

## MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

Material name	PHOSPHORIC ACID
Version #	01
Revision date	06-25-2010
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	800-424-9300

## 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.

<b>Skin contact</b>	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.
<b>Inhalation</b>	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.
<b>Ingestion</b>	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.
<b>Notes to physician</b>	In case of shortness of breath, give oxygen. Keep victim warm.
<b>General advice</b>	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

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

## 6. Accidental Release Measures

<b>Personal precautions</b>	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.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
<b>Methods for containment</b>	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.
<b>Methods for cleaning up</b>	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.

#### General

Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

## 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

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

## 10. Chemical Stability & Reactivity Information

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<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Conditions to avoid</b>	Reacts violently with strong alkaline substances. This product may react with reducing agents. Do not mix with other chemicals.
<b>Incompatible materials</b>	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.
<b>Hazardous decomposition products</b>	Phosphoric acid. May include oxides of phosphorus.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

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### Toxicological data

Product	Test Results
PHOSPHORIC ACID (Mixture)	Acute Dermal LD50 Rabbit: 3131 mg/kg estimated

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

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

## 12. Ecological Information

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<b>Ecotoxicity</b>	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.
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<b>Environmental effects</b>	Harmful to aquatic organisms.
<b>Persistence and degradability</b>	Not available.

### 13. Disposal Considerations

<b>Waste codes</b>	D002: Waste Corrosive material [pH ≤2 or ≥12.5, or corrosive to steel]
<b>Disposal instructions</b>	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:

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

##### Additional information:

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

#### IATA

##### Basic shipping requirements:

<b>UN number</b>	1805
<b>Proper shipping name</b>	Phosphoric acid solution
<b>Hazard class</b>	8
<b>Packing group</b>	III

#### IMDG

##### Basic shipping requirements:

<b>UN number</b>	1805
<b>Proper shipping name</b>	PHOSPHORIC ACID SOLUTION
<b>Hazard class</b>	8
<b>Packing group</b>	III



DOT



IATA



IMDG

### 15. Regulatory Information

<b>US federal regulations</b>	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**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
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**

<b>Label Hazard Warning</b>	DANGER  Corrosive. Causes skin and eye burns. Harmful if inhaled or swallowed. Irritating to respiratory system. Prolonged exposure may cause chronic effects.
<b>Label Precautions</b>	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.
<b>Label First Aid</b>	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

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**NFPA ratings**

Health: 3  
Flammability: 0  
Instability: 0

**Disclaimer**

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