



Agilent Technologies

Kit Name: ICP-MS Checkout Solutions for 7500s

Kit PN: 5184-3564

This product is a kit, composed of the following individual chemical components:

Kit Components

Component Part Number	Component Name	Volume or mass/ container and unit	No. of component containers/ kit
5184-3566	ICP-MS Tuning Sol 10 ug/L	500 mL	2
G1820-60258	Wash-Nitric Acid Blank	250 mL	1
G1820-60259	Wash-Water Blank	250 mL	1
G1820-60372	Dual Mode 1 Solution	100 mL	1
G1820-60410	Dual Mode 2 Solution	100 mL	1
ZHP-18-100	Abundance Sensitivity (1)	100 mL	1
ZHP-19-100	Abundance Sensitivity (2)	100 mL	1
ZHP-20-100	Detection Limit Solution	100 mL	1
ZHP-21-500	High Sensitivity Tune	500 mL	1

SDSs for each component follow this cover sheet.

Transportation Information for the Kit:

Proper Shipping Names:

DOT	IATA/ICAO	China
UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III



SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Code(s) 5184-3566
Product Name ICP-MS Tuning Sol 10 ug/L

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use
Uses advised against No information available

Supplier's details

Supplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794
E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

Label elements

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**Signal word**

Warning

Hazard statements

H290 - May be corrosive to metals

H315 - Causes skin irritation

H319 - Causes serious eye irritation

Precautionary statements

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear eye and face protection

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients**Substance**

Not applicable

Mixture**Chemical nature** aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	1.9

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures**Description of necessary measures****General advice** Show this safety data sheet to the doctor in attendance.**Inhalation** Remove to fresh air. Get medical attention immediately if symptoms occur.**Skin contact** Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

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Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.
Specific first aid facilities	Have eye-wash facilities immediately available. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms May cause redness and tearing of the eyes. Burning sensation.

Indication of immediate medical attention and special treatment needed, if necessary

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

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Environmental precautions Prevent further leakage or spillage if safe to do so.

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 Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent. Strong acids. Strong bases.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations

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Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	Avoid contact with eyes. Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear safety glasses with side-shields.
Hand protection	Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves. Impervious gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
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.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	None known
Relative vapour density	No data available	None known
Relative density	No data available	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidising properties	No information available
Molecular weight	No information available
VOC content	No information available
Particle characteristics	

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SECTION 10: Stability and reactivity

Reactivity

Reactivity Contact with acids liberates very toxic gas.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible materials Oxidising agent Strong acids Strong bases

Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Skin contact	Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral) 99,999.00 mg/kg

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ATEmix (dermal) 99,999.00 mg/kg
 ATEmix (inhalation-gas) 99,999.00 ppm
 ATEmix (inhalation-dust/mist) 99,999.00 mg/l
 ATEmix (inhalation-vapour) 157.90 mg/l

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
Cerium(III) nitrate hexahydrate	= 4200 mg/kg (Rat)		
Yttrium oxide	> 5g/kg (Rat)		> 5.09 mg/L (Rat) 4h
Lithium carbonate	= 525 mg/kg (Rat)	> 3000 mg/kg (Rabbit)	> 2 mg/L (Rat) 4 h
Cobalt	= 6171 mg/kg (Rat)		< 0.05 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients Causes skin irritation

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Respiratory or skin sensitisation No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

SECTION 12: Ecological information

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Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-	-

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number UN3264

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UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant	Not applicable
Environmental hazards	No
Special Provisions	223, 274
EmS-No.	F-A S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards	No
Special Provisions	274
Classification code	C1

ADR

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards	No
Special Provisions	274
Classification code	C1
Tunnel restriction code	(E)

IATA

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards	No
Special Provisions	A3, A803
ERG Code	8L

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user	Please refer to the applicable dangerous goods regulations for additional information
Hazchem code	2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

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Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations
Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

Environmental Quality Act 1974 and regulations

Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015

International Inventories

TSCA

LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."

DSL/NDSL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

PICCS

Contact supplier for inventory compliance status.

AICS

Contact supplier for inventory compliance status.

Legend:

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

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

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

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Revision date 14-May-2025

Date of preparation of the SDS 14-May-2025**Date of revision of the SDS** 14-May-2025**Revision Note** The symbol (*) in the margin of this SDS indicates that this line has been revised.**Key or legend to abbreviations and acronyms used in the safety data sheet**

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

End of Safety Data Sheet



SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 07-Mar-2025

Revision Number 1.01

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Code(s) G1820-60258

Product Name Wash-Nitric Acid Blank

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use

Uses advised against No information available

Supplier's details

Supplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact _____

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794

E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

Label elements

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Revision date 07-Mar-2025

**Signal word**

Danger

Hazard statements

H290 - May be corrosive to metals

H315 - Causes skin irritation

H318 - Causes serious eye damage

Precautionary statements

P280 - Wear eye and face protection

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 POISON CENTER or doctor/physician

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients**Substance**

Not applicable

Mixture**Chemical nature** aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	4.5

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures**Description of necessary measures**

General advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

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Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical attention.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.

Specific first aid facilities Have eye-wash facilities immediately available. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of immediate medical attention and special treatment needed, if necessary

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

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Revision date 07-Mar-2025

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 Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent. Strong acids. Strong bases.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

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Revision date 07-Mar-2025

Eye/face protection	Avoid contact with eyes. Wear safety glasses with side shields (or goggles). Tight sealing safety goggles.
Hand protection	Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves. Impervious gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
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.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	None known
Relative vapour density	No data available	None known
Relative density	No data available	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidising properties	No information available
Molecular weight	No information available
VOC content	No information available
Particle characteristics	

SECTION 10: Stability and reactivity

Reactivity

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G1820-60258 - Wash-Nitric Acid Blank

Revision date 07-Mar-2025

Reactivity	Contact with acids liberates very toxic gas.
<u>Chemical stability</u> Stability	Stable under normal conditions.
<u>Explosion data</u> Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
<u>Possibility of hazardous reactions</u> Possibility of hazardous reactions	None under normal processing.
<u>Conditions to avoid</u> Conditions to avoid	Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.
<u>Incompatible materials</u> Incompatible materials	Oxidising agent Strong acids Strong bases
<u>Hazardous decomposition products</u> Hazardous decomposition products	None known based on information supplied.

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Skin contact	Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. Burning. May cause blindness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral)	99,999.00 mg/kg
ATEmix (dermal)	99,999.00 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-dust/mist)	99,999.00 mg/l
ATEmix (inhalation-vapour)	66.70 mg/l

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Chronic (long-term) toxicity

No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

Classification based on data available for ingredients Causes skin irritation

Serious eye damage/eye irritation

Classification based on data available for ingredients. Causes burns. Causes serious eye damage.

Respiratory or skin sensitisation

No information available.

Germ cell mutagenicity

No information available.

Carcinogenicity

No information available.

Reproductive toxicity

No information available.

STOT - single exposure

No information available.

STOT - repeated exposure

No information available.

Aspiration hazard

No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability

No information available.

Bioaccumulative potential

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Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-.	-.

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant NP
Special Provisions 223, 274 F-A S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8

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Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards	Not applicable
Special Provisions	274
Classification code	C1

ADR

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards	Not applicable
Special Provisions	274
Classification code	C1
Tunnel restriction code	(E)

IATA

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards	Not applicable
Special Provisions	A3, A803
ERG Code	8L

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user	Please refer to the applicable dangerous goods regulations for additional information
Hazchem code	2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations
 Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

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**Environmental Quality Act 1974 and regulations
Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015**

International Inventories

TSCA

LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."

DSL/NDSL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

PICCS

Contact supplier for inventory compliance status.

AIC

Contact supplier for inventory compliance status.

Legend:

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

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

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS 14-May-2025

Date of revision of the SDS 07-Mar-2025

Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average)

STEL

STEL (Short Term Exposure Limit)

Ceiling Maximum limit value

Sk*

Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGl(s))

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U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

End of Safety Data Sheet



SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Code(s) G1820-60259
Product Name Wash-Water Blank
CAS No. 7732-18-5

Other means of identification

Chemical name { COMP="7732-18-5,RM7732-18-5"}
Synonyms No information available
Formula H2O
Molecular weight 18.02

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use
Uses advised against No information available

Supplier's details

Supplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794
E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS) Not classified

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Label elements

Hazard statements

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS) Not classified

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

Substance

Chemical name	CAS No.	Weight-%
Water	7732-18-5	100

SECTION 4: First aid measures

Description of necessary measures

Inhalation	Remove to fresh air.
Skin contact	Wash skin with soap and water.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.
Ingestion	Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of immediate medical attention and special treatment needed, if necessary

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.
Use personal protection equipment.

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G1820-60259 - Wash-Water Blank

Revision date 14-May-2025

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 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 Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

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

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.

Incompatible materials None known based on information supplied.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

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Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

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

Hand protection The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374.

Skin and body protection Wear suitable protective clothing.

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.

Environmental exposure controls No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	0 °C	None known
Initial boiling point and boiling range	100 °C	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	23 hPa	@ 20°C
Relative vapour density	No data available	None known
Relative density	0.99821 g/cm ³ at 20 °C	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	100 °C	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidising properties	No information available
Molecular weight	18.02
VOC content	No information available
Particle characteristics	
Molecular formula	H ₂ O

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SECTION 10: Stability and reactivity

Reactivity

Reactivity Contact with acids liberates very toxic gas.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials None known based on information supplied

Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)		

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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation No information available.

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the

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threshold of declaration.

Chemical name	PBT and vPvB assessment
Water	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Water	-	-

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number Not regulated
 Transport hazard class(es) Not regulated
 Packing group Not regulated
 Marine pollutant Not applicable
 Special Provisions None
 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

UN number Not regulated
 Transport hazard class(es) Not regulated
 Packing group Not regulated
 Environmental hazards Not applicable
 Special Provisions None

ADR

UN number Not regulated
 Transport hazard class(es) Not regulated
 Packing group Not regulated
 Environmental hazards Not applicable
 Special Provisions None

IATA

UN number Not regulated
 Transport hazard class(es) Not regulated
 Packing group Not regulated

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Environmental hazards Not applicable
Special Provisions None

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user Please refer to the applicable dangerous goods regulations for additional information

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:
No applicable information was found.

International Inventories

TSCA

LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."

DSL/NDL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

PICCS

Contact supplier for inventory compliance status.

AICS

Contact supplier for inventory compliance status.

Legend:

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

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

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS 14-May-2025

Date of revision of the SDS 14-May-2025

SAFETY DATA SHEET

G1820-60259 - Wash-Water Blank

Revision date 14-May-2025

Revision Note

The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

Japan GHS Classification

Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)

National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)

Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications

Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme

Organisation for Economic Co-operation and Development Screening Information Data Set

World Health Organization

Disclaimer

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End of Safety Data Sheet

SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertakingProduct identifier

Product Code(s) G1820-60372

Product Name Dual Mode 1 Solution

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use

Uses advised against No information available

Supplier's detailsSupplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact _

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794

E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identificationClassification of the substance or mixture

Corrosive to metals	Category 1
---------------------	------------

Label elements

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Signal word

Warning

Hazard statements

H290 - May be corrosive to metals

Precautionary statements

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

Other hazards which do not result in classification

Causes mild skin irritation.

Section 3: Composition/information on ingredients**Substance**

Not applicable

Mixture**Chemical nature** aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	0.2

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures**Description of necessary measures**

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed**Symptoms** Prolonged contact may cause redness and irritation.**Indication of immediate medical attention and special treatment needed, if necessary**

SAFETY DATA SHEET

G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

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 Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this

SAFETY DATA SHEET

G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

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

Hand protection The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear protective Neoprene™ gloves. Wear suitable gloves.

Skin and body protection Wear suitable protective clothing.

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.

Environmental exposure controls No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

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G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	None known
Relative vapour density	No data available	None known
Relative density	No data available	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
<u>Other information</u>		
Explosive properties	No information available	
Oxidising properties	No information available	
Molecular weight	No information available	
VOC content	No information available	
Particle characteristics		

SECTION 10: Stability and reactivity

<u>Reactivity</u>		
Reactivity		Contact with acids liberates very toxic gas.
<u>Chemical stability</u>		
Stability		Stable under normal conditions.
<u>Explosion data</u>		
Sensitivity to mechanical impact		None.
Sensitivity to static discharge		None.
<u>Possibility of hazardous reactions</u>		
Possibility of hazardous reactions		None under normal processing.
<u>Conditions to avoid</u>		
Conditions to avoid		Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.
<u>Incompatible materials</u>		
Incompatible materials		Oxidising agent
<u>Hazardous decomposition products</u>		
Hazardous decomposition products		None known based on information supplied.

SAFETY DATA SHEET

G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. Causes mild skin irritation.
Eye contact	Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Prolonged contact may cause redness and irritation.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral)	99,999.00 mg/kg
ATEmix (dermal)	99,999.00 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-dust/mist)	99,999.00 mg/l
ATEmix (inhalation-vapour)	1,500.00 mg/l

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
Dierbium trioxide	> 5 g/kg (Rat)		> 5.09 mg/L (Rat) 4h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Classification based on data available for ingredients Causes mild skin irritation
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.

SAFETY DATA SHEET

G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-	-

SAFETY DATA SHEET

G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant Not applicable
Environmental hazards No
Special Provisions 223, 274
EmS-No. F-A, S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions 274
Classification code C1

ADR

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards No
Special Provisions 274
Classification code C1
Tunnel restriction code (E)

IATA

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions A3, A803
ERG Code 8L

SAFETY DATA SHEET

G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user Please refer to the applicable dangerous goods regulations for additional information
Hazchem code 2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations

Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

Environmental Quality Act 1974 and regulations

Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015

International Inventories

TSCA

LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."

DSL/NDSL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

PICCS

Contact supplier for inventory compliance status.

AICS

Contact supplier for inventory compliance status.

Legend:

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

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

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

International Regulations

SAFETY DATA SHEET

G1820-60372 - Dual Mode 1 Solution

Revision date 14-May-2025

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS 14-May-2025

Date of revision of the SDS 14-May-2025

Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

End of Safety Data Sheet



SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Code(s) G1820-60410

Product Name Dual Mode 2 Solution

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use

Uses advised against No information available

Supplier's details

Supplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794

E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Corrosive to metals	Category 1
---------------------	------------

Label elements

SAFETY DATA SHEET

G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

**Signal word**

Warning

Hazard statements

H290 - May be corrosive to metals

Precautionary statements

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

Other hazards which do not result in classification

Causes mild skin irritation.

Section 3: Composition/information on ingredients**Substance**

Not applicable

Mixture**Chemical nature** aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	0.2

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures**Description of necessary measures**

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.

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G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms Prolonged contact may cause redness and irritation.

Indication of immediate medical attention and special treatment needed, if necessary

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

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 Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SAFETY DATA SHEET

G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

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

Hand protection The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear protective Neoprene™ gloves. Wear suitable gloves.

Skin and body protection Wear suitable protective clothing.

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.

Environmental exposure controls No information available.

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G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	None known
Relative vapour density	No data available	None known
Relative density	No data available	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidising properties	No information available
Molecular weight	No information available
VOC content	No information available
Particle characteristics	

SECTION 10: Stability and reactivity

Reactivity

Reactivity	Contact with acids liberates very toxic gas.
------------	----------------------------------------------

Chemical stability

Stability	Stable under normal conditions.
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Explosion data

Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.

Possibility of hazardous reactions

Possibility of hazardous reactions	None under normal processing.
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Revision date 14-May-2025

Conditions to avoid

Conditions to avoid

Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible materials

Oxidising agent

Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

- Inhalation** Specific test data for the substance or mixture is not available.
- Ingestion** Specific test data for the substance or mixture is not available.
- Skin contact** Specific test data for the substance or mixture is not available. Causes mild skin irritation.
- Eye contact** Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Prolonged contact may cause redness and irritation.

Acute toxicity

Numerical measures of toxicity

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

- ATEmix (oral)** 99,999.00 mg/kg
- ATEmix (dermal)** 99,999.00 mg/kg
- ATEmix (inhalation-gas)** 99,999.00 ppm
- ATEmix (inhalation-dust/mist)** 99,999.00 mg/l
- ATEmix (inhalation-vapour)** 1,500.00 mg/l

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
Dierbium trioxide	> 5 g/kg (Rat)		> 5.09 mg/L (Rat) 4h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients Causes mild skin irritation

SAFETY DATA SHEET

G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

SAFETY DATA SHEET

G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-	-

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant Not applicable
Environmental hazards No
Special Provisions 223, 274
EmS-No. F-A, S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions 274
Classification code C1

ADR

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards No
Special Provisions 274

SAFETY DATA SHEET

G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

Classification code C1
Tunnel restriction code (E)

IATA

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions A3, A803
ERG Code 8L

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user Please refer to the applicable dangerous goods regulations for additional information
Hazchem code 2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations
 Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

Environmental Quality Act 1974 and regulations

Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015

International Inventories

TSCA

LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."

DSL/NDSL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

SAFETY DATA SHEET

G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

PICCS Contact supplier for inventory compliance status.
AIC Contact supplier for inventory compliance status.

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS 14-May-2025

Date of revision of the SDS 14-May-2025

Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme

SAFETY DATA SHEET

G1820-60410 - Dual Mode 2 Solution

Revision date 14-May-2025

Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

End of Safety Data Sheet



SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Code(s) ZHP-18-100
Product Name Abundance Sensitivity (1)

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use

Uses advised against No information available

Supplier's details

Supplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact _

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794

E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

Label elements

SAFETY DATA SHEET

ZHP-18-100 - Abundance Sensitivity (1)

Revision date 14-May-2025



Signal word

Warning

Hazard statements

H290 - May be corrosive to metals

H315 - Causes skin irritation

H319 - Causes serious eye irritation

Precautionary statements

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear eye and face protection

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

Substance

Not applicable

Mixture

Chemical nature aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	1.9

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures

Description of necessary measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

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Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.

Specific first aid facilities Have eye-wash facilities immediately available. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms May cause redness and tearing of the eyes. Burning sensation.

Indication of immediate medical attention and special treatment needed, if necessary

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

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

Methods for cleaning up Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent. Strong acids. Strong bases.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Avoid contact with eyes. Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear safety glasses with side-shields.

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Hand protection	Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves. Impervious gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
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.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	0 °C	None known
Initial boiling point and boiling range	100 °C	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	23 hPa	@ 20°C
Relative vapour density	No data available	None known
Relative density	0.99821 g/cm ³ at 20 °C	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	100 °C	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidising properties	No information available
Molecular weight	No information available
VOC content	No information available
Particle characteristics	

SECTION 10: Stability and reactivity

Reactivity

Reactivity	Contact with acids liberates very toxic gas.
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Chemical stability

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Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible materials Oxidising agent Strong acids Strong bases

Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Skin contact Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral) 99,999.00 mg/kg
 ATEmix (dermal) 99,999.00 mg/kg
 ATEmix (inhalation-gas) 99,999.00 ppm
 ATEmix (inhalation-dust/mist) 99,999.00 mg/l
 ATEmix (inhalation-vapour) 157.90 mg/l

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
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Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
caesium carbonate	= 2333 mg/kg (Rat)		

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Classification based on data available for ingredients Causes skin irritation
Serious eye damage/eye irritation	Classification based on data available for ingredients. Causes serious eye irritation.
Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

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Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-	-

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant Not applicable
Environmental hazards No
Special Provisions 223, 274
EmS-No. F-A, S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No

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Special Provisions 274
Classification code C1

ADR

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards No
Special Provisions 274
Classification code C1
Tunnel restriction code (E)

IATA

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions A3, A803
ERG Code 8L

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user Please refer to the applicable dangerous goods regulations for additional information
Hazchem code 2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations
 Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

Environmental Quality Act 1974 and regulations

Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015

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International Inventories

TSCA	LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AIC	Contact supplier for inventory compliance status.

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS 14-May-2025

Date of revision of the SDS 14-May-2025

Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGl(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)

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Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

End of Safety Data Sheet

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Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertakingProduct identifier

Product Code(s) ZHP-19-100
Product Name Abundance Sensitivity (2)

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use

Uses advised against No information available

Supplier's detailsSupplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact _

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794

E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identificationClassification of the substance or mixture

Corrosive to metals	Category 1
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Label elements

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Signal word

Warning

Hazard statements

H290 - May be corrosive to metals

Precautionary statements

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

Other hazards which do not result in classification

Causes mild skin irritation.

Section 3: Composition/information on ingredients**Substance**

Not applicable

Mixture**Chemical nature** aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	0.5

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures**Description of necessary measures**

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed**Symptoms** Prolonged contact may cause redness and irritation.**Indication of immediate medical attention and special treatment needed, if necessary**

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Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

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 Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this

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product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

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

Hand protection Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves.

Skin and body protection Wear suitable protective clothing.

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.

Environmental exposure controls No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

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<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	0 °C	None known
Initial boiling point and boiling range	100 °C	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	23 hPa	@ 20°C
Relative vapour density	No data available	None known
Relative density	0.99821 g/cm ³ at 20 °C	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	100 °C	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
<u>Other information</u>		
Explosive properties	No information available	
Oxidising properties	No information available	
Molecular weight	No information available	
VOC content	No information available	
Particle characteristics		

SECTION 10: Stability and reactivity

<u>Reactivity</u>	
Reactivity	Contact with acids liberates very toxic gas.
<u>Chemical stability</u>	
Stability	Stable under normal conditions.
<u>Explosion data</u>	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
<u>Possibility of hazardous reactions</u>	
Possibility of hazardous reactions	None under normal processing.
<u>Conditions to avoid</u>	
Conditions to avoid	Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.
<u>Incompatible materials</u>	
Incompatible materials	Oxidising agent
<u>Hazardous decomposition products</u>	
Hazardous decomposition products	None known based on information supplied.

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SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. Causes mild skin irritation.
Eye contact	Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Prolonged contact may cause redness and irritation.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral)	99,999.00 mg/kg
ATEmix (dermal)	99,999.00 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-dust/mist)	99,999.00 mg/l
ATEmix (inhalation-vapour)	600.00 mg/l

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
caesium carbonate	= 2333 mg/kg (Rat)		

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients Causes mild skin irritation

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitisation No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

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Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-	-

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SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant	Not applicable
Environmental hazards	No
Special Provisions	223, 274
EmS-No.	F-A, S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards	No
Special Provisions	274
Classification code	C1

ADR

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards	No
Special Provisions	274
Classification code	C1
Tunnel restriction code	(E)

IATA

UN number	UN3264
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es)	8
Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards	No
Special Provisions	A3, A803
ERG Code	8L

SAFETY DATA SHEET

ZHP-19-100 - Abundance Sensitivity (2)

Revision date 14-May-2025

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user Please refer to the applicable dangerous goods regulations for additional information
Hazchem code 2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations

Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

Environmental Quality Act 1974 and regulations

Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015

International Inventories

TSCA

LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."

DSL/NDSL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

PICCS

Contact supplier for inventory compliance status.

AICS

Contact supplier for inventory compliance status.

Legend:

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

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

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

International Regulations

SAFETY DATA SHEET

ZHP-19-100 - Abundance Sensitivity (2)

Revision date 14-May-2025

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS 14-May-2025

Date of revision of the SDS 14-May-2025

Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

End of Safety Data Sheet



SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Code(s) ZHP-20-100

Product Name Detection Limit Solution

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use

Uses advised against No information available

Supplier's details

Supplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

For further information, please contact _

Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794

E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

Label elements

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

Revision date 14-May-2025



Signal word

Warning

Hazard statements

H290 - May be corrosive to metals

H315 - Causes skin irritation

H319 - Causes serious eye irritation

Precautionary statements

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear eye and face protection

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

Substance

Not applicable

Mixture

Chemical nature aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	1.9

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures

Description of necessary measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

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Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.

Specific first aid facilities Have eye-wash facilities immediately available. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms May cause redness and tearing of the eyes. Burning sensation.

Indication of immediate medical attention and special treatment needed, if necessary

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

Revision date 14-May-2025

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

Methods for cleaning up Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent. Strong acids. Strong bases.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Avoid contact with eyes. Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear safety glasses with side-shields.

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Hand protection	Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves. Impervious gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
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.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	0 °C	None known
Initial boiling point and boiling range	100 °C	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	23 hPa	@ 20°C
Relative vapour density	No data available	None known
Relative density	0.99821 g/cm ³ at 20 °C	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	100 °C	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidising properties	No information available
Molecular weight	No information available
VOC content	No information available
Particle characteristics	

SECTION 10: Stability and reactivity

Reactivity

Reactivity	Contact with acids liberates very toxic gas.
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Chemical stability

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

Revision date 14-May-2025

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible materials Oxidising agent Strong acids Strong bases

Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Skin contact Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral) 99,999.00 mg/kg
 ATEmix (dermal) 99,999.00 mg/kg
 ATEmix (inhalation-gas) 99,999.00 ppm
 ATEmix (inhalation-dust/mist) 99,999.00 mg/l
 ATEmix (inhalation-vapour) 157.90 mg/l

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
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ZHP-20-100 - Detection Limit Solution

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Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
Bismuth	= 5 g/kg (Rat)		
Indium	= 4200 mg/kg (Rat)		

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Classification based on data available for ingredients Causes skin irritation
Serious eye damage/eye irritation	Classification based on data available for ingredients. Causes serious eye irritation.
Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

Revision date 14-May-2025

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-	-

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant Not applicable
Environmental hazards No
Special Provisions 223, 274
EmS-No. F-A, S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

Revision date 14-May-2025

Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions 274
Classification code C1

ADR

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards No
Special Provisions 274
Classification code C1
Tunnel restriction code (E)

IATA

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions A3, A803
ERG Code 8L

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user Please refer to the applicable dangerous goods regulations for additional information
Hazchem code 2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations
 Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

Environmental Quality Act 1974 and regulations

Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

Revision date 14-May-2025

International Inventories

TSCA

LGC has not confirmed that the chemical substances in this product are on the TSCA Inventory, and LGC is distributing this product solely for use either in applications statutorily exempt from TSCA and regulated under other laws (e.g., FFDCA, FIFRA) or in research and development activities in accordance with the TSCA Inventory R&D exemption provided at 40 CFR 720.36. It is the end-user's responsibility to understand and follow the requirements that apply to its use of this product.

DSL/NDSL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

PICCS

Contact supplier for inventory compliance status.

AIC

Contact supplier for inventory compliance status.

Legend:

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

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

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS 14-May-2025

Date of revision of the SDS 14-May-2025

Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGl(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

SAFETY DATA SHEET

ZHP-20-100 - Detection Limit Solution

Revision date 14-May-2025

U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

End of Safety Data Sheet



SAFETY DATA SHEET

Issuing Date 14-May-2025

Revision date 14-May-2025

Revision Number 1

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Code(s) ZHP-21-500

Product Name High Sensitivity Tune

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Reagents and Standards for Analytical Chemical Laboratory Use

Uses advised against No information available

Supplier's details

Supplier

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany

0800 603 1000

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Emergency telephone number

Emergency Telephone CHEMTREC®: +60 3-9212 5794

E-mail address pdl-msds_author@agilent.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

Label elements

SAFETY DATA SHEET

ZHP-21-500 - High Sensitivity Tune

Revision date 14-May-2025

**Signal word**

Warning

Hazard statements

H290 - May be corrosive to metals

H315 - Causes skin irritation

H319 - Causes serious eye irritation

Precautionary statements

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear eye and face protection

P406 - Store in corrosive resistant aluminium container with a resistant inner liner

P234 - Keep only in original container

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients**Substance**

Not applicable

Mixture**Chemical nature** aqueous solution.

Chemical name	CAS No.	Weight-%
Nitric Acid	7697-37-2	1.9

Additional information

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

SECTION 4: First aid measures**Description of necessary measures**

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

SAFETY DATA SHEET

ZHP-21-500 - High Sensitivity Tune

Revision date 14-May-2025

Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.

Specific first aid facilities Have eye-wash facilities immediately available. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms May cause redness and tearing of the eyes. Burning sensation.

Indication of immediate medical attention and special treatment needed, if necessary

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

Suitable (and unsuitable) extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

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

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

SAFETY DATA SHEET

ZHP-21-500 - High Sensitivity Tune

Revision date 14-May-2025

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

Methods for cleaning up Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

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

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

Conditions for safe storage, including any incompatibilities

Storage Conditions Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidising agent. Strong acids. Strong bases.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Malaysia	ACGIH TLV
Nitric Acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³	TWA: 2 ppm STEL: 4 ppm

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Avoid contact with eyes. Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear safety glasses with side-shields.

SAFETY DATA SHEET

ZHP-21-500 - High Sensitivity Tune

Revision date 14-May-2025

Hand protection	Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves. Impervious gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
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.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid	Colour	colourless
Physical state	Liquid	Odour threshold	No information available
Odour	Odourless.		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	0 °C	None known
Initial boiling point and boiling range	100 °C	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Upper/lower flammability or explosive limits		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	23 hPa	@ 20°C
Relative vapour density	No data available	None known
Relative density	0.99821 g/cm ³ at 20 °C	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	100 °C	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidising properties	No information available
Molecular weight	No information available
VOC content	No information available
Particle characteristics	

SECTION 10: Stability and reactivity

Reactivity

Reactivity	Contact with acids liberates very toxic gas.
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Chemical stability

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Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods. Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible materials Oxidising agent Strong acids Strong bases

Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

Information on the likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Skin contact Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral) 99,999.00 mg/kg
 ATEmix (dermal) 99,999.00 mg/kg
 ATEmix (inhalation-gas) 99,999.00 ppm
 ATEmix (inhalation-dust/mist) 99,999.00 mg/l
 ATEmix (inhalation-vapour) 157.90 mg/l

Chronic (long-term) toxicity No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
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Water	> 90 mL/kg (Rat)		
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
Cerium(III) nitrate hexahydrate	= 4200 mg/kg (Rat)		
Yttrium oxide	> 5g/kg (Rat)		> 5.09 mg/L (Rat) 4h
Magnesium nitrate hexahydrate	= 5440 mg/kg (Rat)		
Lithium carbonate	= 525 mg/kg (Rat)	> 3000 mg/kg (Rabbit)	> 2 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Classification based on data available for ingredients Causes skin irritation
Serious eye damage/eye irritation	Classification based on data available for ingredients. Causes serious eye irritation.
Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

SECTION 12: Ecological information

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and degradability

Persistence and degradability No information available.

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Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

Mobility

Mobility in soil No information available.

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB.

Other adverse effects

Other adverse effects No information available.

Endocrine Disruptor Information

Chemical name	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation	EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances
Nitric Acid	-.	-.

SECTION 13: Disposal information

Disposal 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.

SECTION 14: Transportation information

IMDG

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Marine pollutant Not applicable
Environmental hazards No
Special Provisions 223, 274
EmS-No. F-A S-B
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

UN number UN3264

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UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions 274
Classification code C1

ADR

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E)
Environmental hazards No
Special Provisions 274
Classification code C1
Tunnel restriction code (E)

IATA

UN number UN3264
UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
Transport hazard class(es) 8
Packing group III
Description UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
Environmental hazards No
Special Provisions A3, A803
ERG Code 8L

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Special precautions for user Please refer to the applicable dangerous goods regulations for additional information
Hazchem code 2X

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

National regulations

Malaysia - Applicable regulations:

OSHA (Occupational Safety and Health Act) 1994 and relevant regulations

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations
 Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

An occupational medicine specialist familiar with national and regional regulations and standards must be consulted to establish a program of medical examinations for workers exposed to substances with biological limit values. See section 8 for national exposure control parameters.

Chemical name	Pre-employment screening and appropriate health surveillance
Nitric Acid - 7697-37-2	Listed

Factories and Machinery Act 1967 and relevant regulations

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**Environmental Quality Act 1974 and regulations
Road Transport (Construction and Use) (Dangerous Goods Vehicle) Rules 2015**

International Inventories

TSCA	LGC, to the best of its ability, has confirmed that the chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb 2019, as amended Feb 2021."
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AIIC	Contact supplier for inventory compliance status.

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

SECTION 16: Other information

Date of preparation of the SDS	14-May-2025
Date of revision of the SDS	14-May-2025
Revision Note	The symbol (*) in the margin of this SDS indicates that this line has been revised.

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

X - Listed

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation

Key literature references and sources for data used to compile the SDS

- Agency for Toxic Substances and Disease Registry (ATSDR)
- U.S. Environmental Protection Agency ChemView Database
- European Food Safety Authority (EFSA)
- EPA (Environmental Protection Agency)
- Acute Exposure Guideline Level(s) (AEGl(s))

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U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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End of Safety Data Sheet