

**TUNGSTEN – HNO<sub>3</sub> / HF**

Date of issue: 2024/10/31  
Revision No.: 2.0

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

**1.1 Product Identifier**

Product form	Liquid
Chemical Name	TUNGSTEN – HNO <sub>3</sub> / HF
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  
Glenfernness  
Midrand, 2191 Gauteng  
South Africa

**1.4 Emergency telephone number**

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

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1 Classification of the substance or mixture**

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

Met cor. 1 H290  
Skin Corr. 1B, H314  
Eye Dam 1, H318  
Ac tox, 3, H311  
Ac tox 4, H302

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

**Adverse physicochemical, human health and environmental effects:**

May be corrosive to metals. Causes severe skin burns and eye damage. Toxic in contact with skin, Harmful if swallowed.

**Supplementary Information:** EUH071 Corrosive to the respiratory tract.

**2.2 Label Elements**

*Labelling (Regulation (EC) No 1272/2008*

Hazard Pictograms:



Signal word: DANGER

Hazard Statements:

H290 – May be corrosive to metals.  
H314 – Causes severe skin burns and eye damage.  
H311 – Toxic in contact with skin.  
H302 - Harmful if swallowed.

Precautionary Statements:

P264 – Wash thoroughly after handling.  
P270 – Do not eat, drink or smoke when using this product.

# TUNGSTAN – HNO<sub>3</sub> / HF

P261 - Do not breathe mist, vapour, fume, or spray.  
P405 – Store locked up.  
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 and continue rinsing.  
P310 -Immediately call a POISON CENTER/doctor.  
P301+P330+P310 – IF SWALLOWED: Rinse mouth. Immediately call doctor/physician.  
P501 – Dispose of contents/container to registered hazardous waste site.

Hazard determining components: Nitric Acid, Hydrofluoric acid.

## Reduced Labelling (< = 125 ml)



Signal Word: Danger

Hazard Statements:

Causes severe skin burns and eye damage.

Toxic in contact with skin.

Harmful if swallowed.

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.

IF SWALLOWED: Rinse mouth. Immediately call doctor/physician.

(EU) EUH071 Corrosive to the respiratory tract.

## 2.3 Other hazards

### Other hazards not contributing to the classification:

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

## 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	5	Ox. Liq. 3, H272; Met cor 1 290; Skin Corr. 1A, H314; Eye dam 1 318; Ac tox 3 H331; EU071
Hydrofluoric acid	(CAS-No.) 7664-39-3 (EC-No.) 231-634-3 (EC Index-No.) 009-003-00-1	3	Ac tox 2, 300; Ac tox 2 330; Ac tox 1 310; Skin Corr. 1A, H314; Eye dam 1 318
Ammonium Tungstate (NH <sub>4</sub> ) <sub>2</sub> WO <sub>4</sub>	(CAS No.) 11140-77-5 (EC No.) 628-957-5	0.01 – 10 000 µg/mL as W	Sk irr 2 315; Eye irr 2 319; STOT SE 3 335;

Specific concentration limits: HF  
(>=7%) Skin Corr. 1A, H314;  
(1-7%) Skin Corr. 1B, H314 ;  
(0.1-1%) Skin Irr. 2, H319

Specific concentration limits: Nitric Acid  
(5 <= 20) Skin Corr. 1B, H314 ;(C >= 20)  
Skin Corr. 1A, H314 ( 65 <= 99)

## 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 doctor/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 doctor/physician immediately.

# TUNGSTAN – HNO<sub>3</sub> / HF

	<b>First aid measures after ingestion</b>	Rinse mouth. Do not induce vomiting. Call a doctor/physician immediately.
<b>4.2</b>	<b>Most important symptoms and effects, both acute and delayed</b>	
	Symptoms/effects after skin contact	Causes burns. Absorbed through the skin. The fluoride ion can reduce serum calcium levels causing possible fatal hypocalcemia.
	Symptoms/effects after eye contact	Causes serious damage to eyes. Risk of blindness.
	Symptoms/effects after ingestion/inhalation	Toxic if inhaled. Cough, shortness of breath, difficulty breathing, gastric perforation.
<b>4.3</b>	<b>Indication of any immediate medical attention and special treatment needed:</b>	Treat symptomatically.

## SECTION 5: FIRE FIGHTING MEASURES

<b>5.1</b>	<b>Extinguishing media</b>	
	Suitable extinguishing media	Water spray. Dry powder. Foam. Carbon dioxide.
	Unsuitable	Do not use water jet.
<b>5.2</b>	<b>Special hazards arising from the substance or mixture</b>	
	Fire hazard	Product not combustible.
	Hazardous decomposition products in case of fire	Toxic fumes may be released. Nitrogen oxides (NOx).
<b>5.3</b>	<b>Advice for firefighters</b>	
	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.
<b>5.4</b>	<b>Further Information</b>	No further information.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>6.1</b>	<b>Personal precautions, protective equipment, and emergency procedures</b>	
<b>6.1.1</b>	<b>For non-emergency personnel</b>	
	Emergency procedures	Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.
<b>6.1.2</b>	<b>For emergency responders</b>	
	Protective equipment	Do not attempt to act without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
<b>6.2</b>	<b>Environmental precautions</b>	Avoid release to the environment.
<b>6.3</b>	<b>Methods and materials for containment and cleaning up</b>	
	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.
<b>6.4</b>	<b>Reference to other sections</b>	For further information refer to section 5, 8, 13.

## SECTION 7: HANDLING AND STORAGE

<b>7.1</b>	<b>Precautions for safe handling</b>	
	<b>Precautions for safe handling</b>	Wear recommended personal protective equipment. See section 8. Avoid contact with eyes and skin. Do not inhale vapour, or mist.
	<b>Hygiene measures:</b>	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.
<b>7.2</b>	<b>Conditions for safe storage, including any incompatibilities</b>	
	<b>Storage conditions</b>	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.
	<b>Incompatible materials</b>	Strong alkali, various metals, combustible materials.

# TUNGSTAN – HNO<sub>3</sub> / HF

<b>Packaging</b>	Original container.
<b>7.3 Specific end users</b>	No additional information.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Exposure Limits

<b>Nitric Acid (CAS: 7697-37-2)</b>		
United Kingdom	WEL STEL (Gas and mist)	1 ppm / 2.6 mg/m <sup>3</sup>
South Africa; HCA Regulations (Restricted Level)	TWA (8 Hour) STEL (15 min)	4 ppm 8 ppm

<b>Hydrofluoric Acid (CAS: 7664-39-3)</b>		
United Kingdom	WEL TWA (8 Hour) WEL STEL (15 min)	1.8 ppm / 1.5 mg/m <sup>3</sup> 3 ppm / 2.5 mg/m <sup>3</sup>
South Africa; HCA Regulations (Restricted Level)	TWA (8 Hour) STEL (15 min)	1 ppm 4 ppm

### 8.2 Exposure controls

#### Appropriate engineering controls

Ensure adequate ventilation. Provide eyewash facility.

#### Personal protective equipment

##### Hand protection

Protective gloves PVC, rubber

##### Eye protection

Tightly fitting safety goggles/face mask

##### Skin and body protection

Acid resistant protective clothing,

##### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.



#### 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	Colorless
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	Not applicable
Auto-ignition temperature	Not applicable
Flammability (solid, gas)	Not applicable
Vapour pressure	No data available
Vapour density	No data available
Relative vapour density @ 20°C	No data available
Density	1.03 g/cm <sup>3</sup> @ 20°C
Solubility (water)	Miscible
Log Pow	No data available
Viscosity, kinematic	No data available

# TUNGSTAN – HNO<sub>3</sub> / HF

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.

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

The product may be corrosive to metals.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

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 (NOx).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

(ATE calculated)	Test data not available for the mixture.
Acute toxicity (oral)	Harmful if swallowed.
Acute toxicity (Dermal)	Toxic in contact with skin.
Acute toxicity (Respiratory)	Mixture/product does not meet classification criteria.

#### Nitric acid ≥ 65 %

LC50 inhalation (vapour)	265 mg/l
--------------------------	----------

#### Hydrofluoric acid (CAS 7664-39-3)

LD50 (oral)	10.63 mg/kg
LD50 (dermal)	10.63 mg/kg
LD50 (inhalation) 4 hour	1.25 mg/l – vapour

#### TUNGSTAN – HNO<sub>3</sub>+HF (ATE calculated.)

LD50 (oral)	354 mg/kg
LD50 (Dermal)	354 mg/kg
LC50 (inhalation)	23 mg/l

Skin corrosion/irritation:	Causes skin irritation.
Serious eye damage/irritation	Causes severe eye irritation.
Respiratory or skin sensitisation	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
STOT-SE	Not classified
STOT RE	Not classified
Aspiration hazard	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	<b>Toxicity</b>	
	Ecology - general	Mixture/product does not meet classification criteria.
	Acute aquatic toxicity	Mixture/product does not meet classification criteria.
	Chronic aquatic toxicity	Mixture/product does not meet classification criteria.
12.2	<b>Persistence and degradability</b>	Not applicable for inorganic compounds.
12.3	<b>Bioaccumulative potential</b>	Not applicable for inorganic compounds.
12.4	<b>Mobility</b>	No data available.
12.5	<b>Results of PBT and vPvB assessment</b>	This substance/mixture contains no components considered to be either persistent, bio accumulative or toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.
12.6	<b>Endocrine disrupting properties</b>	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	<b>Other adverse effects</b>	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	2922	2922	2922	
Proper Shipping Name	CORROSIVE LIQUID, TOXIC, N.O.S (Nitric Acid, Hydrofluoric acid)	CORROSIVE LIQUID, TOXIC, N.O.S (Nitric Acid Hydrofluoric acid, )	CORROSIVE LIQUID, TOXIC, N.O.S (Nitric Acid, Hydrofluoric acid )	
Hazard Class	8	8	8	
Subsidiary hazard class	6.1	6.1	6.1	
Packing Group	II	II	II	
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.

# TUNGSTAN – HNO<sub>3</sub> / HF

## 15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out.

## SECTION 16: OTHER INFORMATION

Full text of hazard classes and statements:

Sk cor. Cat 1B, H314	Skin corrosion, Category 1B, Causes severe skin burns.
Eye Dam Cat 1, H318	Eye Damage Category 1, Causes serious eye damage
Met.Cor. Cat 1A, H290	Metal corrosion Category 1A, May cause metal corrosion.
Ac tox (Der), 3, H311	Acute toxicity, Category 3, Toxic in contact with skin.
Ac tox (Oral), 4, H302	Acute toxicity, Category 4, Harmful if swallowed.
Ox. Liq. 3, H272	Oxidising liquid, Category 3, may intensify fire:oxidiser.
Ac tox 3 H331	Acute toxicity, Category 3, Toxic if inhaled.
Ac tox 2, 300;	Acute toxicity, Category 2, Fatal if swallowed
Ac tox 1 310;	Acute toxicity, Category 1, Fatal in contact with skin.
Ac tox 2 330;	Acute toxicity, Category 2, Fatal if inhaled.
Sk irr 2 315;	Skin irritant, Category 2, Causes skin irritation.
Eye irr 2 319;	Eye irritation, Category 2, Causes severe eye irritation
STOT SE 3 335	Specific target organ toxicity, Single Exposure, May cause respiratory irritation.
WEL STEL	Workplace Exposure Limit; Short term Exposure Limit
TWA	Time weighted average
ATE	Acute toxicity estimate

*"DISCLAIMER: The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. De Bruyn SPECTROSCOPIC Solutions MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the supplier's product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of the supplier's product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. The supplier provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, the supplier makes no representations as to its completeness or accuracy."*

Revision history	Changes	Date
Revision 2.0	Document updated to GHS Standard	31-10-2024