

BISMUTH – HNO₃

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY.

1.1 Product Identifier

Product form	Liquid
Chemical Name	BISMUTH - HNO ₃
Index No.	Mixture
EC No.	Mixture
CAS No.	Mixture

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1	Relevant identified uses:	Laboratory Chemical
1.2.2	Uses advised against	No additional information available.

1.3 Details of the supplier of the safety data sheet

De Bruyn Spectroscopic Solutions
70/145 Chattan Road
Glenferness
Midrand, 2191 Gauteng
South Africa

1.4 Emergency telephone number

RSA: 086 100 0366
Namibia: 080 010 0366
Other Countries: Contact Local Emergency Services.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification Regulation (EC) No 1272/2008 (CLP):

Skin Corr. 1A, H314
Eye Dam 1, H318
Met cor 1, 290,

Adverse physicochemical, human health and environmental effects:

May be corrosive to metals. Causes severe skin burns and eye damage.

2.2 Label Elements

Labelling (Regulation (EC) No 1272/2008

Hazard Pictograms:



Signal word: DANGER

Hazardous ingredients: Nitric Acid

Hazard Statements :

H290 – May be corrosive to metals

H314 – Causes severe skin burns and eye damage.

Precautionary Statements:

P260 - Do not breathe mist.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 - IF ON SKIN (or hair): Immediately remove/take off all contaminated clothing. Rinse skin with water/shower.

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

P310 -Immediately call a POISON CENTER/doctor

Supplementary Information:

EUH071 Corrosive to the respiratory tract.

Full text of hazard classes and H statements: see Section 16.

Bismuth

Reduced Labeling (<= 125 ml)



Signal Word: Danger

Causes severe skin burns and eye damage.

Do not breathe mist.

Wear protective gloves/ protective clothing/ eye protection/ face protection.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

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

Immediately call a POISON CENTER/doctor
(EU) EUH071 Corrosive to the respiratory tract.

2.3 Other hazards:

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Not applicable.

3.2 Mixture

Name	Product Identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Nitric Acid	(CAS-No.) 7697-37-2 (EC-No.) 231-714-2 (EC Index-No.) 007-004-00-1	50-70	Ox. Liq. 2, H272; Met cor 1 290; Skin Corr. 1A, H314; Eye dam 1, H318; Ac tox 3 H331; EU071
Bismuth	(CAS-No.) 7440-69-9 (EC-No.) 231-177-4	0.01-10 000 µg/mL	Not classified

Specific concentration limits: HNO₃
(5 =< 20) Skin Corr. 1B, H314 ;(C >= 20)
Skin Corr. 1A, H314 (65 =< 99) Ox. Liq. 3,
H272 (C >= 99) Ox. Liq. 2, H272

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

First aid measures general

Take off immediately all contaminated clothing. First aiders need to protect themselves

First aid measures after inhalation

Remove person to fresh air and keep comfortable for breathing. If symptoms persist obtain medical attention.

First aid measures after skin contact

Rinse skin with water/shower. Call a physician immediately.

First aid measures after eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First aid measures after ingestion

Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact

Burns

Symptoms/effects after eye contact

Serious damage to eyes. Risk of blindness.

Symptoms/effects after ingestion/inhalation

Cough, Dyspnoea, Pulmonary oedema. Gastric perforation.

4.3 Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable

Water jet.

5.2 Special hazards arising from the substance or mixture

Fire hazard

Product not combustible.

Hazardous decomposition products in case of fire

Toxic fumes may be released. Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Bismuth

Protection during firefighting

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing. No further information.

5.4 Further Information

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Emergency procedures

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.1.2 For emergency responders

Protective equipment

Do not attempt to act without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2 Environmental precautions

Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up:

Take up liquid spill into non-combustible absorbent material.

Other Information

Dispose of materials or solid residues at an authorized site

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions for safe handling

Wear recommended personal protective equipment. See section 8. Avoid contact with eyes and skin. Do not inhale vapour/aerosols.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Immediately change contaminated clothing. Wash hands before breaks and at the end of workday. Do not eat, drink or smoke while working.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store in a well-ventilated place. Keep container tightly closed. Keep only in original container. May cause decomposition by long-term light influence. Protect from UV radiation/sunlight, contact with air/oxygen. Recommended storage temperature: 20 ± 5 °C

Incompatible materials

Strong alkali, various metals, Combustible materials,

Packaging

Original container.

7.3 Specific end users

No additional information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Limits

Nitric Acid >65% (CAS: 7697-37-2)		
United Kingdom	WEL STEL (mg/m ³)	2.6 mg/m ³
	WEL STEL (l)	1 ppm
South Africa; HCA Regulations	TWA (8Hour)	4 ppm
	STEL (15min)	8 ppm

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation of the workstation.

Personal protective equipment

Hand protection

Protective gloves

Eye protection

Tightly fitting safety goggles/face mask

Skin and body protection

Acid resistant protective clothing,

Respiratory protection

In case of insufficient ventilation, or aerosol or mist formation, wear suitable respiratory equipment. Recommended Filter type: Filter E- (P3).



Environmental exposure controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Product form	Liquid
Appearance	Colourless
Odour	Slight
Odour threshold	No data available
pH	<2 @ 20°C
Relative evaporation rate (butylacetate = 1)	No data available
Melting point/Freezing Point	No data available
Initial Boiling point	No data available
Flash point	No data available
Auto-ignition temperature	No data available
Flammability (solid, gas)	Not applicable
Vapour pressure	No data available
Vapour pressure @ 50°C	No data available
Vapour density	No data available
Relative vapour density @ 20°C	No data available
Density	1.026g/cm ³ @ 20°C
Solubility (water)	Miscible
Log Pow	No data available
Viscosity, kynematic	No data available
Viscosity, dynamic	No data available
Explosive properties	Not classified as explosive
Explosive limits	Not applicable
Oxidising properties	None

9.2 Additional information

No additional data available.

Corrosive to metals

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

The product is corrosive to metals..

10.2 Chemical stability

Stable under recommended storage and handling conditions..

10.3 Possibility of hazardous reactions

Strong oxidizer: reacts violently with strong bases, organic materials, metals, hydrogen sulphide, carbides, alcohols, organic solvents, cyanides, sulphides.

10.4 Conditions to avoid

UV radiation/sunlight. Keep away from heat..

10.5 Incompatible materials

Strong bases, various metals, combustible materials..

10.6 Hazardous decomposition products

No hazardous decomposition if stored and handled correctly. Thermal decomposition releases corrosive gases/vapours (NO_x).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity (oral)

Acute toxicity (Dermal)

Acute toxicity (Respiratory)

Test data not available for the mixture.

Not classified

Not classified

Product does not meet classification criteria.

Nitric acid ≥ 65 %

LC50 inhalation (vapour) 2.65 mg/l

Skin corrosion/irritation:

Serious eye damage/irritation

Respiratory or skin sensitisation

Germ cell mutagenicity

Carcinogenicity

Reproductive toxicity

STOT-SE

STOT RE

Aspiration hazard

Causes severe skin burns and eye damage.

Serious eye damage, category 1,

Not classified

Not classified (Ames test; salmonella typhimurium: Negative)

Not classified

Not classified

Not classified

Not classified

Not classified

11.2 Additional Information**Endocrine disrupting properties**

This substance/mixture does not contain components considered to have endocrine disrupting properties affecting human health, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Ecology - general

Before neutralisation, the product may represent a danger to aquatic organisms.

Acute aquatic toxicity

Not classified

Chronic aquatic toxicity

Not classified

12.2 Persistence and degradability

Not applicable

12.3 Bioaccumulative potential

No data available.

12.4 Mobility

No data available.

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative or toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Assessment This substance/mixture does not contain components considered to have endocrine disrupting properties for environment, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

12.7 Other adverse effects

No additional information.


SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods: Product and packaging:

The generation of waste should be avoided or minimised wherever possible. This material and packaging must be disposed of in a safe way in consultation with licensed waste disposal company in accordance with local legal requirements.

SECTION 14: TRANSPORT INFORMATION

In accordance with ADR / IMDG / IATA

	ADR	IMDG	IATA	Class Diamond
UN Number	3264	3264	3264	
Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	
Hazard Class	8	8	8	
Subsidiary hazard class	-	-	-	
Packing Group	III	III	III	
Marine pollutant	No	No	No	

Limited/Excepted quantity: 5L

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use:

This product contains a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006.
 Regulation (EU) 2019/1148 on the marketing and use of explosives precursors: nitric acid

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : No restrictions.

National Regulations:

Occupational Health and Safety Act 85 of 1993.
 Hazardous Chemical Agents Regulations.
 SANS 10228, 10229, 10232-4.

15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

Full text of R-, H- and EUH-statements:

Sk cor. Cat 1A, H314	Skin corrosion, Category 1A, Causes severe skin burns and eye damage.
Sk cor. Cat 1B, H314	Skin corrosion, Category 1B, Causes severe skin burns and eye damage.
Eye dam 1 318;	Eye damage Category 1, Causes serious eye damage.
Met.Cor. 1A, H290	Metal corrosion Category 1A, May cause metal corrosion.
Oxid. Liq. Cat 2, H272	Oxidising liquid, Category 2, May intensify fire-oxidiser.
Ac tox Inhal, Cat 3, H331 (Mist/aerosol)	Acute toxicity, Inhalation, Category 3, Toxic if inhaled (mist aerosol).
WEL STEL	Workplace Exposure Limit; Short term Exposure Limit
TWA	Time weighted average
STOT-SE	Specific Target Organ Toxicity- Single Exposure
STOT-RE	Specific Target Organ Toxicity- Repeated Exposure

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Revision history	Changes	Date
Revision 2.0	Original document.	31-05-2024