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

Printing date 08/23/2021 Reviewed on 08/23/2021

1 Identification

· **Product identifier**

· **Trade name: Vario Alkali Solution**

· **Catalogue number:** 424326, 531450, 531450-0

· **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**

P260	Do not breathe mist/vapours/spray.
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.
P310	Immediately call a doctor.
P390	Absorb spillage to prevent material damage.

· **Other hazards**
Acid burns have to treated immediately, as it may otherwise cause badly curing wounds.
Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.

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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	20–30%
CAS: 102-71-6 EINECS: 203-049-8 RTECS: KL9275000	Triethanolamine		10–20%

· **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:
mucosal irritations, cough, breathing difficulty
damage to the affected mucous membranes possible
fatigue
dizziness
after swallowing:
strong caustic effect
sickness
vomiting
diarrhoea
pain
· **Danger:**
Danger of gastric perforation.
Risk of serious damage to eyes.
· **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**
Can form explosive gas-air mixtures.
mixture with combustible ingredients
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
nitrous gases

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Nitrogen oxides (NOx)
Carbon monoxide (CO) and carbon dioxide (CO_2)
· **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.
Avoid substance contact.
Ensure adequate ventilation
Use respiratory protective device against the effects of fume/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

· **Precautions for safe handling**
· **Advice on safe handling:**
Use only in well ventilated areas.
Prevent formation of aerosols.
· **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**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Keep only in original container.
Do not use light alloy receptacles.
· **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.

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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/m³
REL (USA)	Ceiling limit value: 2 mg/m³
TLV (USA)	Ceiling limit value: 2 mg/m³
EL (Canada)	Ceiling limit value: 2 mg/m³
EV (Canada)	Ceiling limit value: 2 mg/m³
CAS: 102-71-6 Triethanolamine	
TLV (USA)	Long-term value: 5 mg/m³
EL (Canada)	Long-term value: 5 mg/m³
EV (Canada)	Long-term value: 3.1 mg/m³, 0.5 ppm

· **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:**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
· **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
· **Recommended filter device for short term use:** Combination filter A-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**
Fluorocarbon rubber (Viton)
Recommended thickness of the material: ≥ 0.7 mm
· **Penetration time of glove material**
Breakthrough time: > 480 min
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **As protection from splashes gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
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:** Alkaline resistant protective 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:**	Solution
· **Color:**	Light yellow
· **Odor:**	Odorless
· **Odor threshold:**	Not applicable.
· **pH-value at 20°C (68°F):**	13 Strongly alkaline
· **Melting point/freezing point:**	Not determined.
· **Initial boiling point and boiling range:**	Not determined.
· **Flash point:**	179°C (354.2°F) (CAS: 102-71-6 Triethanolamine)
· **Flammability (solid, gas):**	mixture with combustible ingredients
· **Ignition temperature:**	324°C (615.2°F) (CAS: 102-71-6 Triethanolamine)

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· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not self-igniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Flammability or explosive limits:**	
· **Lower:**	3.6 Vol % (CAS: 102-71-6 Triethanolamine)
· **Upper:**	7.2 Vol % (CAS: 102-71-6 Triethanolamine)
· **Oxidizing properties:**	none
· **Vapor Pressure:**	Not determined.
· **Density at 20°C (68°F):**	~1.27 g/cm³ (~10.6 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 (mixture).
· **Viscosity:**	
· **Kinematic:**	Not determined.
· **Other information**	
· **Solids content:**	20-30 %
· **Solvent content:**	
· **Organic solvents:**	10-20 %
· **Water:**	60-70 %

10 Stability and reactivity

· **Reactivity** Fumes can combine with air to form an explosive mixture.
· **Chemical stability** Stable at ambient temperature (room temperature).
· **Possibility of hazardous reactions**
Corrosive action on metals.
Reacts with metals forming hydrogen (Danger of explosion!)
In contact with nitrites, nitrates or nitrous acid possible release of nitrosamines (carcinogenic)!
Corrodes aluminium and zinc.
Reacts with oxidizing agents.
Exothermic reaction with acids.
· **Conditions to avoid** Strong heating (decomposition)
· **Incompatible materials:**
metals
light metals
organic substances
aluminum
zinc
non-ferrous metal
· **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)
CAS: 102-71-6 Triethanolamine		
Oral	LD50	7200 mg/kg (rat) (BASF-Test)
Dermal	LD50	22500 mg/kg (rabbit) (GESTIS)

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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)
CAS: 102-71-6 Triethanolamine		
Sensitization	OECD 406	(guinea pig: negative)

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
CAS: 102-71-6	Triethanolamine	3

· **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 (carcinogenity, 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:**
Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
CAS 102-71-6 is skin-resorbing.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**	
CAS: 1310-73-2 sodium hydroxide	
LC50	40.4 mg/l/48h (Ceriodaphnia sp.) (ECHA)
CAS: 102-71-6 Triethanolamine	
EC50	2038 mg/l/24h (Daphnia magna)
NOEC	16 mg/l (Daphnia magna) 21d
EC50	512 mg/l/72h (Scenedesmus subspicatus) (BASF)
LC50	450–1000 mg/l/96h (bluegill)
	11800 mg/l/96h (fathhead minnow) (BASF)

· **Bacterial toxicity:**	
CAS: 1310-73-2 sodium hydroxide	
EC50	22 mg/l (Photobacterium phosphoreum) (15 min)

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CAS: 102-71-6 Triethanolamine	
EC5	>10000 mg/l (Pseudomonas putida) (16h) (IUCLID)

· **Persistence and degradability**

CAS: 102-71-6 Triethanolamine	
OECD 301 E	96 % (readily biodegradable) (Modified OECD Screening Test)
OECD 302 B	82 % / 8 d (readily eliminated from water) (Zahn-Wellens / EMPA Test)

· **Bioaccumulative potential**

CAS: 102-71-6 Triethanolamine	
log Pow	-2.3 (.) (OECD 107, 25°C)

· **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.
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** · **IMDG, IATA**	Sodium hydroxide solution SODIUM HYDROXIDE SOLUTION
· **Transport hazard class(es)**	
· **DOT**	
· **Class** · **Label**	8 Corrosive substances 8
· **IMDG, IATA**	
· **Class** · **Label**	8 Corrosive substances 8
· **Packing group** · **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user** · **Hazard identification number (Kemler code):**	Warning: Corrosive substances 80

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· **EMS Number:**	F-A,S-B
· **Segregation groups**	Alkalis
· **Stowage Category**	A
· **Segregation Code**	SG35 Stow "separated from" SGG1-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
· **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 components have the value 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.

· **New Jersey Right-to-Know List:**

CAS: 1310-73-2	sodium hydroxide
CAS: 102-71-6	Triethanolamine

· **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
CAS: 102-71-6	Triethanolamine

· **Pennsylvania Special Hazardous Substance List:**

CAS: 1310-73-2	sodium hydroxide	E

· **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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· **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** 08/23/2021 / -

· **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: hallf 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.