

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name PHOSPHORIC ACID
Version # 01
Revision date 01-21-2010
CAS # Mixture
Product Codes J.T.Baker: 0251, 0260, 0262, 0263, 0264, 0265, 0268, 0269, 0274, 5372, 5804, 5841, 5854, 6908
Mallinckrodt: 2788, 2796, 2797, H106
Synonym(s) Ortho-phosphoric acid * White phosphoric acid
Manufacturer Mallinckrodt Baker, Inc.
Address 222 Red School Lane
Phillipsburg, NJ 08865
US
Customer Service 800-582-2537
24 Hour Emergency 908-859-2151
Chemtrec 800-244-4444

2. Hazards Identification

Emergency overview DANGER

Corrosive. Causes skin and eye burns. Harmful if inhaled or swallowed. Irritating to respiratory system. Prolonged exposure may cause chronic effects.
OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects
Routes of exposure Inhalation. Ingestion. Skin contact. Eye contact.
Eyes Corrosive. Causes eye burns. Risk of serious damage to eyes. Do not get this material in contact with eyes.
Skin Corrosive. Causes skin burns. Do not get this material in contact with skin.
Inhalation Harmful if inhaled. Inhalation of vapors or mists of the product may be irritating to the respiratory system. Prolonged inhalation may be harmful. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion Corrosive. Harmful if swallowed. Components of the product may be absorbed into the body by ingestion. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Circulatory collapse. Unconsciousness, possibly death. Do not ingest.
Target organs Eyes. RESPIRATORY SYSTEM. Skin.
Signs and symptoms Upper respiratory tract irritation. Irritation of eyes and mucous membranes.
Potential environmental effects Components of this product are hazardous to aquatic life. May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
PHOSPHORIC ACID	7664-38-2	80 - 90
Other components below reportable levels		10 - 20

4. First Aid Measures

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

Skin contact	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
Inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.
Ingestion	Do not induce vomiting without advice from poison control center. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth thoroughly. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	In case of shortness of breath, give oxygen. Keep victim warm.
General advice	Immediate medical attention is required. In case of shortness of breath, give oxygen. Keep victim warm. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	Not flammable, but reacts with most metals to form flammable hydrogen gas.
Extinguishing media	
Suitable extinguishing media	Water.
Protection of firefighters	
Protective equipment and precautions for firefighters	In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out.
Specific methods	In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.
Hazardous combustion products	May include oxides of phosphorus.

6. Accidental Release Measures

Personal precautions	Ensure adequate ventilation. Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate protective equipment and clothing during clean-up. Ventilate closed spaces before entering them.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Methods for containment	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	Should not be released into the environment. Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Never return spills in original containers for re-use. Following product recovery, flush area with water. Neutralize spill area and washings with soda ash or lime. Clean surface thoroughly to remove residual contamination. J. T. Baker NEUTRASORB® acid neutralizers are recommended for spills of this product.

7. Handling and Storage

Handling

Do not breathe dust/fume/gas/mist/vapors/spray. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment. Handle and open container with care. Use caution when combining with water; DO NOT add water to acid, ALWAYS add acid to water while stirring to prevent release of heat, steam and fumes.

Storage

Store in a well-ventilated place. Keep container tightly closed. Keep from freezing. Protect against direct sunlight. Keep out of the reach of children. Use care in handling/storage. Keep away from food, drink and animal feedingstuffs.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components

Type

Value

PHOSPHORIC ACID (7664-38-2)

STEL

3.0000 mg/m3

TWA

1.0000 mg/m3

U.S. - OSHA

Components

Type

Value

PHOSPHORIC ACID (7664-38-2)

PEL

1.0000 mg/m3

STEL

3.0000 mg/m3

TWA

1.0000 mg/m3

Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Eye / face protection

Chemical goggles are recommended. Face-shield. Provide eyewash station and safety shower. Do not get in eyes.

Skin protection

Wear appropriate chemical resistant clothing. Chemical resistant gloves. Do not get this material in contact with skin. Do not get this material on clothing.

Respiratory protection

Do not breathe dust/fume/gas/mist/vapors/spray. Wear positive pressure self-contained breathing apparatus (SCBA).

General hygiene considerations

Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. When using, do not eat, drink or smoke. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance

Clear.

Color

Colorless.

Odor

Odorless.

Odor threshold

Not available.

Physical state

Liquid.

Form

Liquid.

pH

1.5 (0.1 N aqueous solution)

Melting point

98.6 °F (37.06 °C) estimated

Freezing point

98.6 °F (37.06 °C) estimated

Boiling point

390.2 °F (199 °C) estimated

Flash point

Not available.

Evaporation rate	Not available.
Flammability	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	0.03 hPa estimated
Vapor density	3.4
Specific gravity	1.834 estimated
Relative density	Not available.
Solubility (water)	Miscible.
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Percent volatile	12.5 % estimated
Molecular weight	98 Phosphoric acid
Molecular formula	H3PO4 in H2O

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Reacts violently with strong alkaline substances. This product may react with reducing agents. Do not mix with other chemicals.
Incompatible materials	Incompatible with bases. This product may react with reducing agents. Ammonia. Caustics. Epoxides. Amines. Amides. Alcohols. Phenols. Fluoride. Cyanides. Cresol. Nitromethane. Organic peroxides/hydroperoxides. Contact with metals may evolve flammable hydrogen gas.
Hazardous decomposition products	Phosphoric acid. May include oxides of phosphorus.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data	
Product	Test Results
PHOSPHORIC ACID (Mixture)	Acute Dermal LD50 Rabbit: 3131 mg/kg estimated
Components	Test Results
PHOSPHORIC ACID (7664-38-2)	Acute Dermal LD50 Rabbit: 2740 mg/kg Acute Oral LD50 Rat: 1530 mg/kg

* Estimates for product may be based on additional component data not shown.

Acute effects	Causes burns.
Local effects	Irritating to respiratory system.
Chronic effects	Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Hazardous by OSHA criteria.
Epidemiology	Not available.
Neurological effects	Not available.

12. Ecological Information

Ecotoxicity	Components of this product are hazardous to aquatic life. Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.
Environmental effects	Harmful to aquatic organisms.
Persistence and degradability	Not available.

13. Disposal Considerations

Waste codes	D002: Waste Corrosive material [pH <=2 or >=12.5, or corrosive to steel]
Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN1805
Proper shipping name	Phosphoric acid solution (PHOSPHORIC ACID RQ = 5714 LBS)
Hazard class	8
Packing group	III

Additional information:

Special provisions	A7, IB3, N34, T4, TP1
Packaging exceptions	154
Packaging non bulk	203
Packaging bulk	241
ERG number	154

IATA

Basic shipping requirements:

UN number	1805
Proper shipping name	Phosphoric acid solution
Hazard class	8
Packing group	III

IMDG

Basic shipping requirements:

UN number	1805
Proper shipping name	PHOSPHORIC ACID SOLUTION
Hazard class	8
Packing group	III



DOT



IATA



IMDG

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.
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CERCLA (Superfund) reportable quantity

PHOSPHORIC ACID: 5000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

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

Section 311 hazardous chemical
Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

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 - Pennsylvania RTK - Hazardous Substances: Listed substance

PHOSPHORIC ACID (CAS 7664-38-2) Listed.

Saf-T-Data
Health: 3 - Severe
Flammability: 0 - None
Reactivity: 2 - Moderate
Contact: 4 - Extreme (Corrosive)
Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: W - White (Corrosive)

16. Labeling Info

Label Hazard Warning	DANGER Corrosive. Causes skin and eye burns. Harmful if inhaled or swallowed. Irritating to respiratory system. Prolonged exposure may cause chronic effects.
Label Precautions	Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
Label First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Oxygen or artificial respiration if needed. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. Rinse mouth thoroughly. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

17. Other Information

NFPA ratings

Health: 3
Flammability: 0
Instability: 0

Disclaimer

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