1. Identification

Product identifier
NPS + Zn

Other means of identification

SDS Number
KNC_NPSZn_B_US_EN

Synonyms
12-45-0 + 5S + 1Zn ; NPSZn

Recommended use
Fertilizer.

Recommended restrictions
None known.

Manufacturer / Importer / Supplier / Distributor information

Company Name
Koch Nitrogen Company, LLC
4111 E 37th Street North
PO Box 2219
Wichita, KS, 67201-2219
kochmsds@kochind.com
1-316-828-7672

Emergency
For Chemical Emergency
Call CHEMTREC day or night
1.800.424.9300
Mexico - 1.800.681.9531
Outside USA/Canada
1.703.527.3887
(collect calls accepted)

2. Hazard(s) identification

Physical hazards
Not classified.

Health hazards
Not classified.

OSHA defined hazards
Not classified.

Label elements

Hazard symbol
None.

Signal word
None.

Hazard statement
The mixture does not meet the criteria for classification.

Precautionary statement

Prevention
Observe good industrial hygiene practices.

Response
Wash hands after handling.

Storage
Store away from incompatible materials.

Disposal
Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC)
Not classified.

Environmental hazards
Hazardous to the aquatic environment, acute hazard Category 2
Hazardous to the aquatic environment, long-term hazard Category 2

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monoammonium phosphate</td>
<td>7722-76-1</td>
<td>40 - 70</td>
</tr>
<tr>
<td>Calcium sulfate</td>
<td>7778-18-9</td>
<td>3 - 7</td>
</tr>
<tr>
<td>Ammonium sulfate</td>
<td>7783-20-2</td>
<td>10 - 30</td>
</tr>
<tr>
<td>Other Mg, Fe, Al combined with phosphates</td>
<td>-</td>
<td>10 - 30</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>
Composition comments
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

4. First-aid measures

Inhalation
Move person to fresh air. Get medical attention if any discomfort continues.

Skin contact
Wash off with plenty of water. Get medical attention if irritation develops or persists.

Eye contact
Do not rub eye. Remove contact lenses, if present and easy to do. Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion
Rinse mouth thoroughly if dust is ingested. Get medical attention if any discomfort occurs.

Most important symptoms/effects, acute and delayed
Dusts may irritate the respiratory tract, skin and eyes. Symptoms can include irritation, redness, scratching of the cornea, and tearing.

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

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media
Dry chemical, CO2, water spray or alcohol resistant foam.

Unsuitable extinguishing media
High volume water jet.

Specific hazards arising from the chemical
The product is non-combustible. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions
Move containers from fire area if you can do it without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. After removal flush contaminated area thoroughly with water.

Environmental precautions
Never return spills to original containers for re-use.

7. Handling and storage

Precautions for safe handling
Avoid generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Use with adequate ventilation. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium sulfate (CAS 7778-18-9)</td>
<td>PEL</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Dust (CAS -)</td>
<td>PEL</td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
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<tbody>
<tr>
<td>Calcium sulfate (CAS 7778-18-9)</td>
<td>PEL</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Dust (CAS -)</td>
<td>PEL</td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>
## US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

## US. OSHA Table Z-3 (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust (CAS -)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 millions of</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 millions of</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>particle</td>
<td></td>
</tr>
</tbody>
</table>

## US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium sulfate (CAS 7778-18-9)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Dust (CAS -)</td>
<td>TWA</td>
<td>3 mg/m³</td>
<td>Respirable particles.</td>
</tr>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>STEL</td>
<td>10 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>

## US NIOSH Pocket Guide to Chemical Hazards: Ceiling Limit Value and Time Period (if specified)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>Ceiling</td>
<td>15 mg/m³</td>
<td>Dust.</td>
</tr>
</tbody>
</table>

## US NIOSH Pocket Guide to Chemical Hazards: Recommended exposure limit (REL)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium sulfate (CAS 7778-18-9)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
</tbody>
</table>

## US NIOSH Pocket Guide to Chemical Hazards: Short Term Exposure Limit (STEL)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide (CAS 1314-13-2)</td>
<td>STEL</td>
<td>10 mg/m³</td>
<td>Fume.</td>
</tr>
</tbody>
</table>

**Biological limit values**
No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**
Provide adequate general and local exhaust ventilation. Observe occupational exposure limits and minimize the risk of inhalation of dust.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**
Risk of contact: Wear dust goggles.

**Skin protection**
Risk of contact: Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

**Hand protection**
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**Other**
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2.

**Respiratory protection**
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2.

**Thermal hazards**
Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.
9. Physical and chemical properties

Appearance
Gray or white granular solid.

Physical state
Solid.

Form
Granules.

Color
Gray or white.

Odor
Odorless.

Odor threshold
Not available.

pH
4 (10% solution).

Flash point
Not available.

Evaporation rate
Not applicable.

Flammability (solid, gas)
Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)
Not applicable.

Flammability limit - upper (%)
Not applicable.

Vapor pressure
Not applicable.

Vapor density
Not applicable.

Relative density
Not available.

Solubility(ies)
Not available.

Partition coefficient (n-octanol/water)
Not available.

Auto-ignition temperature
Not available.

Decomposition temperature
374 °F (190 °C)

Viscosity
Not applicable.

Other information

Bulk density
920 - 980 kg/m³ @ 20 °C loose.

970 - 1040 kg/m³ @ 20 °C tapped.

10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Stable at normal conditions. Decomposes at high temperatures giving ammonia and polyphosphoric acid.

Possibility of hazardous reactions
Will not occur.

Conditions to avoid
Avoid dust formation. High temperatures.

Incompatible materials

Hazardous decomposition products

11. Toxicological information

Information on likely routes of exposure

Ingestion
Ingestion may cause irritation and malaise.

Inhalation
Dust may irritate respiratory system.

Skin contact
May cause irritation through mechanical abrasion.

Eye contact
Dust may irritate the eyes.

Symptoms related to the physical, chemical and toxicological characteristics
Symptoms can include irritation, redness, scratching of the cornea, and tearing.

Information on toxicological effects

Acute toxicity
May cause discomfort if swallowed.
Components | Species | Test Results |
--- | --- | --- |
Ammonium sulfate (CAS 7783-20-2) |  |  |
**Acute**
*Inhalation*  
LC50  | Rat  | > 1000 mg/m³, 8 hours |
Oral  | Rat  | 2840 mg/kg |
**Monoammonium phosphate (CAS 7722-76-1)**  
**Acute**
*Dermal*  
LD50  | Rat  | > 5000 mg/kg |
*Inhalation*  
LD50  | Rat  | > 5000 mg/m³ |
Oral  | Rat  | > 2000 mg/kg |

**Skin corrosion/irritation**  
Dust may irritate skin.

**Serious eye damage/eye irritation**  
Dust may irritate the eyes.

**Respiratory sensitization**  
No data available.

**Skin sensitization**  
Not a skin sensitizer.

**Germ cell mutagenicity**  
No data available.

**Carcinogenicity**  
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**Reproductive toxicity**  
No data available.

**Specific target organ toxicity - single exposure**  
No data available.

**Specific target organ toxicity - repeated exposure**  
No data available.

**Aspiration hazard**  
Not applicable.

**Chronic effects**  
Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

12. Ecological information

**Ecotoxicity**  
Toxic to aquatic life with long lasting effects.

| Components | Species | Test Results |
--- | --- | --- |
Ammonium sulfate (CAS 7783-20-2)  
*Fish*  
LC50  | Salmo gairdneri  | 173 mg/l, 96 hours |
*Aquatic*  
*Algae*  
EC50  | Chlorella vulgaris  | 2700 mg/l, 18 days |
*Crustacea*  
EC50  | Water flea (Daphnia magna)  | > 100 mg/l, 96 hours |
Zinc oxide (CAS 1314-13-2)  
*Aquatic*  
*Crustacea*  
LC50  | Water flea (Daphnia magna)  | 0.098 mg/l, 48 Hours |

**Persistence and degradability**  
No data available.

**Bioaccumulative potential**  
No data available.

**Mobility in soil**  
This product is water soluble and may disperse in soil.

**Other adverse effects**  
Fertilizers, particularly those containing nitrogen and/or phosphorus, can stimulate weed and algal growth in static surface waters. Nitrogen fertilizers may contain or form nitrate which can contaminate surface and ground-water. High nitrate concentrations may render the water unsuitable for human and livestock consumption.

13. Disposal considerations

**Disposal instructions**  
Dispose in accordance with all applicable regulations.

**Local disposal regulations**  
Dispose of in accordance with local regulations.

**Hazardous waste code**  
Not regulated.

**Waste from residues / unused products**  
Dispose of in accordance with local regulations.
Contaminated packaging

Dispose of in accordance with local regulations.

14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN3077</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Environmentally hazardous substances, solid, n.o.s. (Zinc oxide)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>9</td>
</tr>
<tr>
<td>Subsidiary class(es)</td>
<td>-</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

Special provisions

8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33

Packaging exceptions

155

Packaging non bulk

213

Packaging bulk

240

IATA

<table>
<thead>
<tr>
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<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
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</tr>
<tr>
<td>Labels required</td>
<td>9</td>
</tr>
<tr>
<td>ERG Code</td>
<td>9L</td>
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</tbody>
</table>

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

IMDG

<table>
<thead>
<tr>
<th>UN number</th>
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<tbody>
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<td>UN proper shipping name</td>
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<td>-</td>
</tr>
<tr>
<td>Packaging group</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Yes</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Yes</td>
</tr>
<tr>
<td>Labels required</td>
<td>9</td>
</tr>
<tr>
<td>EmS</td>
<td>F-A, S-F</td>
</tr>
</tbody>
</table>

Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

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

This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

US federal regulations

This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Zinc oxide (CAS 1314-13-2) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

No

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monoammonium phosphate</td>
<td>7722-76-1</td>
<td>40 - 70</td>
</tr>
<tr>
<td>Ammonium sulfate</td>
<td>7783-20-2</td>
<td>10 - 30</td>
</tr>
</tbody>
</table>
SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>

Other federal regulations

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**
Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**
Not regulated.

**Safe Drinking Water Act (SDWA)**
Not regulated.

**Food and Drug Administration (FDA)**
Not regulated.

**US state regulations**
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US. Massachusetts RTK - Substance List**
- Ammonium sulfate (CAS 7783-20-2)
- Calcium sulfate (CAS 7778-18-9)
- Zinc oxide (CAS 1314-13-2)

**US. New Jersey Worker and Community Right-to-Know Act**
- Zinc oxide (CAS 1314-13-2)

**US. Pennsylvania RTK - Hazardous Substances**
- Ammonium sulfate (CAS 7783-20-2)
- Calcium sulfate (CAS 7778-18-9)
- Zinc oxide (CAS 1314-13-2)

**US. Rhode Island RTK**
- Zinc oxide (CAS 1314-13-2)

**US. California Proposition 65**
Not listed.

**International Inventories**

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

**Issue date**
06-November-2013

**Revision date**
-

**Version #**
01

**NFPA Ratings**

- **1**: Health
- **1**: Flammability
- **0**: Reactivity

**List of abbreviations**
- LD50: Lethal Dose, 50%.
- LC50: Lethal Concentration, 50%.

**References**
- ACGIH
- EPA: Acquire database
- NLM: Hazardous Substances Data Bank
- US. IARC Monographs on Occupational Exposures to Chemical Agents
- HSDB® - Hazardous Substances Data Bank
- IARC Monographs. Overall Evaluation of Carcinogenicity
- National Toxicology Program (NTP) Report on Carcinogens
- ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet (SDS) and was prepared pursuant to Government regulation(s) that identify specific types of information to be provided. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided herein with respect to any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. No responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product specifically should advise all of their employees, agents, contractors and customers who will use the product of this (M)SDS.