

Chemische Fabrik Wülfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 1 of 10

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

#### 1.1.1. Trade name

**metaphosphoric acid**

purum or as ACS Reagent

#### 1.1.2. Substance name

**Amorphous condensation products of orthophosphoric acid and sodium carbonate (3-6 : 1)**

REACH Registration No: 01-2120774027-53-0000

List No.: 947-754-5 (only technical aid for the management of the substance by ECHA)

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Use descriptor category:

Life cycle stage (LCS)

M: Industrial uses: Pharmaceutical industry (Diagnostics)

PW: Widespread use by professional workers: Food analysis, chemical analysis in Biochemistry, Clinical chemistry and Veterinary medicine

Sector of use

SU24: Scientific research and development (analytical chemistry)

Technical function

Fine chemical

#### 1.2.2. Uses advised against

not known

### 1.3. Details of the supplier of the safety data sheet

Chemische Fabrik Wülfel GmbH & Co. KG

Hildesheimer Straße 305, 30519 Hannover

Tel.: 0049 511 98496-0, Fax: 0049 511 98406-40

eMail: person with expertise [cfw@wuelfel.de](mailto:cfw@wuelfel.de),

Web: [www.wuelfel.de](http://www.wuelfel.de)

### 1.4. Emergency telephone number

00 49 511 98496-0 (Office hours: Monday - Thursday 8 o'clock a.m. to 4 o'clock p.m.)

or

Poison control center north (Bremen, Hamburg, Lower Saxony, Schleswig-Holstein)

Tel.: 00 49 551 19 24 0 (24h emergency call)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### 2.1.1. Classification of the mixture according to Regulation (EC) No 1272/2008 (CLP/GHS)

Skin Corr. 1B; H314

Aquatic Chronic 4; H413

### 2.2. Label elements

#### 2.2.1. Labelling according to Regulation (EC) No 1272/2008 (CLP/GHS)

#### Hazard pictogram



GHS05

**Signal word: Danger**

Chemische Fabrik Wülfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 2 of 10

**Hazard statements:**

- H314 Causes severe skin burns and eye damage.  
H413 May cause long lasting harmful effects to aquatic life.

**Precautionary statements**

**Prevention:**

- P273 Avoid release to the environment.  
P280 Wear protective gloves /protective clothing/eye protection/face protection.

**Reaction:**

- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER/doctor/...

**Storage:**

- P405 Store locked up.

**Disposal:**

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

**2.3. Other hazards**

See also sections 5, 6, 10, 11, 12, 15.

The mixture does not meet the PBT / vPvB criteria as an inorganic substance according to Annex XIII of the REACH Regulation.

**SECTION 3: Composition/information on ingredients**

**3.1. Substances**

It is a UVCB substance which is prepared by polycondensation of orthophosphoric acid in these was added previously a certain amount of sodium carbonate (soda). The main components are metaphosphoric acid and trisodium trimetaphosphate. Furthermore, the substance does contain not analytical determined small amounts of tetrameta- and hexametaphosphoric acid as well as oligopolyphosphoric acids and the associated sodium salts.

Main components of the UVCB substance	CAS No.	EC No.	REACH Registration No.	Content (% w/w)	Classification acc. Regulation (EC) No 1272/2008 (CLP Regulation) C & L Inventory of the ECHA
metaphosphoric acid IUPAC nomenclature: 1,3,5,2,4,6- Trioxatriphosphinane- 2,4,6-triol-2,4,6-trioxide (HPO <sub>3</sub> ) <sub>n</sub> ; n= 3	37267-86-0	253-433-4	-	33,5 – 60,0	Skin Corr. 1B; H314
trisodium trimetaphosphate UPAC nomenclature: Trisodium-1,3,5,2,4,6-	7785-84-4	232-088-3	01- 2119474214- 42 and 01-	40 – 66,5	no hazardous substance

Chemische Fabrik Wüffel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 3 of 10

trioxotriphosphinane- 2,4,6-triolate-2,4,6-trioxide (NaPO <sub>3</sub> ) <sub>n</sub> ; n= 3 (In the function as a stabilizer)			2119966157- 29		
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### 3.2. Mixtures

Not applicable.

### 3.3. Additional information

The text of H statement, which is not mentioned in this section, see subsection 16.2. b).

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### 4.1.1. General informations

Remove all contaminated clothing.

Bring injured person to fresh air, lie down comfortably, loosen tight clothing.

#### 4.1.2. In case of eye contact

Rinse widely opened eye for several minutes under running water. Is advisable to use a eyewash. Do not attempt to neutralize, but further treatment by an ophthalmologist.

#### 4.1.3. In case of skin contact

Wash the affected area immediately with plenty of soap and water and, if possible dab with polyethylene glycol 400. Then cover with sterile dressing (no fire bandages!) cover. Consult a doctor if skin irritation persists.

#### 4.1.4. Following ingestion

Rinse mouth and drink plenty of water. Do not induce vomiting. Physician.

#### 4.1.5. Following inhalation of fumes

After inhalation of acid fumes. As soon as possible a glucocorticoid aerosol, eg Ventolair®, should be inhaled repeatedly.

Oxygen should be inhaled during difficulty in breathing.

If health problems occur, seek medical attention.

#### 4.1.6. Self-protection of the First Aider

Avoid contact with substance still present.

### 4.2. Most important symptoms and effects, both acute and delayed

Local tissue destruction and corneal opacity in the eye.

The healing process can last for a long time.

### 4.3. Indication of any immediate medical attention and special treatment needed

Physician treating of a disease caused by an acid burn.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media:** Water spray, foam, carbon dioxide, extinguishing powder

**Unsuitable extinguishing media:** not known

### 5.2. Special hazards arising from the substance or mixture

None

### 5.3. Advice for fire-fighters

The UVCB substance is not burning (see also subsection 5.2.).

The fire water is strongly acidic and reacts with metals liberating hydrogen.

In closed rooms an explosive gas/air mixture can be formed.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Skin and eye contact must be prevented by protective eye glasses and gloves.

Chemische Fabrik Wüfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 4 of 10

## 6.2. Environmental precautions

The UVCB substance must not be discharged into drains or waterways.

## 6.3. Methods and material for containment and cleaning up

Collect mechanically and place in corrosion-resistant containers for disposal.

Solve smaller quantities with plenty of water and dilute it. Larger amounts previously neutralize with sodium hydroxide.

The dilute solutions can be supplied to the waste water.

Here, the maximum permissible concentration must be maintained!

## 6.4. Reference to other sections

See Sections 4 and 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Follow the safety instructions in subsection 2.2.!

Use acid-resistant equipment only.

### 7.2. Conditions for safe storage, including any incompatibilities

Packaging material of the manufacturer: metal container with PE inner bag.

Storage:

The UVCB substance has to be stored dry in tightly closed, acid-resistant containers, in well ventilated areas, be stored separately from food, beverages and animal feed.

Note on joint storage: Do not store together with alkalis.

Storage class: 8B (non-combustible corrosive substances)

### 7.3. Specific end uses

Laboratory analysis, pH adjusting agent

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1. Occupational Exposure Limit (OEL) values

For the UVCB substance no OEL value is set.

In Germany for orthophosphoric acid is according to TRGS 900 the OEL value at 2 mg/m<sup>3</sup> (inhalable fraction), and the STEL (Short-Time Exposure Limit, related to a 15-minute period) is marked by an exceeding factor of 2 (Category I : Substance for which the local effect determines the limit).

In the EU (COMMISSION DIRECTIVE 2000/39/EC of 8 June 2000) the IOEL (Indicative Occupational Exposure Limit) value is at 1 mg/m<sup>3</sup> (eight hours, time-weighted average) and is at 2 mg/m<sup>3</sup> (short-term, related to a 15-minute period).

#### 8.1.2. DNEL/PNEC

<b>DNEL (see REACH dossier orthophosphoric acid)</b>		
Inhalation route	acute / short term exposure / local effects	2 mg/m <sup>3</sup> (worker)
	long term exposition / local effects	1.00 mg/m <sup>3</sup> (worker) 0.73 mg/m <sup>3</sup> (general population)
<b>DNEL (see REACH dossier trisodium trimetaphosphate)</b>		
Inhalation route, dermal route, eyes	short term exposure (acute) long term exposure (systemic)	workers and general population, no hazards identified

**PNEC** values are not available for orthophosphoric acid and trisodium trimetaphosphate.

### 8.2. Exposure controls

#### 8.2.1. Personal protective equipment

##### 8.2.1.1. Eye / Face protection

Tightly fitting protective goggles required

Chemische Fabrik Wülfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 5 of 10

### 8.2.1.2. Respiratory protection:

Required when dust forms (particle filter P2 according to DIN 3181).

### 8.2.1.3. Skin protection

Chemical protective gloves, e.g. consisting of nitrile rubber (Check for damage before use),  
Penetration time (value for permeation: Level 6, > 480 min, EN 374)

### 8.2.2. General health and safety measures

Avoid unnecessary contact with the product.

Wash hands after work, change contaminated clothing.

While using do not eat, drink or smoke.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Property	Value / Description
Appearance	colourless glass-like pieces (acidum phosphoricum glaciale)
Odour	odourless
Odour threshold	not relevant
pH (20 °C)	1.6 -1.90 (at 10 g/L H <sub>2</sub> O, depending on the composition) according to OECD Test Guideline 122
Melting point or melting range	135 - 150 °C (at 1013 hPa), determined by EC test method A.1
Initial boiling point and boiling range	is above 500 °C (at 1013 hPa), determined by EC test method A.2
Flash point	not applicable, since solid
Evaporation rate	not determined, since vapor pressure too low
Flammability (solid)	not applicable, since inorganic solid
Upper/lower flammability or explosive limits	see the comments on flammability
Vapour pressure	< 10 <sup>-2</sup> Pa, determined by EC test method A.4 (application of the Knudsen cell)
Vapour density	not determined, since vapor pressure too low
Density (20 °C)	2.25 - 2.42 g/cm <sup>3</sup> (depending on the composition) according to OECD Test Guideline 109
Solubilities Solubility in water (20 °C)	1558-1780 g/L (depending on composition and under simultaneous hydrolysis) according to OECD Test Guideline 105
Partition coefficient: n-octanol/water (log K <sub>OW</sub> )	not determined, since inorganic solid
Auto-ignition temperature	not applicable, since inorganic solid
Decomposition temperature	is above 500 °C
Viscosity	not applicable, since solid
Explosive properties	not applicable, since stable inorganic solid (insensitive to heat, impact or friction, contains no chemically unstable or high energetic groups)
Oxidising properties	not applicable, all components contain no oxidizing acting molecule groups

Chemische Fabrik Wüfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 6 of 10

## 9.2. Other information

The product is hygroscopic and melts down on long term exposure to air. A de-glassing process (crystallisation) can occur. When dissolved in water, hydrolysis takes place with formation of orthophosphoric acid and sodium dihydrogenorthophosphate. At high temperatures corrosive to metals.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reacts under heat formation with alkali (salt formation).

### 10.2. Chemical stability

No decomposition if used according to specifications.

The product is hygroscopic and melts down on long term exposure to air.

A de-glassing process (crystallisation) can occur.

### 10.3. Possibility of hazardous reactions

Reacts with alkalis (salt formation) under evolution of heat.

Corrosive to metals at high temperatures.

The concentrated aqueous solution reacts with many metals forming highly flammable hydrogen gas.

In closed rooms an explosive gas/air mixture can be formed.

### 10.4. Conditions to avoid

Contact with alkali and metals.

### 10.5. Incompatible materials

Alkalis (see subsection 10.3.)

### 10.6. Hazardous decomposition products

In the case of high temperatures can occur fumes of phosphorus oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

In applying the analogy principle and the read-across approach (cf. ECHA -Guidance on information requirements and chemical safety assessment, Chapter R.6: QSARs and grouping of chemicals, May 2008), data of orthophosphoric acid to describe the health hazards of the UVCB substance are used. No toxic effects are produced by the sodium dihydrogenorthophosphate formed during the hydrolysis (see the corresponding REACH dossier).

#### 11.1.1. Acute toxicity

For the UVCB substance are no data available.

For orthophosphoric acid that forms on prolonged standing or on heating an aqueous solution of the UVCB substance the following LD<sub>50</sub> values were determined:

LD<sub>50</sub> (oral, rat): 1530 – 3500 mg / kg body weight (see REACH Registration dossier orthophosphoric acid)

LD<sub>50</sub> (dermal, rabbit): 2740 mg / kg body weight (see REACH Registration dossier orthophosphoric acid)

LC<sub>50</sub> (inhalativ, rabbit): 1.689 mg/l/1h

#### 11.1.2. Skin corrosion/irritation

Causes skin burns (see REACH Registration dossier orthophosphoric acid), determined in animal studies with rabbits (72 h test).

#### 11.1.3. Serious eye damage/eye irritation

Causes severe burns of the eye (see REACH Registration dossier orthophosphoric acid), determined in animal studies with rabbits.

#### 11.1.4. Respiratory or skin sensitisation

Unknown

#### 11.1.5. Germ cell mutagenicity

No effects were detectable in *S. typhimurium* tester strains following sublethal pH decrease (OECD Guideline 471 (Bacterial Reverse Mutation Assay), see REACH Registration dossier.

Chemische Fabrik Wülfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 7 of 10

#### 11.1.6. Carcinogenicity

Unknown

#### 11.1.7. Reproductive toxicity

Unknown

#### 11.1.8. Specific target organ toxicity — single exposure

Unknown

#### 11.1.9. Specific target organ toxicity — repeated exposure

Unknown

#### 11.1.10. Aspiration hazard

Unknown

### SECTION 12: Ecological information

#### 12.1. Toxicity

In applying the analogy principle and the read-across approach (cf. ECHA -Guidance on information requirements and chemical safety assessment, Chapter R.6: QSARs and grouping of chemicals, May 2008), data of orthophosphoric acid to describe the ecotoxicological hazards of the UVCB substance are used.

##### 12.1.1. Acute aquatic toxicity

###### Fish toxicity

Species: *Lepomis macrochirus* (bluegill sunfish, 96h): medium lethal pH is 3 – 3.25

###### Daphnia toxicity

EC<sub>50</sub> (*Daphnia magna*, 48 h): >376 mg/L (OECD Test Guideline 202)

###### Algae toxicity

EC<sub>r50</sub> (*Pseudokirchneriella subcapitata*, 72h): 77.9 mg/L (OECD Test Guideline 201)

EC<sub>b50</sub> (*Pseudokirchneriella subcapitata*, 72h): 32.0 mg/L (OECD Test Guideline 201)

##### 12.1.2. Chronic aquatic toxicity

NOEC (*Daphnia magna*): 81 mg/l (OECD Test Guideline 202)

NOEC (*Pseudokirchneriella subcapitata*): < 7,5 mg/L (OECD Test Guideline 201)

The UVCB substance is hazardous to fish, daphnia and algae by lowering the pH of the water over a prolonged period during which hydrolysis takes place. This non-negligible effect is taken into account by the classification with

Aquatic Chronic 4; H413

This classification corresponds to the principle noted in the CLP Regulation that a probable risk (so-called "safety net") should be indicated (see Table 4.1.0 under point 4.1.2.6 in Annex I, part 4. ENVIRONMENTAL HAZARDS of the CLP Regulation).

##### 12.2. Persistence and degradability

The UVCB substance in an aqueous environment is converted slowly into orthophosphoric acid and sodium dihydrogenorthophosphate. These substances have a fertilizing effect in the soil. The UVCB substance is not a persistent substance

##### 12.3. Bioaccumulative potential

Phosphates are vital factors in the cycle of animals and plants, and not fall into this category.

##### 12.4. Mobility in soil

Depends on the water solubility of the phosphates which are formed in the soil.

##### 12.5. Results of PBT and vPvB assessment

Not applicable to inorganic substances.

##### 12.6. Other adverse effects

The UVCB substance must not enter the sewage system, as in surface waters because there is a risk of over-fertilization (eutrophication, flowering waters).

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

After pretreatment, the product must be supplied in accordance with the hazardous waste regulations to an approved hazardous waste landfill.

Chemische Fabrik Wüfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 8 of 10

Do not dispose of the sewage system!  
Waste disposal code: 060104

## SECTION 14 : Transport information

### 14.1. UN number

UN3260

### 14.2. UN proper shipping name

#### ADR/RID/ADN :

CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S., (metaphosphoric acid)

#### IMDG-Code :

CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S., (metaphosphoric acid)

#### ICAO-TI/IATA-DGR:

Corrosive solid, acidic, inorganic, n.o.s., (metaphosphoric acid)

### 14.3. Transport hazard class(es)

8 (Corrosive substances)



### 14.4. Packing group

III

### 14.5. Environmental hazards

#### Labelling as environmentally hazardous substance:

ADR/RID/ADN/IMDG-Code: no

ICAO-TI/IATA-DGR: no

Marine pollutant: no

### 14.6. Special precautions for user

see Sections 6 - 8

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Does not apply, it is a solid product and is not a bulk good.

### 14.8. Additional information

ADR Tunnel restriction code (E)

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU regulations

##### Safety Data Sheet:

Regulation (EC) No 1907/2006 (REACH), Annex II (SDS), amended by Annex of Regulation (EU) 2015/830.

##### Classification and labelling:

CLP (EU-GHS) Regulation (EC) No 1272/2008)

#### 15.1.2. Basic national regulations (Germany)

Act for the protection of young people at work (JArbSchG)

Observe employment restrictions according to § 22 for teens.

Act for the protection of mothers at work, in education and in study (MuSchG)

Inadmissible activities and working conditions according to §§ 11 and 12 MuSchG for expectant and nursing mothers.

Act on protection against hazardous substances (Chemicals Act (ChemG))

Regulation on protection against hazardous substances (Hazardous Substances Regulation (GefStoffV))

Regulation on bans and restrictions on the marketing and delivery of certain substances,



Chemische Fabrik Wülfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 9 of 10

mixtures and products pursuant to the Chemicals Act (ChemVerbotsV) Ordinance on facilities for handling substances that are hazardous to water (AwSV) of 18 April 2017.

Water hazard class (WGK) 1 (slightly hazardous to water), see AwSV, Annex 1, subsections 4.2 and 4.4, and classification of orthophosphoric acid (identification number: 392, WGK=1, see database Rigoletto)

The product is registered at the Federal Institute for Risk Assessment (BfR).

The BfR product number is 7429311.

## 15.2. Chemical Safety Assessment

A Chemical Safety Assessment and the drafting of a Chemical Safety Report is not required as the registration of the substance has been carried out for a tonnage band of 1 to 10 tonnes / year (see article 14 (1) of the Regulation (EC) No 1907/2006). A Chemical Safety Report in accordance with Annex I to Regulation (EC) No 1907/2006 is therefore not available.

## SECTION 16: Other information

### 16.1. Indication of changes to version 1.1

- Section 3 - Revision based on the rules on substance definition in the REACH Regulation (see also Section 4.3 UVCB substances in Guidance for identification and naming of substances under REACH and CLP, May 2017, Version 2.1)
- Addition of Subsection 3.3.
- Subsection 15.1.2. - Insertion of the product number assigned by the BfR
- Subsection 16.3. - Actualization

### 16.2. Codes of hazard classes and hazard statements

#### a) hazard classes and hazard categories in subsection 2.1.1.

- Skin Corr. 1B - Skin corrosion, Category 1B
- Aquatic Chronic 4 - Hazardous to the aquatic environment, Category 4

#### b) Hazard statement according to Regulation (EC) No 1272/2008, the text of which was not given in section 3

H314 Causes severe skin burns and eye damage

### 16.3. Literature and sources

A detailed description of the substances resulting from the polycondensation of the phosphoric acids can be found in the standard work of J.R. van Wazer "Phosphorus and Compounds", Vol. I: Chemistry, Interscience Publishers, Inc., New York, 1958, in the section "Preparation and Properties of Condensed Phosphoric Acids" at pages 770-773.

### Regulations

Regulation (EG) Nr. 1907/2006 (REACH), was last amended by Regulation (EU) 2018/2005 CLP (EU-GHS) Regulation (EC) Nr. 1272/2008, was last amended by Regulation (EU) 2018/1480

### REACH Registration dossier

**Amorphous condensation products of orthophosphoric acid and sodium carbonate (3-6 : 1)** (REACH Registration No: 01-2120774027-53-0000)

**Orthophosphoric acid** (REACH Registration No: 01-2119485924-24)

**Trisodium trimetaphosphate** (REACH Registration No: 01-2119474214-42, and 01-2119966157-29)

**Sodium dihydrogenorthophosphate** (REACH Registration No: 01-2119489796-13)

### 16.4. Methods in accordance with Chapter 2, Article 9, of Regulation (EC) No 1272/2008 to assess the information that has been used for the purpose of classification

Health and environmental hazards: use of "read across" principle (orthophosphoric acid)

### 16.5. Abbreviations and acronyms

- ACS American Chemical Society (Specification of Reagent chemicals)
- ADN Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure - European Agreement

Chemische Fabrik Wülfel	Safety Data Sheet in accordance with Regulation (EC) No 1907/2006	State: 14/02/2019 Author: U. Köhler/Spl Version: 2.0
	<b>metaphosphoric acid</b>	Page 10 of 10

ADR	concerning the International Carriage of Dangerous Goods by Inland Waterways Accord européen relatif au transport international des marchandises Dangereuses par Route - European arrangements about the international transport of dangerous goods on the streets.
CAS	Chemical Abstracts Service
CLP	Classification, Labelling, Packaging
DIN	German Institute for Standardization Incorporated Society - Deutsches Institut für Normung e. V.
DNEL	Derived No Effect Level
ECHA	European Chemicals Agency
EFSA	European Food Safety Authority
EC	European Community
EC	Effective concentration
EC <sub>r</sub>	Effective concentration (Growth rate)
EC <sub>b</sub>	Effective concentration (Biomass)
EN	European Standards
EU	European Union
GHS	Globally Harmonized System of Classification, Labelling and Packaging of Chemicals
ICAO-TI	International Civil Aviation Organization - Technical Instructions for the Safe Transport of Dangerous Goods by Air
IATA-DGR	International Air Transport Association - Dangerous Goods Regulation
IBC-Code	International code for the construction and the equipment of ships for the transport of dangerous goods as bulk goods.
IMDG-Code	International Maritime Code for Dangerous Goods
LC	Lethal Concentration
LD	Lethal Dose
MARPOL	Maritime Pollution Convention
NOEC	No Observed Effect level Concentration
N.O.S.	Not Otherwise Specified
PBT	Persistent, Bioaccumulative, Toxic
PNEC	Predicted No Effect Concentration
REACH	Regulation, Evaluation and Authorization of Chemicals
RID	Règlement concernant le transport International ferroviaire de marchandises Dangereuses - Regulation for the international transport of dangerous goods in the rail transport.
UN	United Nations
UVCB	substance of <u>U</u> nknown or <u>V</u> ariable composition, <u>C</u> omplex reaction products or <u>B</u> iological materials.
vPvB	very persistent and very bioaccumulative
<b>16.6. Further information</b>	
This information is based on our present knowledge, they do not constitute an assurance of product properties and establishes no contract legal rights.	