1. Identification

Product identifier: Phosphoric Acid 54% Solution

Other means of identification:

MSDS Number: KNC_54PCTH3PO4_US_EN

Synonyms: White 54% phosphoric acid; Green phosphoric acid; Phosphoric acid (Merchant grade); Phosphoric acid (Purified grade)

Recommended use: Fertilizer.

Recommended restrictions: Use in accordance with supplier's recommendations.

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: Corrosive to metals Category 1

Health hazards: Acute toxicity, oral Category 4
Skin corrosion/irritation Category 1
Serious eye damage/eye irritation Category 1
Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory irritation.

Precautionary statement

Prevention: Keep only in original container. Do not breathe mist. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product.

Response: If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. Absorb spillage to prevent material damage. Call a poison center/doctor if you feel unwell.

Storage: Store in corrosive resistant container with a resistant inner liner. Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): Not classified.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid</td>
<td>7664-38-2</td>
<td>60-100</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>10-40</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
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If the affected person is not breathing, apply artificial respiration. Get medical attention immediately.

Skin contact
Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion
Rinse mouth with water and afterwards drink plenty of water. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention.

Most important symptoms/effects, acute and delayed
Causes skin, eye, respiratory and digestive tract burns.

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. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

5. Fire-fighting measures

Suitable extinguishing media
Use appropriate extinguishing media for any nearby fire.

Unsuitable extinguishing media
None known.

Specific hazards arising from the chemical
Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire-fighting equipment/instructions
Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Avoid inhalation of vapors and spray mist and contact with skin and eyes. 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. A spill can be diluted with water and disposed of at proper facilities. Otherwise, absorb spill with vermiculite or other inert material, then place in a container for chemical waste. DO NOT use combustible materials such as sawdust. Contaminated absorbent material may pose the same hazards as the spilled product.

Flush residual spill area with a large amount of water. Neutralize washings or spill area with soda ash or lime.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground unless authorized by permit. Reporting of releases to appropriate regulatory agencies may be required.

7. Handling and storage

Precautions for safe handling
Avoid inhalation of vapors/spray and contact with skin and eyes. Use only 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>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid (CAS 7664-38-2)</td>
<td>PEL</td>
<td>1 mg/m³</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid (CAS 7664-38-2)</td>
<td>STEL</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1 mg/m³</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>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid (CAS 7664-38-2)</td>
<td>TWA</td>
<td>1 mg/m³</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>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid (CAS 7664-38-2)</td>
<td>STEL</td>
<td>3 mg/m³</td>
</tr>
</tbody>
</table>

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

Exposure guidelines
Follow standard monitoring procedures.

Appropriate engineering controls
Provide adequate general and local exhaust ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation. Use process enclosures, local exhaust ventilation, or other engineering controls to reduce airborne exposure at locations/operations where spray mist may be generated. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear approved chemical safety goggles. Wear face shield if there is risk of splashes. Wear a full-face respirator, if needed.

Skin protection
Hand protection
Wear chemical-resistant, impervious gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Other
Wear chemical-resistant gloves, footwear and protective clothing appropriate for risk of exposure. Contact chemical protective clothing manufacturer for specific information.

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 vapors, use suitable respiratory equipment.

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
Viscous green liquid.

Physical state
Liquid.

Form
Viscous liquid.

Color
Green.

Odor
Pungent.

Odor threshold
Not available.

pH
< 1
Melting point/freezing point: Not available.
Initial boiling point and boiling range: 269.6 °F (132 °C) (1 atm)
Flash point: Not flammable.
Evaporation rate: Not available.
Flammability (solid, gas): Not available.
Upper/lower flammability or explosive limits
  Flammability limit - lower (%): Not available.
  Flammability limit - upper (%): Not available.
  Explosive limit - lower (%): Not available.
  Explosive limit - upper (%): Not available.
Vapor pressure: 5 mm Hg (26°C)
Vapor density: 2 - 3
Relative density: 1.39 - 2
Solubility(ies): Miscible with water.
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.

10. Stability and reactivity
Reactivity: Contact with certain metals liberates flammable gas.
Chemical stability: Stable at normal conditions.
Possibility of hazardous reactions: Reacts with most metals to form flammable hydrogen gas.
Conditions to avoid: Elevated temperatures.
Hazardous decomposition products: Phosphorus oxides. Phosphine.

11. Toxicological information
Information on likely routes of exposure
  Ingestion: Harmful if swallowed. Causes digestive tract burns.
  Inhalation: May cause respiratory tract irritation.
  Skin contact: Causes severe skin burns. Causes permanent skin damage (scarring).
  Eye contact: Causes serious eye damage. Permanent eye damage or blindness could result.
Symptoms related to the physical, chemical and toxicological characteristics
  Eye contact: Contact may cause irritation with redness, tearing, pain, and/or blurred vision.
  Permanent eye damage or blindness could result.
  Skin contact: Itching, redness, swelling, burning or blistering of skin.
  Effects on exposure by inhalation may include sore throat, cough, burning sensation, shortness of breath and labored breathing.

Information on toxicological effects
Acute toxicity: Harmful if swallowed. May cause chemical burns in mouth, esophagus and stomach.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>Rabbit</td>
<td>2740 mg/kg</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>1530 mg/kg</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes severe skin burns.</td>
<td></td>
</tr>
</tbody>
</table>
Serious eye damage/eye irritation Causes serious eye damage.
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 May cause respiratory tract irritation.
Specific target organ toxicity - repeated exposure No data available.
Aspiration hazard Not classified.
Chronic effects Chronic or prolonged exposure may be associated with changes in pulmonary function, chronic bronchitis, dermatitis and erosion of dental enamel.
Further information No other specific acute or chronic health impact noted.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid (CAS 7664-38-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>138 mg/l, 96 h</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>No data available.</td>
<td></td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>No data available.</td>
<td></td>
</tr>
<tr>
<td>Mobility in soil</td>
<td>This product is water soluble and may disperse in soil.</td>
<td></td>
</tr>
<tr>
<td>Other adverse effects</td>
<td>The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.</td>
<td></td>
</tr>
</tbody>
</table>

13. Disposal considerations

Disposal instructions Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.
Hazardous waste code D002: Corrosive waste
Waste from residues / unused products Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.
Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT
UN number UN1805
UN proper shipping name Phosphoric acid solution
Transport hazard class(es) 8
Subsidiary class(es) -
Packing group III
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions A7, IB3, N34, T4, TP1
Packaging exceptions 154
Packaging non bulk 203
Packaging bulk 241

IATA
UN number UN1805
UN proper shipping name Phosphoric acid, solution
Transport hazard class(es) 8
Subsidiary class(es) -
Packing group III
Environmental hazards No
Labels required 8
ERG Code 8L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
IMDG

**UN number**: UN1805  
**UN proper shipping name**: PHOSPHORIC ACID SOLUTION  
**Transport hazard class(es)**: 8  
**Subsidiary class(es)**: -  
**Packaging group**: III  
**Environmental hazards**  
- Marine pollutant: No  
- Labels required: 8  
- EmS: F-A, S-B  
**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**: Not applicable.  

### 15. Regulatory information

#### US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

- **TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**: Not regulated.  
- **CERCLA Hazardous Substance List (40 CFR 302.4)**: Phosphoric acid (CAS 7664-38-2) NOT LISTED

#### Superfund Amendments and Reauthorization Act of 1986 (SARA)
- **Hazard categories**  
  - Immediate Hazard: Yes  
  - Delayed Hazard: Yes  
  - Fire Hazard: No  
  - Pressure Hazard: No  
  - Reactivity Hazard: Yes
- **SARA 302 Extremely hazardous substance**: No  
- **SARA 311/312 Hazardous chemical**: Yes

#### 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**: Phosphoric acid (CAS 7664-38-2)  
- **US. New Jersey Worker and Community Right-to-Know Act**: Not regulated.  
- **US. Pennsylvania RTK - Hazardous Substances**: Phosphoric acid (CAS 7664-38-2)  
- **US. Rhode Island RTK**: Phosphoric acid (CAS 7664-38-2)  
- **US. California Proposition 65**: Phosphoric Acid 54% Solution SDS US  
### 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

<table>
<thead>
<tr>
<th>Issue date</th>
<th>05-15-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>-</td>
</tr>
<tr>
<td>Version #</td>
<td>01</td>
</tr>
</tbody>
</table>

### List of abbreviations

- LD50: Lethal Dose, 50%.
- LC50: Lethal Concentration, 50%.

### References

- NLM: Hazardous Substances Data Base
- 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

### Disclaimer

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.