorbents.
- Other information: None

### 7. HANDLING AND STORAGE

**Handling**
Avoid generation of dust. Provide adequate ventilation. Wear personal protective equipment. Wash hands thoroughly after handling. Do no eat, drink or smoke when using this product. Keep away from flammable, combustible and reducing substances.

**Storage**
Keep/store only in original container. Store in a well-ventilated place. Keep container tightly closed.
- Do not store together with: Combustible substance, reducing agents
- Perchlorate containing product - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate and Section 15 for more information regarding California State regulations.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Guidelines**

**Occupational exposure limits**

| Particulates Not Otherwise Regulated (PNOR): | mppcf* | mg/m³ |
| Inert or Nuisance Dust: | | |
| Respirable fraction | 15 | 5 |
| Total dust | 50 | 15 |

*Millions of particles per cubic foot of air

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

**Personal Protective Equipment**
- **Eye/face protection**: Chemical goggles required all the time.
- **Skin Protection**: Nitrile rubber gloves, over 0.11 mm thickness, > 480 min breakthrough time, recommended.
- **Respiratory Protection**: Wear respiratory protection, where airborne concentrations are expected to exceed exposure limits.

**General Hygiene Considerations**
Avoid contact with eyes and skin. Wash hands thoroughly after handling. Have eye-wash facilities immediately available.
9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid, prilled or crystalline</td>
</tr>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No applicable</td>
</tr>
<tr>
<td>pH value</td>
<td>8-10 (5% aqueous solution)</td>
</tr>
<tr>
<td>Melting point / melting range</td>
<td>335 °C / 635 F at 1013 hPa</td>
</tr>
<tr>
<td>Boiling temperature / boiling range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapourisation rate / Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammable solids</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Explosion limits (LEL, UEL)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative vapour density (air = 1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>2.1 at 20°C / 68 F</td>
</tr>
<tr>
<td>Solubility</td>
<td>&gt; 100 g/L at 25 °C / 77 F (water)</td>
</tr>
<tr>
<td>Partition coefficient n-octanol /water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto Ignition temperature (AIT)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>&gt; 600 °C / 1112 F</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Oxidizer</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability/Reactivity
Stable under normal storage and temperature conditions.

Conditions to avoid
Keep away from flammable, combustible and reducing substances.

Incompatible materials
Flammable, combustible and reducing substances under specific conditions. For storage and handling incompatibilities, refer to Section 7.

Hazardous decomposition products
Thermal decomposition products (> 1112 F / 600 °C): Nitrous oxides (NO₂), potassium nitrite and potassium oxide.

Possibility of hazardous reactions
None identified

11. TOXICOLOGICAL INFORMATION

The following information mostly refers to the major component of the product.

Information on toxicological effects

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>Rat.</td>
<td>OECD Guideline 425</td>
</tr>
<tr>
<td>LD50: &gt; 2000 mg/kg bw</td>
<td>Data obtained by analogy conclusion</td>
<td></td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>Rat.</td>
<td>OECD Guideline 402</td>
</tr>
<tr>
<td>LD50: &gt; 5000 mg/kg bw</td>
<td>Data obtained by analogy conclusion</td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>Rat.</td>
<td>OECD Guideline 403</td>
</tr>
<tr>
<td>LC50: &gt; 0.527 mg/L (4-h)</td>
<td>Data obtained by analogy conclusion</td>
<td></td>
</tr>
</tbody>
</table>

Irritant and corrosive effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritation to the skin</td>
<td>Rabbit.</td>
<td>Data obtained by analogy conclusion</td>
</tr>
<tr>
<td>Equivalent/similar to OECD guideline 404</td>
<td>non-irritant.</td>
<td>Data obtained by analogy conclusion</td>
</tr>
<tr>
<td>Primary dermal irritation index (PDII): 0 of max. 5 (mean) (Time point: 1, 24, 48,72h)</td>
<td>In vitro study</td>
<td></td>
</tr>
<tr>
<td>Irritation to eyes</td>
<td>Rabbit.</td>
<td>Data obtained by analogy conclusion</td>
</tr>
<tr>
<td>OECD Guideline 437</td>
<td>non-irritant</td>
<td>In vitro study</td>
</tr>
<tr>
<td>OECD Guideline 405/EU B.5</td>
<td>non-irritant</td>
<td>In vitro study</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>not sensitising.</td>
<td>Mouse. Data obtained by analogy conclusion</td>
</tr>
<tr>
<td>OECD Guideline 429/EU B.42</td>
<td>non-irritant</td>
<td>In vitro study</td>
</tr>
<tr>
<td>Respiratory sensitisation</td>
<td>Mouse.</td>
<td>Data obtained by analogy conclusion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Germ cell mutagenicity / Genotoxicity</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-vitro genotoxicity</td>
<td>bacterial reverse mutation assay</td>
<td>negative</td>
</tr>
<tr>
<td>Gene-mutations microorganisms</td>
<td>OECD Guideline 476/EU B.17</td>
<td>negative</td>
</tr>
<tr>
<td>Gene-mutations mammalian cells</td>
<td>According to Ishidate &amp; Odashima (1977)</td>
<td>negative</td>
</tr>
<tr>
<td>Chromosome aberr. mammalian cells</td>
<td>Equivalent or similar to OECD 479</td>
<td>negative</td>
</tr>
<tr>
<td>Sister Chromatid Exchange (SCE)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

International Agency for Research on Cancer (IARC) Inadequate animals and humans evidence
National Toxicology Program (NTP) Not listed
29 CFR part 1910, subpart Z Not listed
California Proposition 65 Not listed
WHO (2003) Nitrate in drinking water No association between nitrate exposure in humans and the risk of cancer
Reproductive toxicity
Adverse effects on sexual function and fertility/developmental toxicity
OECD guideline 422. NOAEL(C): 1500 mg/kg/d Rat.
At the highest dose tested, no effects on fertility or development were observed in this repeated dose toxicity study.

Specific target organ toxicity (single exposure)
Practical experience / human evidence
No relevant effect have been observed after single exposure to potassium nitrate.

Specific target organ toxicity (repeated exposure)
OECD guideline 422.
Effect dose: Organs affected:
NOAEL(C): 1500 mg/kg bw/day None

Aspiration hazard
Physicochemical data and toxicological information does not indicate an aspiration hazard.

Other Toxicological Information
This product contains trace amounts of naturally-occurring perchlorate and iodate. Like other goitrogenic substances, perchlorate may affect iodine uptake by thyroid under specific conditions.

12. ECOLOGICAL INFORMATION
The following information mostly refers to the major component of the product.

Toxicity
Aquatic toxicity
96-h LC50 1378 mg/L Poecilia reticulata (freshwater fish) (literature information)
48-h EC50 490 mg/L Daphnia magna (fresh water flea). (literature information)
10 d EC50 > 1700 mg/L Several algae species (literature information)

Persistence and degradability
In aqueous compartments, the substance will dissociate into sodium and nitrate ions. Other minor compounds are also expected to be dissociated in their corresponding ions. Sodium ions are not subject to further degradation. Under anoxic conditions, nitrate is subjected to denitrification and is ultimately converted into molecular nitrogen as part of the nitrogen cycle. Nitrate and other oxyanions impurities are likely to be found in oxic compartments.

Bioaccumulative potential
Potassium nitrate has a low potential for bioaccumulation based on physicochemical properties (high water solubility).

Mobility in soil
Nitrate has a low potential for adsorption. Portion not taken up by plants, can leach to groundwater. Potassium may be absorbed by plants and it can also participate in ion exchange processes.

Other adverse effects
Excess nitrate leaching may enrich waters leading to eutrophication.

13. DISPOSAL CONSIDERATIONS
Disposal should be in accordance with applicable regional, national and local laws and regulations.
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 (eg. Resource Conservation and Recovery Act (RCRC) 40 CFR 261).
Perchlorate containing product - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate and Section 15 for more information regarding California State regulations.

14. TRANSPORT INFORMATION
US DOT (ground)
UN-No. 1486
Proper Shipping Name POTASSIUM NITRATE
Class(es) 5.1
Packing group III
Hazard label(s) 5.1 (oxidizer)
Special marking No

Sea transport (IMDG)
UN-No. 1486
Proper Shipping Name POTASSIUM NITRATE
Class(es) 5.1
Packing group III
Marine pollutant No
Hazard label(s) 5.1 (oxidizer)
Special marking No
Special Provision 964

Air transport (ICAO-TI / IATA-DGR)
UN-No. 1486
Proper Shipping Name POTASSIUM NITRATE
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: POTASSIUM NITRATE

Product Code: 001/05-US
Date of issue: March 2012
Supersedes: October 2008

Class(es) 5.1
Packing group III
Hazard label(s) 5.1 (oxidizer)
Special marking No

Special precautions for user
None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable
Remark
None

15. REGULATORY INFORMATION

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

Section 313 Toxic Chemicals
NS11 Nitrate compounds (water dissociable; reportable only when in aqueous solution)

Section 302 Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances
Potassium nitrate is not listed

US State Regulations
California Proposition 65 Potassium nitrate is not listed
California Code of Regulations Title 22 See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/

California (Health & Safety Code), Chapter 33

Canada
WHMIS Classification: Class C

This product has been classified according to the hazard criteria of the 2010 Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

European Union
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Hazard classes and Hazard categories
Ox. Sol. 3*
H272

*Applicable only to the crystalline form. Granular form that passes UN Test 0.1 is not classified under GHS/CLP.

16. OTHER INFORMATION

This MSDS complies with 29 CFR part 1910 subpart Z, 2010 Canada Controlled Products Regulations (CPR) and ANSI Standard Z400.1-2004

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

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Indication of changes
All sections were reviewed, contents were updated and format was changed.