



United States
Material Safety Data Sheet

POLYPHOSPHORIC ACID 113-115-116-117-118

1. Product and company identification

Product name : POLYPHOSPHORIC ACID 113-115-116-117-118

Supplier : Thermphos International B.V.
P.O. Box 406
Vlissingen
Netherlands
4380 AK
+31 (0) 113 689 500

Manufacturer : Thermphos International B.V.
P.O. Box 406
Vlissingen 4380 AK
Netherlands
+31 (0) 113 689 500

Validation date : 23.05.2011
Print date : 23.05.2011

In case of emergency : +1-800-424-9300
+1-703-527-3887

Product type : liquid

2. Hazards identification

Emergency overview

Physical state : liquid
Color : Colorless.

Odor : Odorless.
Signal word : DANGER!

Hazard statements : CAUSES SEVERE EYE BURNS. CAUSES SKIN BURNS.
Precautionary measures : Do not breathe vapor or mist. Use only with adequate ventilation. Do not get in eyes. Do not get on skin. Do not eat, drink or smoke when using this product. Keep container tightly closed. Wash thoroughly after handling.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Potential acute health effects

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a

- health hazard.
- Ingestion** : May cause burns to mouth, throat and stomach.
- Skin** : Corrosive to the skin. Causes burns.
- Eyes** : Severely corrosive to the eyes. Causes severe burns.

Potential chronic health effects

- Chronic effects** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Inhalation** : Adverse symptoms may include the following:
coughing
respiratory tract irritation
- Ingestion** : Adverse symptoms may include the following:
stomach pains
- Skin** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Eyes** : Adverse symptoms may include the following:
pain
watering
redness
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
phosphoric acid	7664-38-2	2 - 8
There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.		

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Wash clothing before reuse. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Clean shoes thoroughly before reuse.

Inhalation	:	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	:	Get medical attention immediately. Call a poison center or physician. Remove dentures if any. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Protection of first-aiders	:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
Notes to physician	:	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

Flammability of the product	:	In a fire or if heated, a pressure increase will occur and the container may burst.
<u>Extinguishing media</u>		
Suitable	:	Use dry chemical, CO ₂ , water spray (fog) or foam.
Not suitable	:	None known.
Special exposure hazards	:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Hazardous thermal decomposition products	:	Decomposition products may include the following materials: phosphorus oxides
Special protective equipment for fire-fighters	:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Special remarks on fire hazards	:	Non-flammable.
Special remarks on explosion hazards	:	Not applicable.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8). Avoid breathing dust. Keep away from water.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). May be harmful to the environment if released in large quantities.

Methods for cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Keep away from water.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Separate from reducing agents and combustible materials. Keep away from water.

8. Exposure controls/personal protection

Occupational exposure limits

Ingredient	Exposure limits
phosphoric acid	<p>OSHA PEL 1989 (1989-03-01) PEL: Permissible Exposure Level 1 mg/m³</p> <p>OSHA PEL 1989 (1989-03-01) Short Term Exposure Limit (STEL) 3 mg/m³</p> <p>OSHA PEL (1993-06-30) PEL: Permissible Exposure Level 1 mg/m³</p> <p>NIOSH REL (1994-06-01) Time Weighted Average (TWA) 1 mg/m³</p> <p>NIOSH REL (1994-06-01) Short Term Exposure Limit (STEL) 3 mg/m³</p> <p>ACGIH TLV (1994-09-01) TLV-TWA: Threshold Limit Value - Time weighted average PEL: Permissible Exposure Level 1 mg/m³</p> <p>ACGIH TLV (1994-09-01) TLV-STEL: Threshold Limit Value - Short Time Exposure Level 3 mg/m³</p>

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Filtering device (full mask or mouthpiece) with filter: (as filter combination B-P2)
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Synthetic or rubber gloves
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Wear acid-resistant protective clothing.
- Environmental exposure** : Emissions from ventilation or work process equipment should be

controls checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Physical state : liquid
Color : Colorless.
Odor : Odorless.
pH : 1,9 - 2,1
Relative density : 2,01 - 2,09
SADT : Not available.
Kinematic: 340 - 2.000 mm²/s
Solubility : water methanol

10. Stability and reactivity

Chemical stability : The product is stable.
Conditions to avoid : No specific data.
Incompatible materials : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.
Highly reactive or incompatible with the following materials:
metals
alkalis
combustible materials
water
Chlorate salt.
Nitrate salt.
amines
alcohols
Ketone.
Calcium carbide
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
Reactions may include the following:
contact with water
contact with combustible materials

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
phosphoric acid				
	LD50 Oral	Rat	2.600 mg/kg	-
	LC50 Inhalation	Rat	3,846 mg/l	1 h

Conclusion/Summary :

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
phosphoric acid	NOAEL	Rat Male/Female	250 milligram per kilogram	-

Conclusion/Summary :

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
phosphoric acid	Skin - Primary dermal irritation index (PDII)	Rabbit	6,6	24 hrs	72 hrs
	Skin - Erythema/Eschar Edema	Rabbit	< 1	4 hrs	8 d

Conclusion/Summary

Skin : Corrosive to the skin.
Eyes : Corrosive to eyes.
Respiratory :

Sensitizer

Conclusion/Summary

Skin :
Respiratory :

Carcinogenicity

Conclusion/Summary :

Mutagenicity

Product/ingredient name	Test	Experiment	Result
phosphoric acid	471 Bacterial Reverse Mutation Test	In vitro; Bacteria; With and without	Negative
	471 Bacterial Reverse Mutation Test	In vitro; Bacteria; With and without	Negative
	473 In vitro Mammalian Chromosomal Aberration Test	In vitro; Mammalian-Animal; Somatic; With and without	Negative
	476 In vitro Mammalian Cell Gene Mutation Test	In vitro; Mammalian-Animal; Somatic; With and without	Negative

Conclusion/Summary : Not mutagenic in a standard battery of genetic toxicological tests.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
phosphoric acid	Negative - Oral	Mouse	> 370 milligram per kilogram	-
	Negative - Oral	Rat	> 410 milligram per kilogram	-

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
phosphoric acid	-	-	Negative	Rat Male/Female	Oral: > 500 milligram per kilogram	-

Conclusion/Summary : No known significant effects or critical hazards.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/Ingredient name	Result	Species	Exposure
phosphoric acid			
	Acute LC50 98 - 106 mg/l Fresh water	Fish - Lepomis macrochirus	96 h
	Acute EC50 > 100 mg/l Fresh water	Daphnia - Daphnia magna	48 h
	Acute EC50 > 100 mg/l Fresh water	Aquatic plants -	72 h
	Chronic LC50 6.2 mg/l Fresh water	Fish - Labeo boga	8 d

Conclusion/Summary :

Persistence/degradability

Conclusion/Summary :

Octanol/water partition coefficient :

Other adverse effects : No known significant effects or critical hazards.



13. Disposal considerations





Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label
DOT Classification	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	Class 8: Corrosive material (-)	III	
TDG Classification	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	Class 8: Corrosive material (-)	III	

Mexico Classification	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	Class 8: Corrosive material (-)	III	
ADR/RID Class	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	Class 8: Corrosive material (-)	III	
Additional information: ADR/RID					
Hazard identification number: 80					
Tunnel code : E					
IMDG Class	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	Class 8: Corrosive material (-)	III	
Additional information : IMDG Class					
Emergency schedules (EmS) : F-A, S-B					
IATA-DGR Class	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	Class 8: Corrosive material (-)	III	

PG* : Packing group

15.Regulatory information

United States	:	Toxic material
HCS Classification	:	Corrosive material Target organ effects
U.S. Federal regulations	:	United States - TSCA 12(b) - Chemical export notification: ..None of the components are listed. United States - TSCA 4(a) - Final Test Rules: ..Not listed United States - TSCA 4(a) - ITC Priority list: ..Not listed United States - TSCA 4(a) - Proposed test rules: ..Not listed United States - TSCA 4(f) - Priority risk review: ..Not listed United States - TSCA 5(a)2 - Final significant new use rules: ..Not listed United States - TSCA 5(a)2 - Proposed significant new use rules: ..Not listed United States - TSCA 5(e) - Substances consent order: ..Not listed United States - TSCA 6 - Final risk management: ..Not listed United States - TSCA 6 - Proposed risk management: ..Not listed United States - TSCA 8(a) - Comprehensive assessment report (CAIR): ..Not listed United States - TSCA 8(a) - Chemical risk rules: ..Not listed United States - TSCA 8(a) - Dioxin/Furane precursor: ..Not listed United States - TSCA 8(a) - Inventory update rule (IUR): ..Partial exemption United States - TSCA 8(a) - Preliminary assessment report (PAIR): ..Not listed United States - TSCA 8(c) - Significant adverse reaction (SAR): ..Not listed United States - TSCA 8(d) - Health and safety studies: ..Not listed SARA 302/304/311/312 extremely hazardous substances: No products were found. SARA 302/304 emergency planning and notification: No products

were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Phosphoric acid: Acu

United States - EPA Clean water act (CWA) section 307 - Priority pollutants: Not listed

United States - EPA Clean water act (CWA) section 311 - Hazardous substances: Listed Phosphoric acid

United States - EPA Clean air act (CAA) section 112 - Accidental release prevention - Flammable substances: Not listed

United States - EPA Clean air act (CAA) section 112 - Accidental release prevention - Toxic substances: Not listed

**Clean Air Act Section 112(b)
Hazardous Air Pollutants
(HAPs)** : Not listed

**Clean Air Act Section 602
Class I Substances** : Not listed

**Clean Air Act Section 602
Class II Substances** : Not listed

**DEA List I Chemicals
(Precursor Chemicals)** : Not listed

**DEA List II Chemicals
(Essential Chemicals)** : Not listed

State regulations

Massachusetts : The following components are listed: phosphoric acid

New York : None of the components are listed.

New Jersey : The following components are listed: phosphoric acid

Pennsylvania : The following components are listed: phosphoric acid

California Prop. 65

Not available.

**United States inventory
(TSCA 8b)** : Not determined.

Canada inventory : Not determined.

International regulations

International lists : **Philippines inventory (PICCS):** Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Korea inventory: Not determined.
Japan inventory: Not determined.
China inventory (IECSC): Not determined.
Australia inventory (AICS): Not determined.

**Chemical Weapons
Convention List** : Not listed

Schedule I Chemicals

Chemical Weapons : Not listed

Convention List

Schedule II Chemicals

Chemical Weapons : Not listed

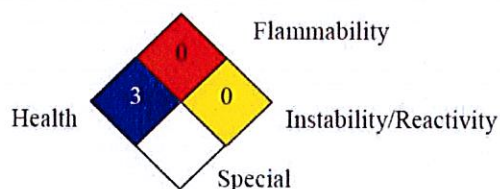
Convention List

Schedule III Chemicals

16.Other information

Label requirements : CAUSES SEVERE EYE BURNS. CAUSES SKIN BURNS.

National Fire Protection Association (U.S.A.):



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of printing : 23.05.2011
Prepared by : VERBEECKR

Date of issue : 23.05.2011

Date of previous issue : 00/00/0000
Version : 1.0

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

