

### Safety Data Sheet acc. to ISO/DIS 11014

Printing date 03/13/2014

Reviewed on 03/13/2014

#### \* 1 Identification

- **Product identifier**
- **Trade name:** Vario Total Nitrogen Acid LR/HR Vial
- **Catalogue number:** 00530409, 530400, 424487, 4530400
- **Relevant identified uses of the substance or mixture and uses advised against:** No further relevant information available.
- **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 (International) +1 (703) 527-3887

#### \* 2 Hazard(s) identification

- **Classification of the substance or mixture**

US-GHS



GHS05 Corrosion

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

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



C; Corrosive

R35: Causes severe burns.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS05
- **Signal word** Danger
- **Hazard-determining components of labeling:**  
sulphuric acid
- **Hazard statements**  
H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**  
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P309 IF exposed or if you feel unwell:  
P310 Immediately call a POISON CENTER/doctor.  
P405 Store locked up.

- **Canadian Hazard Symbols:**



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- **WHMIS classification:**

D1A

Very toxic material causing immediate and serious toxic effects

E

Corrosive material

- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 2

The substance demonstrates unusual reactivity with water.

### \* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Description:** sulfuric acid solution

- **Composition and Information on Ingredients:**

CAS: 7664-93-9 EINECS: 231-639-5 Index number: 016-020-00-8 RTECS: WS5600000	sulphuric acid	C R35 Met. Corr. 1, H290; Skin Corr. 1A, H314	80-90%
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- **REACH - pre-registered substances** All components are REACH pre-registered.

- **Additional information:** For the wording of the listed risk 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.

In case of unconsciousness remove to fresh air, apply artificial respiration, and consult a physician.

- **After skin contact:**

Wash with polyethylene glycol 400 and then rinse with copious amounts of water.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

- **After eye contact:**

Rinse opened eye for several minutes (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**

after inhalation:

damage to the affected mucous membranes

coughing

breathing difficulty

after swallowing:

diarrhoea

pain

sickness

vomiting

cramps

- **Danger:**

Danger of impaired breathing.

Danger of gastric perforation.

- **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.

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### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.  
nitrous gases  
Sulfur oxides (SO<sub>x</sub>)  
Hydrogen
- **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.

### \* 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Neutralize with diluted sodium hydroxide solution.  
Absorb with liquid-binding material (sand, diatomite, universal binders).
- **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.

### \* 7 Handling and storage

- **Precautions for safe handling** Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Protect from heat.  
The product is not flammable.
- **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 water  
store away from metals
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in dry conditions.  
This product is hygroscopic.  
Protect from heat and direct sunlight.
- **Recommended storage temperature:** 20 °C +/- 5 °C (approx. 68°F)
- **Storage class:** 8 B
- **Specific end use(s)** No further relevant information available.

### \* 8 Exposure controls/personal protection

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

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### · Control parameters

#### · Components with limit values that require monitoring at the workplace:

##### 7664-93-9 sulphuric acid (80-90%)

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

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

### · Exposure controls

#### · Personal protective equipment:

#### · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes and skin.  
Do not eat, drink, smoke or sniff while working.

#### · Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

#### · Recommended filter device for short term use: Filter B

#### · Protection of hands:

Acid 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

Butyl rubber, BR  
Recommended thickness of the material:  $\geq 0.7$  mm

#### · Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.  
Value for the permeation: Level  $\leq 1$  (10 min)

#### · Eye protection: Tightly sealed goggles

#### · Body protection: Acid resistant protective clothing

## \* 9 Physical and chemical properties

### · Information on basic physical and chemical properties

· <b>Odor Threshold:</b>	Not applicable.
· <b>Appearance:</b>	
· <b>Form:</b>	Fluid
· <b>Color:</b>	Clear
· <b>Odor:</b>	Recognizable
· <b>pH-value at 20 °C (68 °F):</b>	< 1
· <b>Melting point/Melting range:</b>	Undetermined.
· <b>Boiling point/Boiling range:</b>	Undetermined.
· <b>Freezing Point:</b>	Not applicable.
· <b>Flash point:</b>	Not applicable.
· <b>Ignition temperature:</b>	Undetermined.
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Specific Gravity:</b>	Not applicable.
· <b>Density at 20 °C (68 °F):</b>	1.748 g/cm <sup>3</sup> (14.587 lbs/gal)
· <b>Vapour density</b>	Not determined.

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· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible.
· <b>Coefficient of Water / Oil Distribution:</b>	Not applicable.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>Water:</b>	< 20 %
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity**
- **Thermal decomposition / conditions to be avoided:** strong heating
- **Possibility of hazardous reactions**  
Heating occurs when water is added.  
Corrosive action on metals.  
When diluting, always add acid to water, never vice versa.  
Reacts with metals forming hydrogen (Danger of explosion!)  
Reacts with organic substances.  
Diluting or dissolving in water always causes rapid heating.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**  
Ammonia (NH<sub>3</sub>)  
alkali compounds  
alkalis  
acids  
metals  
halogen compounds  
combustible materials  
organic solvents  
nitriles  
peroxides  
oxidizing agents
- **Hazardous decomposition products:**  
hydrogen  
nitrous gases  
Sulfur oxides (SO<sub>x</sub>)

## \* 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**  
Quantitative data on the toxicity of the preparation are not available.  
The following statements refer to the individual components.

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

7664-93-9 sulphuric acid		
Oral	LD50	2140 mg/kg (rat) (IUCLID)
Inhalative	LC 50	510 (pure) mg/m <sup>3</sup> /2h (rat) IUCLID

- **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.
- **Subacute to chronic toxicity:** sulfuric acid: erosion of the teeth, cancer
- **Additional toxicological information:**  
Corrosive  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.  
chronic: dermatitis

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Mists may be irritant to the mucous membranes and upper respiratory tract.

- **Carcinogenic categories**

· <b>IARC (International Agency for Research on Cancer)</b>	
7664-93-9	sulphuric acid
1	
· <b>NTP (National Toxicology Program)</b>	
7664-93-9	sulphuric acid
K	

- **Carcinogenicity: NTP? IARC Monographs? OSHA Regulated?**

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

- **Teratogenicity:** Not found.

- **Mutagenicity:** Not found.

- **Reproductive Toxicity:** Not found.

- **Synergistic Products:** None

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

CAS-No. 7664-93-9:

carcinogenic: Category 4

## \*12 Ecological information

- **Toxicity**

· <b>Aquatic toxicity:</b>	
7664-93-9 sulphuric acid	
Daphnia EC50	29 mg/l/24h (Daphnia magna)
LC50	16-29 mg/l/96h (Lepomis macrochirus)
MERCK	

- **Persistence and degradability** No further relevant information available.

- **Other information:** Does not cause biologic oxygen deficit.

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

- **Behavior in environmental systems:**

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

- **Ecotoxicological effects:**

- **Remark:**

Forms corrosive mixtures with water even if diluted.

Harmful effect due to pH shift.

- **Remark:** neutralization possible

- **Additional ecological information:**

- **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.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- **Results of PBT and vPvB assessment** no further data available

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

## 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.

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## \*14 Transport information

<ul style="list-style-type: none"> <li>· UN-Number</li> <li>· DOT, ADR, IMDG, IATA</li> </ul>	UN1830
<ul style="list-style-type: none"> <li>· UN proper shipping name</li> <li>· DOT / TDG</li> <li>· ADR</li> <li>· IMDG</li> <li>· IATA</li> </ul>	Sulfuric acid 1830 Sulfuric acid SULPHURIC ACID none SULPHURIC ACID
<ul style="list-style-type: none"> <li>· Transport hazard class(es)</li> <li>· DOT / TDG</li> </ul>	<div style="text-align: center;">  <p>8</p> </div>
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	8 Corrosive substances. 8
<ul style="list-style-type: none"> <li>· ADR</li> </ul>	<div style="text-align: center;">  <p>8</p> </div>
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	8 (C1) Corrosive substances 8
<ul style="list-style-type: none"> <li>· IMDG, IATA</li> </ul>	<div style="text-align: center;">  <p>8</p> </div>
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	8 Corrosive substances. 8
<ul style="list-style-type: none"> <li>· Packing group</li> <li>· DOT, ADR, IMDG, IATA</li> </ul>	II
<ul style="list-style-type: none"> <li>· Environmental hazards:</li> <li>· Marine pollutant:</li> </ul>	No
<ul style="list-style-type: none"> <li>· Special precautions for user</li> <li>· Danger code (Kemler):</li> <li>· EMS Number:</li> <li>· Segregation groups</li> </ul>	Warning: Corrosive substances 80 F-A,S-B Acids
<ul style="list-style-type: none"> <li>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</li> </ul>	Not applicable.
<ul style="list-style-type: none"> <li>· Transport/Additional information:</li> </ul>	
<ul style="list-style-type: none"> <li>· ADR</li> <li>· Limited quantity (LQ):</li> </ul>	1L

## \*15 Regulatory information

<ul style="list-style-type: none"> <li>· Safety, health and environmental regulations/legislation specific for the substance or mixture</li> <li>· Sara</li> </ul>	
<ul style="list-style-type: none"> <li>· Section 355 (Extremely hazardous substances):</li> </ul>	
7664-93-9	sulphuric acid
<ul style="list-style-type: none"> <li>· Section 313 (Specific toxic chemical listings):</li> </ul>	
7664-93-9	sulphuric acid

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<b>· TSCA (Toxic Substances Control Act):</b>	
All ingredients are listed.	
<b>· Proposition 65</b>	
<b>· Chemicals known to cause cancer:</b>	
None of the ingredients is listed.	
<b>· Chemicals known to cause reproductive toxicity for females:</b>	
None of the ingredients is listed.	
<b>· Chemicals known to cause reproductive toxicity for males:</b>	
None of the ingredients is listed.	
<b>· Chemicals known to cause developmental toxicity:</b>	
None of the ingredients is listed.	
<b>· Canadian Ingredient Disclosure List</b>	
<b>· Limit 0,1%</b>	
None of the ingredients is listed.	
<b>· Limit 1%</b>	
7664-93-9	sulphuric acid
<b>· Canadian Domestic Substances List (DSL)</b>	
All ingredients are listed.	
<b>· Canadian Non-domestic Substance List</b>	
None of the ingredients is listed.	
<b>· EPA (Environmental Protection Agency)</b>	
None of the ingredients is listed.	
<b>· NIOSH-Ca (National Institute for Occupational Safety and Health)</b>	
None of the ingredients is listed.	
<b>· OSHA-Ca (Occupational Safety &amp; Health Administration)</b>	
None of the ingredients is listed.	
<b>· Australian Inventory of Chemical Substances</b>	
All ingredients are listed.	
<b>· European EINECS</b>	
All ingredients are listed.	
<b>· Standard for the Uniform Scheduling of Drugs and Poisons</b>	
7664-93-9	sulphuric acid
	S6

- **Information about limitation of use:** Employment restrictions concerning young persons must be observed.
- **This product has been classified in accordance with the hazard criteria of the CPR and the SDS contains all of the information required by the CPR**
- **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.  
R35 Causes severe burns.
- **Date of preparation / last revision** 03/13/2014 / 14
- **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 Organization  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
EC50: effective concentration, 50 percent (in vivo)

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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

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)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

**• Sources**

CSST (Service du répertoire toxicologique)

IUCLID (International Uniform Chemical Information Database)

International Chemical Safety Cards (ICSCs)

Data arise from manufacturers' data sheets, reference works and literature.

**• \* Data compared to the previous version altered.**

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