

SAFETY DATA SHEET

Issue Date 16-Aug-2018 **Revision Date** 26-Jan-2024 **Version** 1.7 **Page** 1 / 13

1. IDENTIFICATION

Product identifier

Product Name Arsenic Reference Standard Solution 1000 ± 10 mg/l

Other means of identification

Product Code(s) 1457142

Safety data sheet number M00697

Recommended use of the chemical and restrictions on use

Recommended Use Water Analysis. Standard solution.

Uses advised against

Restrictions on use For Research and Development Only.

Details of the supplier of the safety data sheet

Manufacturer Address

Hach Company, P.O.Box 389, Loveland, CO 80539, USA, +1(970) 669-3050

Emergency telephone number

+1(303) 623-5716 - 24 Hour Service

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity Category 1A

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word

Danger



Hazard statements

H350 - May cause cancer

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Precautionary statements

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P201 - Obtain special instructions before use

P281 - Use personal protective equipment as required

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P405 - Store locked up

P501 - Dispose of contents/ container to an approved waste disposal plant

Other Hazards Known

Causes mild skin irritation

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No	Percent Range	HMRIC #
Sodium hydroxide	1310-73-2	<1%	-
Arsenic oxide (As2O3)	1327-53-3	<1%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice IF exposed or concerned: Get medical advice/attention.

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.

Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11 for additional Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

surrounding environment.

Unsuitable Extinguishing Media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the No information available.

chemical

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Hazardous combustion products No information available.

Special protective equipment for

fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice Only persons properly qualified to respond to an emergency involving hazardous

substances may respond to a spill according to federal regulations (OSHA 29 CFR

1910.120(a)(v)) and per your company's emergency response plan and

guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should

respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder,

sawdust). Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with

skin, eyes or clothing.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Sodium hydroxide	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³	IDLH: 10 mg/m ³

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CAS#: 1310-73-2		(vacated) Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³
Arsenic oxide (As2O3) CAS#: 1327-53-3	TWA: 0.01 mg/m³ As	TWA: 10 μg/m³	IDLH: 5 mg/m³ As Ceiling: 0.002 mg/m³ As 15 min

Appropriate engineering controls

Engineering Controls Showers

Eyewash stations Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are

exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing.

General Hygiene Considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and

immediately after handling the product.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow

into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid

Appearance aqueous solution Color colorless

Odor Odorless Odor threshold No data available

<u>Property</u> <u>Values</u> <u>Remarks • Method</u>

Molecular weight No data available

pH 5 - 7 @ 20 °C

Melting point / freezing point \sim 0 °C / 32 °F

Initial boiling point and boiling range $\,$ 100 $\,^{\circ}\text{C}\,$ / 212 $\,^{\circ}\text{F}\,$

Evaporation rate 1.05 (water = 1)

Vapor pressure 23.777 mm Hg / 3.17 kPa at 25 °C / 77 °F

Relative vapor density 0.62

Specific gravity - VALUE 1 0.997

Partition coefficient Not applicable

Soil Organic Carbon-Water Partition

Coefficient

Not applicable

Autoignition temperature No data available

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Decomposition temperatureNo data availableDynamic viscosityNo data availableKinematic viscosityNo data available

Solubility(ies)

Water solubility

Water solubility classification	Water solubility_	Water Solubility Temperature_
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	<u>Solubility</u>	Solubility Temperature
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

Other information

Metal Corrosivity

Steel Corrosion RateNo data availableAluminum Corrosion RateNo data available

Volatile Organic Compounds (VOC) Content

Chemical name	CAS No	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Sodium hydroxide	1310-73-2	No data available	-
Arsenic oxide (As2O3)	1327-53-3	No data available	-

Explosive properties

Upper explosion limitNo data availableLower explosion limitNo data available

Flammable properties

Flash point No data available

Flammability Limit in Air

Upper flammability limit:No data availableLower flammability limit:No data available

Oxidizing properties No data available.

Bulk density No data available

10. STABILITY AND REACTIVITY

Reactivity

Not applicable.

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Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None. Sensitivity to Static Discharge None.

Possibility of hazardous reactions

None under normal processing.

Hazardous polymerization

None under normal processing.

Conditions to avoid

None known based on information supplied.

Incompatible materials

Strong oxidizing agents, strong acids, and strong bases.

Hazardous decomposition products

arsine.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation No known effect based on information supplied.

Eye contact No known effect based on information supplied.

Skin contact No known effect based on information supplied.

Ingestion No known effect based on information supplied.

Symptoms No information available.

Acute toxicity

Based on available data, the classification criteria are not met

Mixture

No data available.

Ingredient Acute Toxicity Data

No data available.

Chemical name	Endpoint	Reported	Exposure	Toxicological effects	Key literature references and
	type	dose	time		sources for data
Arsenic oxide (As2O3) (<1%) CAS#: 1327-53-3	Rat	20 mg/kg	None reported	None reported	No information available

Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

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ATEmix (oral)	No information available mg/kg
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Mixture

No data available.

Ingredient Skin Corrosion/Irritation Data

No data available.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium hydroxide (<1%) CAS#: 1310-73-2	Patch test	Human	20 mg	24 hours	Corrosive to skin	RTECS

Serious eye damage/irritation

Based on available data, the classification criteria are not met.

Mixture

No data available.

Ingredient Eye Damage/Eye Irritation Data

No data available.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium hydroxide (<1%) CAS#: 1310-73-2	Standard Draize Test	Rabbit	0.05 mg	24 hours	Corrosive to eyes	RTECS

Respiratory or skin sensitization

Based on available data, the classification criteria are not met.

Mixture

No data available.

Ingredient Sensitization Data

No data available.

STOT - single exposure

Based on available data, the classification criteria are not met.

Mixture

No data available.

Ingredient Specific Target Organ Toxicity Single Exposure Data

No data available.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Mixture

No data available.

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Ingredient Specific Target Organ Toxicity Repeat Exposure Data

No data available.

Carcinogenicity

Classification based on data available for ingredients. Contains a known or suspected carcinogen.

Mixture

No data available.

Ingredient Carcinogenicity Data

No data available.

Chemical name	CAS No	ACGIH	IARC	NTP	OSHA
Sodium hydroxide	1310-73-2	-	-	-	-
Arsenic oxide (As2O3)	1327-53-3	A1	Group 1	Known	Х

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	A1 - Known Human Carcinogen
IARC (International Agency for Research on Cancer)	Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)	Known - Known Carcinogen
OSHA	X - Present

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Mixture invitro Data

No data available.

Substance invitro Data

No data available.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Arsenic oxide (As2O3) (<1%) CAS#: 1327-53-3	Unscheduled DNA synthesis	Human lung	0.001 mmol/L	None reported	Positive test result for mutagenicity	RTECS

Mixture invivo Data

No data available.

Substance invivo Data

No data available.

Reproductive toxicity

Based on available data, the classification criteria are not met.

Mixture

No data available.

Ingredient Reproductive Toxicity Data

No data available.

Γ	Chemical name	Endpoint	Reported	Exposure	Toxicological effects	Key literature references and
L		type	dose	time		sources for data
	Arsenic oxide (As2O3) (<1%)	Mouse TD∟₀	3636 mg/kg	18 days	Effects on Embryo or Fetus Abortion	RTECS

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CAS#: 1327-53-3			

Aspiration hazard

Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Ecotoxicity Based on available data, the classification criteria are not met.

Unknown aquatic toxicity 0% of the mixture consists of components(s) of unknown hazards to the aquatic

environment.

Mixture

Aquatic Acute Toxicity

No data available.

Aquatic Chronic Toxicity

No data available.

Substance

Aquatic Acute Toxicity

No data available.

Chemical name	Exposure	Species	Endpoint	Reported dose	Key literature references and
	time		type		sources for data
Sodium hydroxide (<1%)	96 hours	Oncorhynchus mykiss	LC50	45.4 mg/L	IUCLID
CAS#: 1310-73-2					
Chemical name	Exposure	Species	Endpoint	Penarted dose	Key literature references and
Oncomodi name	Lyboane	Opecies	⊑napoint	lizeboi red dosel	Rey literature references and
Onemical name	time	Opecies	type	Neported dose	sources for data
Sodium hydroxide		Daphnia sp.		40.4 mg/L	- 1
	time	·	type	-	sources for data

Aquatic Chronic Toxicity

No data available.

Persistence and degradability

Mixture

No data available.

Bioaccumulation

MATERIAL DOES NOT BIOACCUMULATE

Mixture

No data available.

Partition coefficient Not applicable

Mobility

Soil Organic Carbon-Water Partition Coefficient Not applicable

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

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Waste treatment methods

Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with

environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number P012

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Arsenic oxide (As2O3) 1327-53-3	P012	-	-	-

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Arsenic oxide (As2O3)	-	P012	-	-
1327-53-3				

Special instructions for disposal Dispose of material in an E.P.A. approved hazardous waste facility.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.

If the item is part of a reagent set or kit the classification would change to the following:

UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA Complies DSL/NDSL Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS Complies **ENCS** Complies **IECSC** Complies **KECL** Complies Complies **PICCS** Complies TCSI **AICS** Complies **NZIoC** Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances **ENCS** - Japan Existing and New Chemical Substances

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IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

TCSI - Taiwan Chemical Substances Inventory **AICS** - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

	Chemical name	SARA 313 - Threshold Values %	
I	Arsenic oxide (As2O3) (CAS #: 1327-53-3)	0.1	

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hydroxide 1310-73-2	1000 lb	-	-	X
Arsenic oxide (As2O3) 1327-53-3	1 lb	X	-	X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sodium hydroxide	1000 lb	-	RQ 1000 lb final RQ
1310-73-2			RQ 454 kg final RQ
Arsenic oxide (As2O3)	1 lb	1 lb	RQ 1 lb final RQ
1327-53-3			RQ 0.454 kg final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Arsenic oxide (As2O3) (CAS #: 1327-53-3)	Carcinogen
	Developmental

WARNING: This product can expose you to chemicals including Arsenic trioxide, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to http://www.P65Warnings.ca.gov

U.S. State Right-to-Know Regulations

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This product may contain substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania
Sodium hydroxide 1310-73-2	Х	X	X
Arsenic oxide (As2O3) 1327-53-3	X	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Sodium hydroxide	180.0910	21 CFR 184.1763

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

Additional information

Global Automotive Declarable Substance List (GADSL)

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thersholds
Arsenic oxide (As2O3)	Declarable Substance (LR)	0.01 %
1327-53-3	Prohibited Substance (LR)	0.05 %
	Prohibited Substance (FA)	
	Declarable Substance (FA)	

NFPA and HMIS Classifications

NFPA	Health hazards - 0	Flammability - 0	Instability - 0	Physical and chemical properties -
HMIS	Health hazards - *	Flammability - 0	Physical hazards - 0	Personal protection -
		-	-	X
				- I

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
ATSDR ATSDR (Agency for Toxic Substances and Disease Registry)
CCRIS (Chemical Carcinogenesis Research Information System)

CDC (Center for Disease Control)

CEPA CEPA (Canadian Environmental Protection Agency)

CICAD CICAD (Concise International Chemical Assessment Documents)

ECHA ECHA (The European Chemicals Agency)
EEA EEA (European Environment Agency)
EPA EPA (Environmental Protection Agency)

ERMA (New Zealands Environmental Risk Management Authority)

ECOSARS Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™

FDA FDA (Food & Drug Administration)

GESTIS GESTIS (Information System on Hazardous Substances of the German Social Accident

Insurance)

HSDB HSDB (Hazardous Substances Data Bank)

INERIS INERIS (The National Industrial Environment and Risks Institute)

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IPCS INCHEMIPCS INCHEM (International Programme on Chemical Safety)IUCLIDIUCLID (The International Uniform Chemical Information Database)NITEJapan National Institute of Technology and Evaluation (NITE)

NIH (National Institutes of Health)

NIOSH NIOSH (National Institute for Occupational Safety and Health)
LOLI LOLI (List of Lists - An International Chemical Regulatory Database)

NDF no data

NICNAS Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH IDLH Immediately Dangerous to Life or Health

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

PEEN (Pan European Ecological Network)

RTECS (Registry of Toxic Effects of Chemical Substances)
SIDS (Screening Information Dataset) for High Volume Chemicals

SYKE The Finnish Environment Institute (SYKE)
USDA USDA (United States Department of Agriculture)
USDC USDC (United States Department of Commerce)

WHO (World Health Organization)

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)

MAC Maximum Allowable Concentration Ceiling Ceiling Limit Value

X Listed Vacated These values have no official status. The only

binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state

regulations.

SKN* Skin designation SKN+ Skin sensitization
RSP+ Respiratory sensitization ** Hazard Designation
C Carcinogen R Reproductive toxicant

M mutagen

Prepared By Hach Product Compliance Department

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Revision Note None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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End of Safety Data Sheet

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