

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 09/28/2021

Reviewed on 09/28/2021

1 Identification

- **Product identifier**
- **Trade name:** Vario VE-Water
- **Catalogue number:** 461275, 457022
- **CAS Number:**
7732-18-5
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** Chemtrec®: (US & Canada) 800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**
The substance is not classified, according to the Globally Harmonized System (GHS).
- **Label elements**
- **GHS label elements** none
- **Hazard pictograms** none
- **Signal word** none
- **Hazard statements** none
- **Other hazards** No further relevant information available.

3 Composition/information on ingredients

- **Chemical characterization:** Substances
- **CAS No. Description**
7732-18-5 water
- **EC number:** 231-791-2

4 First-aid measures

- **Description of first aid measures**
- **General information:** No special measures required.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** The product is not combustible.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

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· **Additional information** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:** No special measures required.
- **Advice for emergency responders:** No special measures required.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:** No special measures required.
- **Reference to other sections**
No dangerous substances are released.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:** No special measures required.
- **Hygiene measures:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.
- **Personal protective equipment:**
- **Breathing equipment:**
Under normal use conditions according to the instruction manual no personal protective equipment is needed.
If exposure limits are exceeded or health impacts are experienced use respiratory protective device against the effects of fume/dust/aerosol.
Not required.
- **Protection of hands:** Not required.
- **Eye protection:** Not required.
- **Body protection:** Not required.
- **Limitation and supervision of exposure into the environment:** No further relevant information available.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **Appearance:**
- **Form / Physical state:** Liquid
- **Color:** Colorless
- **Odor:** Odorless
- **Odor threshold:** Not applicable.
- **pH-value:** ~5 (literature)
- **Melting point/freezing point:** 0°C (32°F)

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- **Initial boiling point and boiling range:** 100°C (212°F)
- **Flash point:** Not applicable.
- **Flammability (solid, gas):** Not applicable.
- **Ignition temperature:** Not applicable.
- **Decomposition temperature:** Not applicable.
- **Auto-ignition temperature:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Flammability or explosive limits:**
- **Lower:** Not applicable.
- **Upper:** Not applicable.
- **Oxidizing properties:** none
- **Vapor Pressure at 20°C (68°F):** 23 hPa (17.3 mm Hg)
- **Density at 20°C (68°F):** 1 g/cm³ (8.35 lbs/gal)
- **Relative density:** Not determined.
- **Vapor density:** Not determined.
- **Evaporation rate:** Not determined.
- **Solubility(ies)**
- **Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not applicable.
- **Viscosity:**
- **Kinematic:** Not determined.
- **Other information**
- **Water:** 100.0 %

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
Violent reactions possible with:
The generally known reaction partners of water.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

*11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **Primary irritant effect:**
- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

Substance is not listed.

· NTP (National Toxicology Program)

Substance is not listed.

· OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

- **Other information:** see section 8 / 15

- **Synergistic Products:** None

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):**

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.

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- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Other information:** Methods for the determination of biodegradability are not applicable to inorganic substances.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Other adverse effects** No special measures required.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Pour into the drain.
Small amounts may be diluted with plenty of water (3 to 5 times the volume) and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	none
· UN proper shipping name	
· DOT, IMDG, IATA	none
· Transport hazard class(es)	
· DOT, IMDG, IATA	
· Class	none
· Packing group	
· DOT, IMDG, IATA	none
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· **Section 355 (Extremely hazardous substances):**

Substance is not listed.

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·	Section 313 (Specific toxic chemical listings):
	Substance is not listed.
·	TSCA (Toxic Substances Control Act):
	ACTIVE
·	Hazardous Air Pollutants
	Substance is not listed.
·	Proposition 65
·	Chemicals known to cause cancer:
	Substance is not listed.
·	Chemicals known to cause reproductive toxicity for females:
	Substance is not listed.
·	Chemicals known to cause reproductive toxicity for males:
	Substance is not listed.
·	Chemicals known to cause developmental toxicity:
	Substance is not listed.
·	New Jersey Right-to-Know List:
	Substance is not listed.
·	New Jersey Special Hazardous Substance List:
	Substance is not listed.
·	Pennsylvania Right-to-Know List:
	Substance is not listed.
·	Pennsylvania Special Hazardous Substance List:
	Substance is not listed.
·	EPA (Environmental Protection Agency)
	Substance is not listed.
·	NIOSH-Ca (National Institute for Occupational Safety and Health)
	Substance is not listed.
·	Information about limitation of use: Not required.
·	Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Date of preparation / last revision 09/28/2021 / -

· Abbreviations and acronyms:

STOT: specific target organ toxicity
 SE: single exposure
 RE: repeated exposure
 EC50: half maximal effective concentration
 IC50: half maximal inhibitory concentration
 NOEL or NOEC: No Observed Effect Level or Concentration
 ACGIH® - American Conference of Governmental Industrial Hygienists
 •A1 - Confirmed human carcinogen
 •A2 - Suspected human carcinogen
 •A3 - Confirmed animal carcinogen with unknown relevance to humans
 •A4 - Not classifiable as a human carcinogen
 •A5 - Not suspected as a human carcinogen
 IARC - International Agency for Research on Cancer
 •Group 1 - Carcinogenic to humans
 •Group 2A - Probably carcinogenic to humans
 •Group 2B - Possibly carcinogenic to humans
 •Group 3 - Not classifiable as to carcinogenicity to humans
 •Group 4 - Probably not carcinogenic to humans
 NTP - National Toxicology Program, U.S. Department of Health and Human Services
 •Group K - Known to be Human Carcinogens
 •Group R - Reasonably Anticipated to be Human Carcinogens
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 EINECS: European Inventory of Existing Commercial Chemical Substances

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CAS: Chemical Abstracts Service (division of the American Chemical Society)
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

· **Sources** Data arise from safety data sheets, reference works and literature.

· *** Data compared to the previous version altered.**

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Reviewed on 11/24/2017

1 Identification

- **Product identifier**
- **Trade name:** **Vario Sodium hydroxide 1.54N**
- **Catalogue number:** 531530, 4531530, 424448, 531530-0
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

* 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Met. Corr.1 H290 May be corrosive to metals.
Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS05

- **Signal word** Danger
- **Hazard-determining components of labeling:**
sodium hydroxide
- **Hazard statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
P280 Wear protective gloves/protective clothing/eye protection.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P390 Absorb spillage to prevent material damage.
- **Other hazards** No further relevant information available.

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Trade name: Vario Sodium hydroxide 1.54N

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* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** aqueous solution
- **Composition and Information on Ingredients:**
Percent ranges are used due to the confidential product information.

CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6 RTECS: WB4900000	sodium hydroxide	 Met. Corr.1, H290; Skin Corr. 1A, H314	5–10%
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- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**
Supply fresh air.
Call a doctor immediately.
- **After skin contact:**
Immediately wash with polyethylene glycol 400.
Immediately rinse with plenty of water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
- **After eye contact:**
Rinse opened eye for several minutes (at least 15 min) under running water.
Call a doctor immediately.
- **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
Do not induce vomiting; immediately call for medical help.
- **Most important symptoms and effects, both acute and delayed**
burns
after inhalation:
coughing
breathing difficulty
damage to the affected mucous membranes possible
after swallowing:
strong caustic effect
pain
- **Indication of any immediate medical attention and special treatment needed:**
If swallowed or in case of vomiting, danger of entering the lungs.
Later observation for pneumonia and pulmonary edema.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

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6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
 - Wear protective equipment. Keep unprotected persons away.
 - Avoid substance contact.
 - Ensure adequate ventilation
 - Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
 - Ensure adequate ventilation.
 - Use neutralizing agent.
 - Absorb with liquid-binding material (sand, diatomite, universal binders).
 - Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
- **Advice on safe handling:** No special precautions are necessary if used correctly.
- **Hygiene measures:**
 - Do not inhale gases / fumes / aerosols.
 - Do not get in eyes, on skin, or on clothing.
 - Take off immediately all contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:**
 - Store away from metals.
 - Do not store together with acids.
- **Further information about storage conditions:**
 - Protect from heat and direct sunlight.
 - Protect from exposure to the light.
 - Protect from humidity and water.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 1310-73-2 sodium hydroxide

PEL (USA)	Long-term value: 2 mg/m ³
REL (USA)	Ceiling limit value: 2 mg/m ³
TLV (USA)	Ceiling limit value: 2 mg/m ³
EL (Canada)	Ceiling limit value: 2 mg/m ³
EV (Canada)	Ceiling limit value: 2 mg/m ³

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
 - Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
 - See item 7.
- **Personal protective equipment:**
- **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.

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- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
Alkaline resistant gloves
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level ≤ 1 (10 min)
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Tightly sealed goggles
- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:**
Do not allow product to reach sewage system or any water course.

* 9 Physical and chemical properties

· Information on basic physical and chemical properties	
· Appearance:	
Form / Physical state:	Fluid
Color:	Colorless
· Odor:	Odorless
· Odor threshold:	Not applicable.
· pH-value at 20 °C (68 °F):	~13,5 Strongly alkaline
· Melting point/freezing point:	Not determined.
· Initial boiling point and boiling range:	~100 °C (~212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gas):	Not applicable.
· Decomposition temperature:	Not applicable.
· Auto-ignition temperature:	Product is not self-igniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Flammability or explosive limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Oxidizing properties:	none
· Vapor Pressure:	Not determined.
· Density at 20 °C (68 °F):	1,07 g/cm ³ (8.93 lbs/gal)
· Relative density:	Not determined.
· Vapor density:	Not determined.
· Evaporation rate:	Not determined.
· Solubility(ies)	
Water:	Fully miscible.
· Partition coefficient (n-octanol/water): Not determined.	
· Viscosity:	Not determined.
· Solvent content:	
Organic solvents:	0,0 %
Water:	> 90 %
Solids content:	< 10 %
· Other information	No further relevant information available.

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10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
 - Corrosive action on metals.
 - Reacts with metals forming hydrogen (Danger of explosion!)
 - Corrodes aluminium and zinc.
 - Exothermic reaction with acids.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
 - metals
 - light metals
 - organic substances
 - aluminum
 - zinc
- **Hazardous decomposition products:** see section 5

*11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

· LD/LC50 values that are relevant for classification:

CAS: 1310-73-2 sodium hydroxide

Oral	LDLo	500 mg/kg (rabbit) (IUCLID)
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- **Primary irritant effect:**
 - **on the skin:** Causes severe skin burns.
 - **on the eye:** Causes serious eye damage. Risk of blindness!
- **Sensitization:** Based on available data, the classification criteria are not met.

· Information on components:

CAS: 1310-73-2 sodium hydroxide

Sensitization	Patch test (human)	(negative)
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· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Other information: see section 8 / 15

· Synergistic Products: None

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

· Additional toxicological information:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

CAS: 1310-73-2 sodium hydroxide

LC50 40.4 mg/l/48h (Ceriodaphnia sp.)
(ECHA)

- **Bacterial toxicity:**

CAS: 1310-73-2 sodium hydroxide

EC50 22 mg/l (Photobacterium phosphoreum) (15 min)

- **Persistence and degradability .**

- **Other information:**

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Other adverse effects**

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

Neutralization possible in waste water treatment plants.

Avoid transfer into the environment.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**

- **DOT, IMDG, IATA**

UN1824

- **UN proper shipping name**

- **DOT**

Sodium hydroxide solution

- **IMDG, IATA**

SODIUM HYDROXIDE SOLUTION

- **Transport hazard class(es)**

- **DOT**



- **Class**

8 Corrosive substances

- **Label**

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- **IMDG, IATA**



- **Class**

8 Corrosive substances

- **Label**

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· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	80
· EMS Number:	F-A,S-B
· Segregation groups	Alkalis
· Stowage Category	A
· Segregation Code	SG35 Stow "separated from" acids.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· Limited quantity (LQ):	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

*15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (Extremely hazardous substances):	
None of the ingredients is listed.	
· Section 313 (Specific toxic chemical listings):	
None of the ingredients is listed.	
· TSCA (Toxic Substances Control Act):	
All ingredients are listed.	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
· Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· New Jersey Right-to-Know List:	
CAS: 1310-73-2	sodium hydroxide
· New Jersey Special Hazardous Substance List:	
CAS: 1310-73-2	sodium hydroxide
	CO, R1
· Pennsylvania Right-to-Know List:	
CAS: 1310-73-2	sodium hydroxide
· Pennsylvania Special Hazardous Substance List:	
CAS: 1310-73-2	sodium hydroxide
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Reviewed on 11/24/2017

Trade name: Vario Sodium hydroxide 1.54N

(Contd. of page 7)

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· Information about limitation of use: Employment restrictions concerning young persons must be observed.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

* 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

· Date of preparation / last revision 11/24/2017 / 15

· Abbreviations and acronyms:

OECD: Organisation for Economic Co-operation and Development

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

EC50: half maximal effective concentration

IC50: half maximal inhibitory concentration

NOEL or NOEC: No Observed Effect Level or Concentration

ACGIH® - American Conference of Governmental Industrial Hygienists

•A1 - Confirmed human carcinogen

•A2 - Suspected human carcinogen

•A3 - Confirmed animal carcinogen with unknown relevance to humans

•A4 - Not classifiable as a human carcinogen

•A5 - Not suspected as a human carcinogen

IARC - International Agency for Research on Cancer

•Group 1 - Carcinogenic to humans

•Group 2A - Probably carcinogenic to humans

•Group 2B - Possibly carcinogenic to humans

•Group 3 - Not classifiable as to carcinogenicity to humans

•Group 4 - Probably not carcinogenic to humans

NTP - National Toxicology Program, U.S. Department of Health and Human Services

•Group K - Known to be Human Carcinogens

•Group R - Reasonably Anticipated to be Human Carcinogens

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Met. Corr.1: Corrosive to metals – Category 1

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

· Sources

Data arise from safety data sheets, reference works and literature.

IUCLID (International Uniform Chemical Information Database)

ECHA: European CHemicals Agency <http://echa.europa.eu>
· * Data compared to the previous version altered.

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 11/22/2017

Reviewed on 11/22/2017

1 Identification

- **Product identifier**
- **Trade name:** Vario Phosphate RGT F10 ml
- **Catalogue number:** 00531559, 531550, 531553, 4531550, 531551
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

* 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS05



GHS06

- **Signal word** Danger
- **Hazard-determining components of labeling:**
dipotassium disulfate
- **Hazard statements**
H331 Toxic if inhaled.
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
P261 Avoid breathing dust.
P280 Wear protective gloves/protective clothing/eye protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.

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Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 11/22/2017

Reviewed on 11/22/2017

Trade name: Vario Phosphate RGT F10 ml

(Contd. of page 1)

· **Other hazards** No further relevant information available.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of organic and inorganic compounds
- **Composition and Information on Ingredients:**
Percent ranges are used due to the confidential product information.

CAS: 7790-62-7 EINECS: 232-216-8	dipotassium disulfate	⚠ Acute Tox. 3, H331; ⚠ Skin Corr. 1A, H314; Eye Dam. 1, H318	70–80%
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- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air or oxygen; call for doctor.
- **After skin contact:**
Immediately rinse with plenty of water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
- **After eye contact:**
Rinse opened eye for several minutes (at least 15 min) under running water.
Call a doctor immediately.
- **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
Do not induce vomiting; immediately call for medical help.
- **Most important symptoms and effects, both acute and delayed**
burns
after inhalation:
coughing
breathing difficulty
resorption
after absorption of large amounts:
sickness
vomiting
gastric or intestinal disorders
drowsiness
dizziness
- **Danger:**
Danger of gastric perforation.
Danger of pulmonary edema.
- **Indication of any immediate medical attention and special treatment needed:**
If swallowed or in case of vomiting, danger of entering the lungs.
Later observation for pneumonia and pulmonary edema.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
Sulfur oxides (SO_x)
Potassium oxide
Carbon monoxide (CO) and carbon dioxide (CO₂)
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter the sewage system.

(Contd. on page 3)

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Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 11/22/2017

Reviewed on 11/22/2017

Trade name: Vario Phosphate RGT F10 ml

(Contd. of page 2)

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Avoid substance contact.
Ensure adequate ventilation
Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Pick up mechanically.
Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
- **Advice on safe handling:**
Open and handle receptacle with care.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
- **Hygiene measures:**
Do not inhale dust / smoke / mist.
Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing.
Wash hands before breaks and at the end of work.
Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store under lock and key and with access restricted to technical experts or their assistants only.
Protect from heat and direct sunlight.
Protect from exposure to the light.
Store in dry conditions.
Protect from humidity and water.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.
- **Personal protective equipment:**
- **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.

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Trade name: Vario Phosphate RGT F10 ml

(Contd. of page 3)

- **Recommended filter device for short term use:** Filter P3
- **Protection of hands:**
 - Protective gloves
 - Preventive skin protection by use of skin-protecting agents is recommended.
 - After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
 - Nitrile rubber, NBR
 - Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
 - Value for the permeation: Level ≤ 1 (10 min)
 - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Tightly sealed goggles
- **Body protection:** Acid resistant protective clothing
- **Limitation and supervision of exposure into the environment:** No further relevant information available.

9 Physical and chemical properties

· Information on basic physical and chemical properties	
· Appearance:	
Form / Physical state:	Powder
Color:	White
· Odor:	Odorless
· Odor threshold:	Not applicable.
· pH-value (31.3 g/l) at 20 °C (68 °F):	1,2
· Melting point/freezing point:	Not determined.
· Initial boiling point and boiling range:	Not determined.
· Flash point:	Not applicable.
· Flammability (solid, gas):	The product is not combustible.
· Decomposition temperature:	Not determined.
· Auto-ignition temperature:	Product is not self-igniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Flammability or explosive limits:	
Lower:	Not applicable.
Upper:	Not applicable.
· Oxidizing properties:	none
· Vapor Pressure:	Not applicable.
· Density at 20 °C (68 °F):	2,38 g/cm ³ (19.86 lbs/gal)
· Relative density:	Not determined.
· Vapor density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility(ies)	
Water:	Soluble.
· Partition coefficient (n-octanol/water):	Not applicable.
· Viscosity:	Not applicable.
· Dynamic:	Not applicable.
· Kinematic:	Not applicable.
· Solvent content:	
Organic solvents:	0,0 %
Solids content:	100,0 %
· Other information	No further relevant information available.

— US —

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 11/22/2017

Reviewed on 11/22/2017

Trade name: Vario Phosphate RGT F10 ml

(Contd. of page 4)

*10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability**
Stable at ambient temperature (room temperature).
sensitive to moisture
sensitivity to light
sensitive to air
- **Possibility of hazardous reactions** Aqueous solution reacts acidic.
- **Conditions to avoid** Strong heating (decomposition)
- **Incompatible materials:** metals
- **Hazardous decomposition products:** see section 5

*11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Classification according to calculation procedure.

· **Acute toxicity estimate (ATE_(MIX)) - Calculation method:**

Oral	GHS ATE _(MIX)	3565 mg/kg (.)
Inhalative	GHS ATE _(MIX)	0.7 mg/l/4h (dust)

· **LD/LC50 values that are relevant for classification:**

CAS: 7790-62-7 dipotassium disulfate

Oral	LD50	2500 mg/kg (ATE) (Read across 7664-93-9: LD ₅₀ (rat) = 2140 mg/kg, ECHA)
Inhalative	LC50	0.5 mg/l/4h (ATE) (Aerosol) (Read across 7664-93-9: LD ₅₀ (rat, 4h) = ~ 850 mg/m ³ , ECHA)

- **Primary irritant effect:**
- **on the skin:** Causes severe skin burns.
- **on the eye:**
Causes serious eye damage.
Risk of blindness!
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Other information:** see section 8 / 15

· **Synergistic Products:** None

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

· **Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.

(Contd. on page 6)

— US —

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 11/22/2017

Reviewed on 11/22/2017

Trade name: Vario Phosphate RGT F10 ml







(Contd. of page 5)

- **Bacterial toxicity:** sulfates toxic > 2.5 g/l
- **Other information:**
 - Toxic for fish:
 - sulfates > 7 g/l
 - molybdenum compounds in general: > 25 mg/l
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Other adverse effects**
 - Harmful effect due to pH shift.
 - Avoid transfer into the environment.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
 - Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	UN2923
· UN proper shipping name	
· DOT	Corrosive solids, toxic, n.o.s. (dipotassium disulfate)
· IMDG, IATA	CORROSIVE SOLID, TOXIC, N.O.S. (dipotassium disulfate)
· Transport hazard class(es)	
· DOT	
	
· Class	8 Corrosive substances
· Label	8, 6.1
· IMDG	
	
· Class	8 Corrosive substances
· Label	8/6.1
· IATA	
	
· Class	8 Corrosive substances
· Label	8 (6.1)
· Packing group	
· DOT, IMDG, IATA	II

(Contd. on page 7)

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acc. to OSHA HCS (HazCom 2012)

Printing date 11/22/2017

Reviewed on 11/22/2017

Trade name: Vario Phosphate RGT F10 ml

(Contd. of page 6)

· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	86
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 15 kg On cargo aircraft only: 50 kg
· Limited quantity (LQ):	1 kg
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· IMDG	
· Limited quantities (LQ)	1 kg
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g

* 15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
· Sara
· Section 355 (Extremely hazardous substances):
None of the ingredients is listed.
· Section 313 (Specific toxic chemical listings):
CAS: 28300-74-5 potassium antimony(III) oxide tartrate trihydrate
· TSCA (Toxic Substances Control Act):
All ingredients are listed.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.
· New Jersey Right-to-Know List:
CAS: 28300-74-5 potassium antimony(III) oxide tartrate trihydrate
· New Jersey Special Hazardous Substance List:
None of the ingredients is listed.
· Pennsylvania Right-to-Know List:
CAS: 28300-74-5 potassium antimony(III) oxide tartrate trihydrate
· Pennsylvania Special Hazardous Substance List:
CAS: 28300-74-5 potassium antimony(III) oxide tartrate trihydrate
· EPA (Environmental Protection Agency)
None of the ingredients is listed.

(Contd. on page 8)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 11/22/2017

Reviewed on 11/22/2017

Trade name: Vario Phosphate RGT F10 ml

(Contd. of page 7)

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

*16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H331 Toxic if inhaled.

· **Date of preparation / last revision** 11/22/2017 / 3

· Abbreviations and acronyms:

EC50: effective concentration, 50 percent (in vivo)

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

EC50: half maximal effective concentration

IC50: half maximal inhibitory concentration

NOEL or NOEC: No Observed Effect Level or Concentration

ACGIH® - American Conference of Governmental Industrial Hygienists

•A1 - Confirmed human carcinogen

•A2 - Suspected human carcinogen

•A3 - Confirmed animal carcinogen with unknown relevance to humans

•A4 - Not classifiable as a human carcinogen

•A5 - Not suspected as a human carcinogen

IARC - International Agency for Research on Cancer

•Group 1 - Carcinogenic to humans

•Group 2A - Probably carcinogenic to humans

•Group 2B - Possibly carcinogenic to humans

•Group 3 - Not classifiable as to carcinogenicity to humans

•Group 4 - Probably not carcinogenic to humans

NTP - National Toxicology Program, U.S. Department of Health and Human Services

•Group K - Known to be Human Carcinogens

•Group R - Reasonably Anticipated to be Human Carcinogens

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

· Sources

Data arise from safety data sheets, reference works and literature.

ECHA: European CHemicals Agency <http://echa.europa.eu>

· * **Data compared to the previous version altered.**

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/29/2017

1 Identification

- **Product identifier**
- **Trade name:** Vario Potassium Persulfate F 10
- **Catalogue number:** 00531569, 531560, 4531560, 531562
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS03 Flame over circle

Ox. Sol. 3 H272 May intensify fire; oxidizer.



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS03



GHS07



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
disodium peroxodisulphate
potassium persulphate
- **Hazard statements**
H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H315 Causes skin irritation.

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/29/2017

Trade name: Vario Potassium Persulfate F 10

(Contd. of page 1)

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

• Precautionary statements

P261 Avoid breathing dust.

P280 Wear protective gloves/protective clothing/eye protection.

P302+P352 If on skin: Wash with plenty of water.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.

• Other hazards No further relevant information available.

* 3 Composition/information on ingredients

• Chemical characterization: Mixtures**• Description:** Mixture of inorganic compounds.**• Composition and Information on Ingredients:**

Percent ranges are used due to the confidential product information.

CAS: 7775-27-1 EINECS: 231-892-1 RTECS: SE0525000	disodium peroxodisulphate ⚠ Ox. Sol. 3, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	90–100%
CAS: 7727-21-1 EINECS: 231-781-8 Index number: 016-061-00-1 RTECS: SE0400000	potassium persulphate ⚠ Ox. Sol. 3, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	5–10%

• Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

• Description of first aid measures**• General information:** Immediately remove any clothing soiled by the product.**• After inhalation:** Supply fresh air or oxygen; call for doctor.**• After skin contact:**

Immediately rinse with plenty of water.

If skin irritation continues, consult a doctor.

• After eye contact: Rinse opened eye for several minutes (at least 15 min) under running water. Then consult a doctor.**• After swallowing:**

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

• Most important symptoms and effects, both acute and delayed

allergic reactions

irritations

after inhalation:

coughing

breathing difficulty

after swallowing:

sickness

vomiting

gastric or intestinal disorders

mucous membrane irritation

headache

• Danger:

Danger of pulmonary edema.

risk of airways sensitization

risk of skin sensitization

• Indication of any immediate medical attention and special treatment needed: No further relevant information available.

— US —
(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/29/2017

Trade name: Vario Potassium Persulfate F 10

(Contd. of page 2)

* 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
 - The product is not combustible.
 - Has a fire-promoting effect due to release of oxygen.
 - Risk of dust explosion.
 - Formation of toxic gases is possible during heating or in case of fire.
 - In case of fire, the following can be released:
 - Sulfur oxides (SOx)
 - Sodium oxide
- **Advice for firefighters**
- **Protective equipment:**
 - Wear self-contained respiratory protective device.
 - Wear fully protective suit.
- **Additional information**
 - Collect contaminated fire fighting water separately. It must not enter the sewage system.
 - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
 - Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
 - Wear protective equipment. Keep unprotected persons away.
 - Ensure adequate ventilation
 - Avoid formation of dust.
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
 - Ensure adequate ventilation.
 - Pick up mechanically.
 - Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
- **Advice on safe handling:**
 - Ensure good ventilation/exhaustion at the workplace.
 - Thorough dedusting.
 - Prevent formation of dust.
- **Hygiene measures:**
 - Do not inhale dust / smoke / mist.
 - Avoid contact with the skin.
 - Avoid contact with the eyes.
 - Take off immediately all contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:**
 - Store away from flammable substances.
 - Store away from reducing agents.
- **Further information about storage conditions:**
 - Store in cool, dry conditions in well sealed receptacles.
 - Protect from heat and direct sunlight.

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US

Safety Data Sheet

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Printing date 09/29/2017

Reviewed on 09/29/2017

Trade name: Vario Potassium Persulfate F 10

(Contd. of page 3)

- Protect from exposure to the light.
- Store in dry conditions.
- Protect from humidity and water.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 7775-27-1 disodium peroxodisulphate

TLV (USA)	Long-term value: 0.1 mg/m ³ as Persulfates
EL (Canada)	Long-term value: 0.1 mg/m ³ as persulfate
EV (Canada)	Long-term value: 0.1 mg/m ³

CAS: 7727-21-1 potassium persulphate

TLV (USA)	Long-term value: 0.1 mg/m ³ as Persulfates
EL (Canada)	Long-term value: 0.1 mg/m ³ as persulfate
EV (Canada)	Long-term value: 0.1 mg/m ³

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.
- **Personal protective equipment:**
- **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
Protective gloves
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level ≤ 1 (10 min)
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:**
Do not allow product to reach sewage system or any water course.

* 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **Appearance:**

Form / Physical state:	Powder
Color:	White

- **Odor:** Odorless
- **Odor threshold:** Not applicable.

- **pH-value (9 g/l) at 20 °C (68 °F):** 4,2

- **Melting point/freezing point:** Not determined.
- **Initial boiling point and boiling range:** Not determined.

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Trade name: Vario Potassium Persulfate F 10

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· Flash point:	Not applicable.
· Flammability (solid, gas):	Contact with combustible material may cause fire.
· Ignition temperature:	Not applicable.
· Decomposition temperature:	> 100 °C (>212 °F) (CAS 7727-21-1)
· Auto-ignition temperature:	Product is not self-igniting.
· Danger of explosion:	Product does not present an explosion hazard. Risk of dust explosion if enriched with fine dust in the presence of air.
· Flammability or explosive limits:	
Lower:	Not determined.
Upper:	Not determined.
· Oxidizing properties:	May intensify fire; oxidizer.
· Vapor Pressure:	Not applicable.
· Density at 20 °C (68 °F):	2,41 g/cm ³ (20.11 lbs/gal)
· Relative density:	Not determined.
· Vapor density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility(ies)	
Water:	Soluble.
· Partition coefficient (n-octanol/water):	Not applicable.
· Viscosity:	Not applicable.
· Solvent content:	
Organic solvents:	0,0 %
Solids content:	100,0 %
· Other information	No further relevant information available.

* 10 Stability and reactivity

- **Reactivity** Risk of dust explosion.
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
 - Reacts with alcohols.
 - Reacts with reducing agents.
 - Reacts with heavy metals.
 - Reacts with strong acids and alkali.
- **Conditions to avoid**
 - Exposure to moisture.
 - Strong heating (decomposition)
- **Incompatible materials:** combustible materials
- **Hazardous decomposition products:**
 - oxygen
 - see section 5

* 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Classification according to calculation procedure.

· Acute toxicity estimate (ATE_(MIX)) - Calculation method:		
Oral	GHS ATE _(MIX)	908 mg/kg (.)
· LD/LC50 values that are relevant for classification:		
CAS: 7775-27-1 disodium peroxodisulphate		
Oral	LD50	920 mg/kg (rat)
Dermal	LD50	>10000 mg/kg (rabbit)

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Trade name: Vario Potassium Persulfate F 10

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Inhalative	LC50.	>5.1 mg/l/4h (rat) (ECHA: no deaths at this concentration LC ₀ = >5.1)
	LD50 IPR	226 mg/kg (mouse)
CAS: 7727-21-1 potassium persulphate		
Oral	LD50	802 mg/kg (rat)
Dermal	LD50	>10000 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Causes skin irritation.
- **on the eye:** Causes serious eye irritation.
- **Information on components:** CAS 7775-27-1: chronic: dermatitis
- **Sensitization:**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

- **Information on components:**

CAS: 7775-27-1 disodium peroxodisulphate

Sensitization | OECD 406 | (guinea pig: positive)

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

- **Other information:** see section 8 / 15

- **Synergistic Products:** None

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** May cause respiratory irritation.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Additional toxicological information:** Other dangerous properties can not be excluded.

*12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

CAS: 7775-27-1 disodium peroxodisulphate

EC50	133 mg/l/48h (Daphnia magna)
NOEC	91.7 mg/l/96h (rainbow trout) (ECHA)
NOEC	67.6 mg/l/48 h (Daphnia magna) (ECHA)
LC50	771 mg/l/96h (bluegill) 163 mg/l/96h (rainbow trout) (ECHA)

CAS: 7727-21-1 potassium persulphate

EC50	120 mg/l/48h (Daphnia magna)
------	------------------------------

- **Bacterial toxicity:**

CAS: 7727-21-1 potassium persulphate

EC50	83.7 mg/l (Bacterial toxicity) (72h)
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Trade name: Vario Potassium Persulfate F 10

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- **Other information:**

Toxic for fish:
sulfates > 7 g/l

- **Persistence and degradability .**

- **Other information:**

Mixture of inorganic compounds.
Methods for the determination of biodegradability are not applicable to inorganic substances.

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Other adverse effects**

Reacts with water to form toxic decomposition products.
Avoid transfer into the environment.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**



Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to hazardous waste disposers.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

*14 Transport information

• UN-Number	UN3215
• DOT, IMDG, IATA	
• UN proper shipping name	
• DOT	Persulfates, inorganic, n.o.s.
• IMDG, IATA	PERSULPHATES, INORGANIC, N.O.S.
• Transport hazard class(es)	
• DOT	
	
• Class	5.1 Oxidizing substances
• Label	5.1
• IMDG, IATA	
	
• Class	5.1 Oxidizing substances
• Label	5.1
• Packing group	
• DOT, IMDG, IATA	III
• Environmental hazards:	Not applicable.
• Special precautions for user	Warning: Oxidizing substances
• Danger code (Kemler):	50
• EMS Number:	F-A,S-Q
• Stowage Category	A

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Trade name: Vario Potassium Persulfate F 10

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• Segregation Code	SG40 Stow "separated from" ammonium compounds other than mixtures of ammonium persulphates and/or potassium persulphates and/or sodium persulphates. SG49 Stow "separated from" cyanides
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
• Transport/Additional information:	
• DOT	
• Quantity limitations	On passenger aircraft/rail: 25 kg On cargo aircraft only: 100 kg
• Limited quantity (LQ):	5 kg
• Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
• IMDG	
• Limited quantities (LQ)	5 kg
• Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g

*15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

• Section 355 (Extremely hazardous substances):

None of the ingredients is listed.

• Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

• TSCA (Toxic Substances Control Act):

All ingredients are listed.

• Proposition 65

• Chemicals known to cause cancer:

None of the ingredients is listed.

• Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

• Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

• Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

• New Jersey Right-to-Know List:

All ingredients are listed.

• New Jersey Special Hazardous Substance List:

None of the ingredients is listed.

• Pennsylvania Right-to-Know List:

CAS: 7727-21-1 | potassium persulphate

• Pennsylvania Special Hazardous Substance List:

None of the ingredients is listed.

• EPA (Environmental Protection Agency)

None of the ingredients is listed.

• NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

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Trade name: Vario Potassium Persulfate F 10

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- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H272 May intensify fire; oxidizer.
 H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.

- **Date of preparation / last revision** 09/29/2017 / 13

- **Abbreviations and acronyms:**

OECD: Organisation for Economic Co-operation and Development
 STOT: specific target organ toxicity
 SE: single exposure
 RE: repeated exposure
 EC50: half maximal effective concentration
 IC50: half maximal inhibitory concentration
 NOEL or NOEC: No Observed Effect Level or Concentration
 ACGIH® - American Conference of Governmental Industrial Hygienists
 •A1 - Confirmed human carcinogen
 •A2 - Suspected human carcinogen
 •A3 - Confirmed animal carcinogen with unknown relevance to humans
 •A4 - Not classifiable as a human carcinogen
 •A5 - Not suspected as a human carcinogen
 IARC - International Agency for Research on Cancer
 •Group 1 - Carcinogenic to humans
 •Group 2A - Probably carcinogenic to humans
 •Group 2B - Possibly carcinogenic to humans
 •Group 3 - Not classifiable as to carcinogenicity to humans
 •Group 4 - Probably not carcinogenic to humans
 NTP - National Toxicology Program, U.S. Department of Health and Human Services
 •Group K - Known to be Human Carcinogens
 •Group R - Reasonably Anticipated to be Human Carcinogens
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 NIOSH: National Institute for Occupational Safety
 OSHA: Occupational Safety & Health
 TLV: Threshold Limit Value
 PEL: Permissible Exposure Limit
 REL: Recommended Exposure Limit
 Ox. Sol. 3: Oxidizing solids – Category 3
 Acute Tox. 4: Acute toxicity – Category 4
 Skin Irrit. 2: Skin corrosion/irritation – Category 2
 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
 Resp. Sens. 1: Respiratory sensitisation – Category 1
 Skin Sens. 1: Skin sensitisation – Category 1
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

- **Sources**

Data arise from safety data sheets, reference works and literature.
 ECHA: European Chemicals Agency <http://echa.europa.eu>
 GESTIS- Stoffdatenbank (Substance Database, Germany)
 IUCLID (International Uniform Chemical Information Database)

- *** Data compared to the previous version altered.**

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 01/22/2019

Reviewed on 01/22/2019

1 Identification

- **Product identifier**
- **Trade name:** Hydrol./Total Phosphate Acid Reagent
- **Catalogue number:** 00531519, 531510, 424449, 5315110, 5315120, 00531520, 005315191
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Met. Corr.1 H290 May be corrosive to metals.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS05

- **Signal word** Warning
- **Hazard statements**
H290 May be corrosive to metals.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
- **Precautionary statements**
P234 Keep only in original container.
P280 Wear protective gloves / eye protection.
P302+P352 If on skin: Wash with plenty of water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P390 Absorb spillage to prevent material damage.
- **Other hazards** No further relevant information available.

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

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Reviewed on 01/22/2019

Trade name: Hydrol./Total Phosphate Acid Reagent

(Contd. of page 1)

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Description:** sulfuric acid solution

- **Composition and Information on Ingredients:**

Cancer Status IARC: Strong inorganic acid mists containing sulphuric acid can cause cancer.

Percent ranges are used due to the confidential product information.

CAS: 7664-93-9 EINECS: 231-639-5 Index number: 016-020-00-8 RTECS: WS5600000	sulphuric acid	Met. Corr.1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318	5–10%
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- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product.

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.

- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact:**

Rinse opened eye for several minutes (at least 15 min) under running water. If symptoms persist, consult a doctor.

- **After swallowing:**

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

- **Most important symptoms and effects, both acute and delayed**

irritations

after inhalation:

mucosal irritations, cough, breathing difficulty

after swallowing:

damage to the affected mucous membranes possible

sickness

vomiting

diarrhoea

- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

- **Special hazards arising from the substance or mixture**

The product is not combustible.

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Sulfur oxides (SOx)

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

- **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

- **Advice for non-emergency personnel:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

- **Advice for emergency responders:** Protective equipment: see section 8

- **Environmental precautions:** Do not allow product to reach sewage system or any water course.

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Trade name: Hydrol./Total Phosphate Acid Reagent

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- **Methods and material for containment and cleaning up:**
 - Ensure adequate ventilation.
 - Use neutralizing agent.
 - Neutralize with diluted sodium hydroxide solution.
 - Absorb with liquid-binding material (sand, diatomite, universal binders).
 - Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:** Ensure good ventilation/exhaustion at the workplace.
- **Hygiene measures:**
 - Avoid contact with the skin.
 - Avoid contact with the eyes.
 - Take off immediately all contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:**
 - Store away from metals.
 - Do not store together with alkalis (caustic solutions).
- **Further information about storage conditions:**
 - Protect from heat and direct sunlight.
 - Protect from exposure to the light.
 - Protect from humidity and water.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 7664-93-9 sulphuric acid

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 1 mg/m ³
TLV (USA)	Long-term value: 0.2* mg/m ³ *as thoracic fraction
EL (Canada)	Long-term value: 0.2 mg/m ³ ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m ³

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
 - Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
 - See item 7.
- **Personal protective equipment:**
- **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
 - Protective gloves
 - Preventive skin protection by use of skin-protecting agents is recommended.
 - After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
 - Nitrile rubber, NBR
 - Recommended thickness of the material: ≥ 0.11 mm

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Trade name: Hydrol./Total Phosphate Acid Reagent

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- **Penetration time of glove material**

Value for the permeation: Level ≤ 1 (10 min)

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing

- **Limitation and supervision of exposure into the environment:**

Do not allow product to reach sewage system or any water course.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **Appearance:**

Form / Physical state:	Fluid
Color:	Colorless

- **Odor:** Odorless

- **Odor threshold:** Not applicable.

- **pH-value at 20°C (68°F):** < 1

- **Melting point/freezing point:** Not determined.

- **Initial boiling point and boiling range:** Not determined.

- **Flash point:** Not applicable.

- **Flammability (solid, gas):** Not applicable.

- **Decomposition temperature:** Not determined.

- **Auto-ignition temperature:** Product is not self-igniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Flammability or explosive limits:**

Lower:	Not applicable.
Upper:	Not applicable.

- **Oxidizing properties:** none

- **Vapor Pressure:** Not determined.

- **Density at 20°C (68°F):** 1.059 g/cm³ (8.84 lbs/gal)

- **Relative density:** Not determined.

- **Vapor density:** Not determined.

- **Evaporation rate:** Not determined.

- **Solubility(ies)**

Water:	Fully miscible.
--------	-----------------

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:** Not determined.

- **Solvent content:**

Organic solvents:	0.0 %
Water:	> 90 %

- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"

- **Chemical stability** Stable at ambient temperature (room temperature).

- **Possibility of hazardous reactions**

Corrosive action on metals.

Reacts with metals forming hydrogen (Danger of explosion!)

Heating occurs when water is added.

Reacts with reducing agents.

Reacts with acids and alkali (lyes).

Reacts with ammonia (NH₃).

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Trade name: Hydrol./Total Phosphate Acid Reagent

(Contd. of page 4)

- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
 - metals
 - combustible materials
 - organic solvents
- **Hazardous decomposition products:** see section 5

*11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

· LD/LC50 values that are relevant for classification:

CAS: 7664-93-9 sulphuric acid

Oral	LD50	2140 mg/kg (rat) (IUCLID)
	LC 50	510 mg/m ³ /2h (rat) IUCLID

- **Primary irritant effect:**
 - **on the skin:** Causes skin irritation.
 - **on the eye:** Causes serious eye irritation.
- **Information on components:**
 - Skin irritation testing performed on 10% sulfuric acid showed slight to no irritation effects (GESTIS).
 - CAS 7664-93-3: chronic: dermatitis
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

CAS: 7664-93-9	sulphuric acid	1
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· NTP (National Toxicology Program)

CAS: 7664-93-9	sulphuric acid	K
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· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Other information:

see section 8 / 15

Cancer Status of Sulfuric acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.
A2 (Suspected for humans) by ACGIH

- **Synergistic Products:** None
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
 - Mists may be irritant to the mucous membranes and upper respiratory tract.
 - Sulfuric acid: erosion of the teeth, cancer

US
(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 01/22/2019

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Trade name: Hydrol./Total Phosphate Acid Reagent

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12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

CAS: 7664-93-9 sulphuric acid

EC50 >100 mg/l/48h (Daphnia magna) (OECD 202)
(ECHA)

LC50 16–29 mg/l/96h (bluegill)
(Merck)

- **Bacterial toxicity:** sulfates toxic > 2.5 g/l

- **Other information:**

Toxic for fish:

sulfates > 7 g/l

- **Persistence and degradability .**

- **Other information:**

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Other adverse effects**

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

Neutralization possible in waste water treatment plants.

Avoid transfer into the environment.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

*14 Transport information

- **UN-Number**

- **DOT, IMDG, IATA**

UN2796

- **UN proper shipping name**

- **DOT**

Sulfuric acid

- **IMDG, IATA**

SULPHURIC ACID

- **Transport hazard class(es)**

- **DOT, IMDG, IATA**



- **Class**

8 Corrosive substances

- **Label**

8

- **Packing group**

- **DOT, IMDG, IATA**

II

- **Environmental hazards:**

- **Marine pollutant:**

No

- **Special precautions for user**

Warning: Corrosive substances

- **Danger code (Kemler):**

80

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US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 01/22/2019

Reviewed on 01/22/2019

Trade name: Hydrol./Total Phosphate Acid Reagent

(Contd. of page 6)

· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Stowage Category	B
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (Extremely hazardous substances):

CAS: 7664-93-9 sulphuric acid

· Section 313 (Specific toxic chemical listings):

CAS: 7664-93-9 sulphuric acid

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· New Jersey Right-to-Know List:

CAS: 7664-93-9 sulphuric acid

· New Jersey Special Hazardous Substance List:

CAS: 7664-93-9 sulphuric acid

CA, CO, R2

· Pennsylvania Right-to-Know List:

CAS: 7664-93-9 sulphuric acid

· Pennsylvania Special Hazardous Substance List:

CAS: 7664-93-9 sulphuric acid

E

· Other Regulations

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 01/22/2019

Reviewed on 01/22/2019

Trade name: Hydrol./Total Phosphate Acid Reagent

(Contd. of page 7)

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• Relevant phrases

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

• Date of preparation / last revision 01/22/2019 / 24

• Abbreviations and acronyms:

ICAO: International Civil Aviation Organisation
EC50: effective concentration, 50 percent (in vivo)
OECD: Organisation for Economic Co-operation and Development
STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: half maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
ACGIH® - American Conference of Governmental Industrial Hygienists
•A1 - Confirmed human carcinogen
•A2 - Suspected human carcinogen
•A3 - Confirmed animal carcinogen with unknown relevance to humans
•A4 - Not classifiable as a human carcinogen
•A5 - Not suspected as a human carcinogen
IARC - International Agency for Research on Cancer
•Group 1 - Carcinogenic to humans
•Group 2A - Probably carcinogenic to humans
•Group 2B - Possibly carcinogenic to humans
•Group 3 - Not classifiable as to carcinogenicity to humans
•Group 4 - Probably not carcinogenic to humans
NTP - National Toxicology Program, U.S. Department of Health and Human Services
•Group K - Known to be Human Carcinogens
•Group R - Reasonably Anticipated to be Human Carcinogens
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Met. Corr. 1: Corrosive to metals – Category 1
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

• Sources

Data arise from safety data sheets, reference works and literature.
GESTIS- Stoffdatenbank (Substance Database, Germany)
IUCLID (International Uniform Chemical Information Database)
International Chemical Safety Cards (ICSCs)

• * Data compared to the previous version altered.