Safety Data Sheet

acc. to OSHA HCS

Printing date 08/01/2019 Reviewed on 08/01/2019

* 1 Identification

• **Product identifier**

• Trade name: R-PO4/1-2A
• Article number: 827522Y

• Description: Reagent solution for phosphate analyzer
• Application of the substance / the preparation: Phosphate measurement with analyzer

• **Details of the supplier of the safety data sheet**

• Manufacturer/Supplier:

YSI
1725 Brannum Lane
Yellow Springs, OH 45387
USA
phone: +1 937-767-7241

• Information department: Email: MSDSinfo@ysi.com

• Emergency telephone number: Chemtrec: (USA & Canada) 800-424-9300 (International) 001 703-527-3887

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. 2 H319 Causes serious eye irritation.

• **Label elements:**
• GHS label elements: The product is classified and labeled according to the Globally Harmonized System (GHS).
• 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:
P280 Wear protective clothing / eye protection.
P302+P352 If on skin: Wash with plenty of soap and 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.

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• **Classification system:**
• NFPA ratings (scale 0 - 4)

Health = 3
Fire = 0
Reactivity = 0

• HMIS-ratings (scale 0 - 4)

Health = 3
Fire = 0
Reactivity = 0

• **Other hazards** No further relevant information available.
• Results of PBT and vPvB assessment
• PBT: Not applicable.
• vPvB: Not applicable.

3 Composition/information on ingredients

• **Mixture**
• Description:
Mixture of the substances listed below with nonhazardous additions.
Water, sulphuric acid, ammonium monovanadate

• Dangerous components:		
7664-93-9	sulphuric acid	5 - < 10%
7803-55-6	ammonium monovanadate	0.1 - < 1%

4 First-aid measures

• **Description of first aid measures**
• After inhalation: Supply fresh air; consult doctor in case of complaints.
• After skin contact:
Wash with plenty of soap and water.
Take off contaminated clothing.
If skin irritation or rash occurs: Get medical advice/attention.
• After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
• After swallowing:
Rinse out mouth and then drink plenty of water.
Do not induce vomiting (risk of perforation)
Do not attempt to neutralize.
Call a doctor immediately.
• Information for doctor:
• 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: The product is not flammable. Extinguishing agent to suit environment.
• **Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Sulfur oxides (SOx)
Vanadium oxide compounds

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- **Advice for firefighters**
- Protective equipment:
  Wear self-contained respiratory protective device.
  Wear chemical protective clothing in the case of heavy toxic load.
- **Additional information** Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  Wear personal protective equipment (see section 8).
- **Environmental precautions:**
  Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Methods and material for containment and cleaning up:**
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose contaminated material as waste according to item 13.
  Wash off residuals with water.
- **Reference to other sections**
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

• PAC-1:		
7664-93-9	sulphuric acid	0.20 mg/m³
12054-85-2	Ammoniumheptamolybdat-Tetrahydrat	2.8 mg/m³
7803-55-6	ammonium monovanadate	0.01 mg/m³

• PAC-2:		
7664-93-9	sulphuric acid	8.7 mg/m³
12054-85-2	Ammoniumheptamolybdat-Tetrahydrat	30 mg/m³
7803-55-6	ammonium monovanadate	0.11 mg/m³

• PAC-3:		
7664-93-9	sulphuric acid	160 mg/m³
12054-85-2	Ammoniumheptamolybdat-Tetrahydrat	180 mg/m³
7803-55-6	ammonium monovanadate	80 mg/m³

7 Handling and storage

- **Handling:**
- Precautions for safe handling Wear personal protective equipment (see section 8)
- Information about protection against explosions and fires: No special measures required.

- **Conditions for safe storage, including any incompatibilities**
- Requirements to be met by storerooms and receptacles: Do not use light alloy receptacles.
- Information about storage in one common storage facility: Not required.
- Further information about storage conditions:
  Store receptacle in a well ventilated area.
  Store tigthly sealed at temperatures between 15 °C and 25 °C.
- **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

• **Additional information about design of technical systems:** No further data; see item 7.

• **Control parameters**

• Components with limit values that require monitoring at the workplace:	
7664-93-9 sulphuric acid	
PEL	Long-term value: 1 mg/m³
REL	Long-term value: 1 mg/m³
TLV	Long-term value: 0.2* mg/m³ *as thoracic fraction

• Additional information: The lists that were valid during the creation were used as basis.

• **Exposure controls**
• Personal protective equipment:
• General protective and hygienic measures:
Avoid contact with the eyes and skin.
Do not inhale gases / fumes / aerosols.
Take off contaminated clothing and wash it before reuse.
Wash hands before breaks and at the end of work.
• Breathing equipment: Use suitable respiratory protective device only when aerosol or mist is formed.
• Recommended filter device for short term use: Combination filter E-P2
• Protection of hands: Protective gloves
• Material of gloves
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
• Eye protection: Safety glasses

9 Physical and chemical properties

• **Information on basic physical and chemical properties**	
• General Information	
• Appearance:	
Form:	Liquid
Color:	Light yellow
• Odor:	Odorless
• pH-value at 20 °C (68 °F):	0
• Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
• Flash point:	Not applicable.
• Auto igniting:	Product is not selfigniting.
• Danger of explosion:	Product does not present an explosion hazard.
• Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
• Density at 20 °C (68 °F):	1.25 g/cm³ (10.43 lbs/gal)

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• Solubility in / Miscibility with Water:	Fully miscible.
• Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
• **Other information**	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- **Possibility of hazardous reactions** Formation of hydrogen possible with metals and alloys (risk of explosion).
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
  Alkalis
  Metals
- **Hazardous decomposition products:** In case of fire, see section 5.

11 Toxicological information

- **Information on toxicological effects**
- Acute toxicity:

• LD/LC50 values that are relevant for classification:		
7664-93-9 sulphuric acid		
Oral	LD50	2140 mg/kg (Rat) (RTECS)
Inhalative	LC50	510 mg/m³, 2 h (Rat) (RTECS)
7803-55-6 ammonium monovanadate		
Oral	LD50	169 mg/kg (Rat) (OECD)
Dermal	LD50	> 2500 mg/kg (Rat) (OECD)
Inhalative	LC50	2.5 mg/l, 4 h (Rat) (OECD)

- Primary irritant effect:
- on the skin: Strong caustic effect on skin and mucous membranes.
- on the eye: Strong caustic effect.
- Sensitization: No sensitizing effects known.

- Additional toxicological information:

- Carcinogenic categories

• IARC (International Agency for Research on Cancer)		
7664-93-9	sulphuric acid	1

• NTP (National Toxicology Program)		
7664-93-9	sulphuric acid	K

• OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

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12 Ecological information

- **Toxicity**

• Aquatic toxicity:	
7664-93-9 sulphuric acid	
EC50	29 mg/l, 24 h (Daphnia magna)
LC50	16 - 29 mg/l, 96 h (Lepomis macrochirus)
7803-55-6 ammonium monovanadate	
LC50	2.6 mg/l, 96 h (Ictalurus catus) (ECOTOX)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- Bioaccumulative potential No further relevant information available.
- Mobility in soil No further relevant information available.
- **Additional ecological information:**
- General notes:
  Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
- **Results of PBT and vPvB assessment** Not applicable.
- PBT: Not applicable.
- vPvB: Not applicable.
- **Other adverse effects**
- General notes:
  Water hazard class 1 (Self-assessment): slightly hazardous for water
  Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

- **Waste treatment methods**
- Recommendation:
  Disposal must comply with the relevant local regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose the special waste.

- **Uncleaned packagings:**
- Recommendation:
  Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.
  Packagings that cannot be cleansed are to be disposed of in the same manner as the product.
- Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

• **UN-Number**	
• DOT, ADR/RID, IMDG, IATA	UN2796
• **UN proper shipping name**	
• DOT	Sulfuric acid
• ADR/RID	SCHWEFELSÄURE
• IMDG, IATA	SULPHURIC ACID

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• **Transport hazard class(es)**

• DOT

• Class	8 Corrosive substances
• Label	8

• ADR/RID, IMDG, IATA

• Class	8 Corrosive substances
• Label	8

• **Packing group**	
• DOT, ADR/RID, IMDG, IATA	II
• **Environmental hazards:**	
• Marine pollutant:	No
• **Special precautions for user**	Not applicable. Warning: Corrosive substances
• Danger code (Kemler):	80
• 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.
• ADR/RID	
• Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
• **UN "Model Regulation":**	UN 2796 SULPHURIC ACID, 8, II

15 Regulatory information

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

• Sara

• Section 355 (extremely hazardous substances):	
7664-93-9	sulphuric acid

• Section 313 (Specific toxic chemical listings):	
7664-93-9	sulphuric acid
7803-55-6	ammonium monovanadate

• TSCA (Toxic Substances Control Act):		
7664-93-9	sulphuric acid	ACTIVE

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7803-55-6	ammonium monovanadate	ACTIVE
7732-18-5	water, distilled, conductivity or of similar purity	ACTIVE

• Hazardous Air Pollutants

None of the ingredients is 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.

• Cancerogenity categories

• EPA (Environmental Protection Agency)

None of the ingredients is listed.

• TLV (Threshold Limit Value established by ACGIH)

7664-93-9	sulphuric acid	A2

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

None of the ingredients is listed.

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

16 Other information

• Date of preparation / last revision 08/01/2019 / -

• Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
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)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
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 Irrit. 2: Skin corrosion/irritation – Category 2

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Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

• * Data compared to the previous version altered.