



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name Phosphoric Acid Solution 36%
CAS # Mixture
Product use Nutrient
Manufacturer SODROX Chemicals Ltd.
7040 Wellington Road 124, R.R. #6
Guelph, ON N1H 6J3 CA
Business Phone: 519-837-2330
Fax: 519-837-3300
Emergency Phone: 1-800-363-6824

2. Hazards Identification

Emergency overview DANGER
CAUSES EYE BURNS. CAUSES SKIN BURNS.

Potential short term health effects

Routes of exposure Eye, Skin contact, Skin absorption, Inhalation, Ingestion.

Eyes Causes chemical burns. May cause blindness.

Skin Causes chemical burns.

Inhalation Harmful if inhaled. May cause respiratory tract irritation or chemical burns. May cause respiratory tract irritation.

Ingestion Harmful if swallowed. May cause chemical burns to mouth, throat and stomach.

Target organs Eyes. Respiratory system. Skin.

Chronic effects Prolonged or repeated exposure to dilutions can cause drying, defatting and dermatitis.

Signs and symptoms The product causes burns of eyes, skin and mucous membranes.

OSHA Regulatory Status This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential environmental effects See section 12.

3. Composition / Information on Ingredients

| Ingredient(s) | CAS # | Percent |
|-----------------|-----------|---------|
| Phosphoric acid | 7664-38-2 | 30 - 60 |
| Sulfuric acid | 7664-93-9 | 3 - 7 |

4. First Aid Measures

First aid procedures

Eye contact Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention immediately.

Skin contact Immediately flush with cool water for 15 minutes while removing contaminated clothing and shoes. Discard or wash well before reuse. If discomfort persists, seek medical attention immediately.

Inhalation If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.

Ingestion Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.

Notes to physician Symptoms may be delayed.

General advice If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Wear impervious gloves and chemical splash goggles. Keep out of reach of children.

5. Fire Fighting Measures

| | |
|---|---|
| Flammable properties | Not flammable by WHMIS/OSHA criteria. |
| Extinguishing media | |
| Suitable extinguishing media | Dry chemical. Carbon dioxide. Water spray. Alcohol foam. |
| Unsuitable extinguishing media | Not available |
| Protection of firefighters | |
| Specific hazards arising from the chemical | Not available |
| Protective equipment for firefighters | Firefighters should wear full protective clothing including self contained breathing apparatus. |
| Hazardous combustion products | May include and are not limited to: Oxides of sulphur. Oxides of phosphorus. Toxic fumes. |
| Explosion data | |
| Sensitivity to mechanical impact | Not available |
| Sensitivity to static discharge | Not available |

6. Accidental Release Measures

| | |
|----------------------------------|---|
| Personal precautions | Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. |
| Environmental precautions | Prevent entry into waterways, sewers, basements or confined areas. |
| Methods for containment | Stop leak if you can do so without risk. |
| Methods for cleaning up | Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills to original containers for re-use. |

7. Handling and Storage

| | |
|-----------------|--|
| Handling | DANGER -- CORROSIVE Use good industrial hygiene practices in handling this material. Do not get in eyes, on skin or on clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling. |
| Storage | Keep out of the reach of children. Store in a closed container away from incompatible materials. Use corrosion resistant structural materials for containment. |

8. Exposure Controls / Personal Protection

| | |
|--------------------------------------|--|
| Exposure limits | |
| Ingredient(s) | Exposure Limits |
| Phosphoric acid | ACGIH-TLV TWA: 1 mg/m ³ STEL: 3 mg/m ³ OSHA-PEL TWA: 1 mg/m ³ |
| Sulfuric acid | ACGIH-TLV TWA: 0.2 mg/m ³ OSHA-PEL TWA: 1 mg/m ³ |
| Engineering controls | Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. |
| Personal protective equipment | |
| Eye / face protection | Wear chemical goggles. |

| | |
|---------------------------------------|---|
| Hand protection | Impervious gloves. Confirm with reputable supplier first. |
| Skin and body protection | Wear appropriate chemical resistant clothing. |
| Respiratory protection | Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. |
| General hygiene considerations | Use good industrial hygiene practices in handling this material. When using do not eat or drink. Wash hands before breaks and immediately after handling the product. |

9. Physical and Chemical Properties

| | |
|---|-------------------------|
| Appearance | Syrupy Liquid |
| Color | Pale blue |
| Form | Liquid |
| Odor | Odourless |
| Odor threshold | Not available |
| Physical state | Liquid |
| pH | 0 - 1 |
| Melting point | Not available |
| Freezing point | 5.00 °F (-15 °C) |
| Boiling point | 275.00 °F (135 °C) |
| Pour point | Not available |
| Evaporation rate | Not available |
| Flash point | Not available |
| Auto-ignition temperature | Not available |
| Flammability limits in air, lower, % by volume | Not available |
| Flammability limits in air, upper, % by volume | Not available |
| Vapor pressure | 5.76 MmHg @ 20°C |
| Vapor density | Not available |
| Specific gravity | 1.34 @ 20°C (water = 1) |
| Octanol/water coefficient | Not available |
| Solubility (H2O) | Soluble in cold water |
| Percent volatile | Not available |

10. Stability and Reactivity

| | |
|---|---|
| Reactivity | Reacts violently with alkaline material. This product may react with reducing agents. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Chemical stability | Stable under recommended storage conditions. |
| Conditions to avoid | Do not mix with other chemicals. |
| Incompatible materials | Bases. Reducing agents. Oxidizers. Fluorine. Metals. |
| Hazardous decomposition products | May include and are not limited to: Oxides of sulphur. Oxides of phosphorus. Toxic fumes. |

11. Toxicological Information

Component analysis - LC50

| Ingredient(s) | LC50 |
|-----------------|-----------------------------------|
| Phosphoric acid | Not available |
| Sulfuric acid | 1020 mg/l/4h rat; 160 mg/m3 mouse |

Component analysis - Oral LD50

| Ingredient(s) | LD50 |
|-----------------|----------------|
| Phosphoric acid | 1530 mg/kg rat |
| Sulfuric acid | 2140 mg/kg rat |

Effects of acute exposure

| | |
|---|---|
| Eye | Causes chemical burns. May cause blindness. |
| Skin | Causes chemical burns. |
| Inhalation | Harmful if inhaled. May cause respiratory tract irritation or chemical burns. May cause respiratory tract irritation. |
| Ingestion | Harmful if swallowed. May cause chemical burns to mouth, throat and stomach. |
| Sensitization | Non-hazardous by WHMIS/OSHA criteria. |
| Chronic effects | Non-hazardous by WHMIS/OSHA criteria. |
| Carcinogenicity | There is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulphuric acid is carcinogenic. |
| ACGIH - Threshold Limit Values - Carcinogens | |
| Sulfuric acid | 7664-93-9 A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists) |
| IARC - Group 1 (Carcinogenic to Humans) | |
| Sulfuric acid | 7664-93-9 Monograph 54 [1992] (Occupational exposure to mists and vapours from sulfuric acid and other strong inorganic acids) |
| Mutagenicity | Non-hazardous by WHMIS/OSHA criteria. |
| Reproductive effects | Non-hazardous by WHMIS/OSHA criteria. |
| Teratogenicity | Non-hazardous by WHMIS/OSHA criteria. |
| Name of Toxicologically Synergistic Products | Not available |

12. Ecological Information

| | |
|--|---|
| Ecotoxicity | Components of this product have been identified as having potential environmental concerns. |
| Ecotoxicity - Freshwater Fish - Acute Toxicity Data | |
| Phosphoric acid | 7664-38-2 96 Hr LC50 Gambusia affinis: 3 - 3.5 mg/L |
| Sulfuric acid | 7664-93-9 96 Hr LC50 Brachydanio rerio: >500 mg/L [static] |
| Ecotoxicity - Water Flea - Acute Toxicity Data | |
| Phosphoric acid | 7664-38-2 12 Hr EC50 Daphnia magna: 4.6 mg/L |
| Sulfuric acid | 7664-93-9 24 Hr EC50 Daphnia magna: 29 mg/L |
| Persistence / degradability | Not available |
| Bioaccumulation / accumulation | Not available |
| Mobility in environmental media | Not available |
| Environmental effects | Not available |
| Aquatic toxicity | Not available |
| Partition coefficient | Not available |
| Chemical fate information | Not available |
| Other adverse effects | Not available |

13. Disposal Considerations

| | |
|--|--|
| Disposal instructions | Review federal, state/provincial, and local government requirements prior to disposal. |
| Waste from residues / unused products | Not available |
| Contaminated packaging | Not available |

14. Transport Information

U.S. Department of Transportation (DOT)

Basic shipping requirements:

| | |
|--------------------------------|--|
| Proper shipping name | Corrosive liquid, acidic, inorganic, n.o.s. (PHOSPHORIC ACID RQ = 13889 lbs, SULPHURIC ACID RQ = 16667 lbs) |
| Hazard class | 8 |
| UN number | UN3264 |
| Packing group | III |
| Additional information: | |
| Special provisions | IB3, T7, TP1, TP28 |
| Packaging exceptions | 154 |
| ERG number | 154 |



Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

| | |
|--------------------------------|--|
| Proper shipping name | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (PHOSPHORIC ACID, SULPHURIC ACID) |
| Hazard class | 8 |
| UN number | UN3264 |
| Packing group | III |
| Additional information: | |
| Special provisions | 16 |



15. Regulatory Information

Canadian federal regulations

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Canada - WHMIS - Ingredient Disclosure List

| | | |
|-----------------|-----------|-----|
| Phosphoric acid | 7664-38-2 | 1 % |
| Sulfuric acid | 7664-93-9 | 1 % |

WHMIS status Controlled

WHMIS classification Class E - Corrosive Material

WHMIS labeling



Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

US Federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

| | | |
|-----------------|-----------|------------------------------------|
| Phosphoric acid | 7664-38-2 | 5000 Lb final RQ; 2270 kg final RQ |
| Sulfuric acid | 7664-93-9 | 1000 Lb final RQ; 454 kg final RQ |

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

| | | |
|---------------|-----------|------------------|
| Sulfuric acid | 7664-93-9 | 1000 Lb EPCRA RQ |
|---------------|-----------|------------------|

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

| | | |
|---------------|-----------|-------------|
| Sulfuric acid | 7664-93-9 | 1000 Lb TPQ |
|---------------|-----------|-------------|

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

| | | |
|---------------|-----------|---|
| Sulfuric acid | 7664-93-9 | 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size) |
|---------------|-----------|---|

U.S. - CWA (Clean Water Act) - Hazardous Substances

| | | |
|-----------------|-----------|---------|
| Phosphoric acid | 7664-38-2 | Present |
| Sulfuric acid | 7664-93-9 | Present |

CERCLA (Superfund) reportable quantity

Phosphoric acid: 5000.0000
Sulphuric acid: 1000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

| | |
|--------------------------|---|
| Hazard categories | Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No |
|--------------------------|---|

| | |
|--|----|
| Section 302 extremely hazardous substance | No |
|--|----|

| | |
|---------------------------------------|-----|
| Section 311 hazardous chemical | Yes |
|---------------------------------------|-----|

| | |
|----------------------------|---------------|
| Clean Air Act (CAA) | Not available |
|----------------------------|---------------|

| | |
|------------------------------|---------------------|
| Clean Water Act (CWA) | Hazardous substance |
|------------------------------|---------------------|

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

U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances

| | | |
|-----------------|-----------|---------|
| Phosphoric acid | 7664-38-2 | Present |
| Sulfuric acid | 7664-93-9 | Present |

U.S. - Illinois - Toxic Air Contaminant Carcinogens

| | | |
|---------------|-----------|------------------|
| Sulfuric acid | 7664-93-9 | ACGIH Carcinogen |
|---------------|-----------|------------------|

U.S. - Illinois - Toxic Air Contaminants

| | | |
|---------------|-----------|-------------------|
| Sulfuric acid | 7664-93-9 | Present (aerosol) |
|---------------|-----------|-------------------|

U.S. - Louisiana - Reportable Quantity List for Pollutants

| | | |
|-----------------|-----------|------------------------------------|
| Phosphoric acid | 7664-38-2 | 5000 Lb final RQ; 2270 kg final RQ |
| Sulfuric acid | 7664-93-9 | 1000 Lb final RQ; 454 kg final RQ |

U.S. - Massachusetts - Right To Know List

| | | |
|-----------------|-----------|---------------------------|
| Phosphoric acid | 7664-38-2 | Present |
| Sulfuric acid | 7664-93-9 | Extraordinarily hazardous |

U.S. - Minnesota - Hazardous Substance List

| | | |
|-----------------|-----------|---------|
| Phosphoric acid | 7664-38-2 | Present |
| Sulfuric acid | 7664-93-9 | Present |

U.S. - New Jersey - Right to Know Hazardous Substance List

| | | |
|-----------------|-----------|---------|
| Phosphoric acid | 7664-38-2 | sn 1516 |
| Sulfuric acid | 7664-93-9 | sn 1761 |

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

| | | |
|-----------------|-----------|--|
| Phosphoric acid | 7664-38-2 | 5000 Lb RQ (air); 100 lb RQ (land/water) |
| Sulfuric acid | 7664-93-9 | 1000 Lb RQ (air); 100 lb RQ (land/water) |

U.S. - North Carolina - Control of Toxic Air Pollutants

| | | |
|---------------|-----------|---|
| Sulfuric acid | 7664-93-9 | 0.012 mg/m3 (chronic toxicants); 0.1 mg/m3 (acute systemic toxicants) |
|---------------|-----------|---|

U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities

| | | |
|---------------|-----------|-----------|
| Sulfuric acid | 7664-93-9 | 500 Lb TQ |
|---------------|-----------|-----------|

U.S. - Pennsylvania - RTK (Right to Know) List

| | | |
|-----------------|-----------|----------------------|
| Phosphoric acid | 7664-38-2 | Environmental hazard |
| Sulfuric acid | 7664-93-9 | Environmental hazard |

U.S. - Rhode Island - Hazardous Substance List

| | | |
|-----------------|-----------|------------------|
| Phosphoric acid | 7664-38-2 | Toxic; Flammable |
| Sulfuric acid | 7664-93-9 | Toxic; Flammable |

Inventory name**Country(s) or region**

Canada

Canada

United States & Puerto Rico

Inventory name

Domestic Substances List (DSL)

Non-Domestic Substances List (NDSL)

Toxic Substances Control Act (TSCA) Inventory

On inventory (yes/no)*

Yes

No

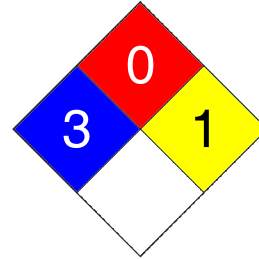
Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

| LEGEND HMIS/NFPA | |
|---------------------|---|
| Severe | 4 |
| Serious | 3 |
| Moderate | 2 |
| Slight | 1 |
| Minimal | 0 |

| | |
|---------------------|-----|
| Health | / 3 |
| Flammability | 0 |
| Physical Hazard | 1 |
| Personal Protection | X |

**Disclaimer**

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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Prepared by

Dell Tech Laboratories Ltd. (519) 858-5021

Other information

For an updated MSDS, please contact the supplier/manufacturer listed on the first page of the document.

This MSDS conforms to the ANSI Z400.1/Z129.1-2010 Standard.

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

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