

## LUTETIUM – HNO<sub>3</sub>

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Revision No.: 2.0

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

#### 1.1 Product Identifier

|               |                             |
|---------------|-----------------------------|
| Product form  | Liquid                      |
| Chemical Name | LUTETIUM – HNO <sub>3</sub> |
| 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: 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

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.

**Supplementary Information:**

EUH071 Corrosive to the respiratory tract.

#### 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:

P261 - Do not breathe mist, vapour, fume, or spray.

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.

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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.

### Reduced Labelling (< = 125 ml)



Signal Word: Danger

Hazard Statements:

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

#### **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<br>(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 |
| Lutetium (III) oxide | (CAS No.) 12032-20-0<br>(EC No.) 234-764-3                            | 0.01 10 000 µg/mL as Lu | Not classified                                                                            |

Specific concentration limits: Nitric Acid  
(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 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.

#### **First aid measures after ingestion**

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

### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact

Causes burns.

Symptoms/effects after eye contact

Causes serious damage to eyes. Risk of blindness.

Symptoms/effects after ingestion/inhalation

Cough, shortness of breath, difficulty breathing, 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 Do not use 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<sub>x</sub>).
- 5.3 Advice for firefighters**  
 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.
- 5.4 Further Information**  
 No 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**  
 For further information refer to section 5, 8, 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, or mist.  
 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 (CAS: 7697-37-2)  |                         |                               |
|-------------------------------|-------------------------|-------------------------------|
| United Kingdom                | WEL STEL (Gas and mist) | 1 ppm / 2.6 mg/m <sup>3</sup> |
| South Africa; HCA Regulations | TWA (8Hour)             | 4 ppm                         |
|                               | STEL (15min)            | 8 ppm                         |

## 8.2 Exposure controls Appropriate engineering controls

Ensure adequate ventilation. Provide eyewash facility.

### Personal protective equipment

#### Hand protection

#### Eye protection

#### Skin and body protection

#### Respiratory protection

Protective gloves PVC, rubber

Tightly fitting safety goggles/face mask

Acid resistant protective clothing,

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             |
| 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 is corrosive to metals.

### 10.2 Chemical stability Stable under recommended storage conditions.

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### 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 (NO<sub>x</sub>).

## 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.

Product does not meet classification criteria.

Product does not meet classification criteria.

Product does not meet classification criteria.

| <b>Nitric acid ≥ 65 %</b> |           |
|---------------------------|-----------|
| LC50 inhalation (vapour)  | 2.65 mg/l |

Skin corrosion/irritation:

Causes severe skin burns and eye damage.

Serious eye damage/irritation

Serious eye damage,

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 **Toxicity**

Ecology - general

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

Acute aquatic toxicity

Not classified.

Chronic aquatic toxicity

Not classified.

### 12.2 **Persistence and degradability**

Not applicable for inorganic compounds.

### 12.3 **Bioaccumulative potential**

Not applicable for inorganic compounds.

### 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, bio accumulative or toxic (PBT), or very persistent and very bio accumulative (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 (Nitric Acid) | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S (Nitric Acid) | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S (Nitric Acid) |                                                                                     |
| 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 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.               |
| Sk cor. Cat 1A, H314  | Skin corrosion, Category 1A, Causes severe skin burns and eye damage. |
| Ox liq. Cat 3, H272   | Oxidizing liquid, category 3, May intensify fire-oxidiser.            |
| Ox liq. Cat 2, H272   | Oxidizing liquid, category 2, May intensify fire-oxidiser.            |
| WEL STEL              | Workplace Exposure Limit; Short term Exposure Limit                   |
| TWA                   | Time weighted average.                                                |

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| Revision history | Changes                          | Date       |
|------------------|----------------------------------|------------|
| Revision 1.0     | Original document.               |            |
| Revision 2.0     | Document updated to GHS Standard | 31-08-2024 |