SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision date 19-Feb-2024 **Revision Number** 1

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

1.1. Product identifier

Product Code(s)	VHG-MISA4-100
Product Name	MISA Standard 4: As, Be, Bi, Hg, Re, S, Se @ 100 µg/mL in 10% HNO3
Form	Not applicable
Unique Formula Identifier (UFI)	GD7T-K0SS-C00Q-YHCY
Pure substance/mixture	Mixture

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

Recommended use	Laboratory use
Uses advised against	No information available

1.3. Details of the supplier of the safety data sheet

Supplier

LGC Limited
Queens Road
Teddington
Middlesex TW11 0LY
UNITED KINGDOM
:+44 (0) 20 8943 7000
Fax :+44 (0) 20 8943 2767
eMail : gb@lgcstandards.com

Web : www.lgcstandards.com

For further information, please contact

E-mail address sds-request@lgcgroup.com

1.4. Emergency telephone number

Emergency Telephone: For Hazardous Materials or Dangerous Goods Incident
Spill, Leak, Fire Exposure, or Accident
Call CHEMTREC:
USA & Canada 1-800-424-9300
Rest of the world +1 703-741-5970

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VHG-MISA4-100 - MISA Standard 4: As, Be, Bi, Hg, Re, S, Se @ 100 µg/mL in 10% HNO3

Emergency Telephone - §45 - (EC)1272/2008	
Europe	**112**
Austria	No information available
Bulgaria	
Croatia	
Cyprus	
Czech Republic	
Denmark	
France	
Hungary	
Ireland	
Italy	
Lithuania	
Luxembourg	
Netherlands	
Norway	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
Switzerland	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to
Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation	Category 1 Sub-category A - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)
Corrosive to metals	Category 1 - (H290)

2.2. Label elements

Signal word

Danger

Hazard statements
H314 - Causes severe skin burns and eye damage
H290 - May be corrosive to metals
EUH071 - Corrosive to the respiratory tract

Precautionary Statements - EU (§28, 1272/2008)
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P280 - Wear protective gloves/protective clothing and eye/face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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 or doctor
P201 - Obtain special instructions before use
P234 - Keep only in original container
P406 - Store in corrosive resistant stainless steel container with a resistant inner liner

2.3. Other hazards

No information available.

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

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	-	-
Selenium	-	-
Mercury	-	-
Beryllium Oxyacetate	-	-
Arsenic	-	-

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical nature aqueous solution.

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Nitric Acid 7697-37-2	5 - <10	-	231-714-2	Met. Corr. 1 (H290) Ox. Liq. 2 (H272) Acute Tox. 3 (H331) Skin Corr. 1A (H314) (EUH071)	Ox. Liq. 2 :: C>=99% Ox. Liq. 3 :: C≥65% Skin Corr. 1A :: C>=20% Skin Corr. 1B :: 5%<=C<20%		
Selenium 7782-49-2	<0.1	-	231-957-4	Acute Tox. 3 (H301) Acute Tox. 3 (H331) STOT RE 2 (H373) Aquatic Chronic 4 (H413)			
Mercury 7439-97-6	<0.1	-	231-106-7 (080-001-00-0)	Acute Tox. 2 (H330) Repr. 1B (H360D) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	STOT RE 2 :: C>=0.1%		
Beryllium Oxyacetate 19049-40-2	<0.1	-	242-785-4 (004-002-00-2)	Acute Tox. 2 (H330) Acute Tox. 3 (H301) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317) Carc. 1B (H350) STOT SE 3 (H335) STOT RE 1 (H372) Aquatic Chronic 2 (H411)			
Arsenic 7440-38-2	<0.1	-	231-148-6 (033-001-00-X)	Acute Tox. 3 (H301) Acute Tox. 3 (H331) Carc. 1A (H350) Repr. 1A (H360) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)			

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate
If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Nitric Acid 7697-37-2	No data available	No data available	No data available	2.65	No data available
Selenium 7782-49-2	6700	No data available	No data available	No data available	No data available
Arsenic 7440-38-2	15	No data available	No data available	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention.

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.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical attention.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

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

Symptoms Burning sensation.

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

Note to doctors Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

SECTION 5: Firefighting measures

5.1. 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.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours.

5.3. Advice for firefighters

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

6.1. 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. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

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

For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

6.3. 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	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.
General hygiene considerations	Regular cleaning of equipment, work area and clothing is recommended. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product. 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.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	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. 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.

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Nitric Acid 7697-37-2	-	STEL 1 ppm STEL 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³
Selenium 7782-49-2	-	TWA: 0.1 mg/m³ STEL 0.3 mg/m³	TWA: 0.2 mg/m³	TWA: 0.2 mg/m³	TWA: 0.1 mg/m³
Mercury 7439-97-6	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³ STEL 0.08 mg/m³ Sk* Sh+	TWA: 0.02 mg/m³ Sk*	TWA: 0.05 mg/m³ TWA: 0.02 mg/m³	TWA: 0.02 mg/m³
Beryllium Oxyacetate 19049-40-2	-	-	TWA: 0,00005 mg/m³ STEL: 0.01 mg/m³	-	TWA: 0.0006 mg/m³ Sk* Skin Sensitisation
Arsenic 7440-38-2	-	-	TWA: 0.01 mg/m³	-	TWA: 0.1 mg/m³

Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m³	TWA: 1 mg/m³ Ceiling: 2.5 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³	TWA: 0.5 ppm TWA: 1.3 mg/m³ STEL: 1 ppm STEL: 2.6 mg/m³
Selenium 7782-49-2	-	TWA: 0.1 mg/m³ Ceiling: 0.2 mg/m³	TWA: 0.1 mg/m³ STEL: 0.2 mg/m³	TWA: 0.1 mg/m³	TWA: 0.1 mg/m³ STEL: 0.3 mg/m³
Mercury 7439-97-6	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³ Sk* Ceiling: 0.15 mg/m³	TWA: 0.02 mg/m³ STEL: 0.04 mg/m³ Sk*	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³ Sk*
Beryllium Oxyacetate 19049-40-2	-	TWA: 0.001 mg/m³ Ceiling: 0.002 mg/m³	TWA: 0.00002 mg/m³ STEL: 0.00004 mg/m³	-	-
Arsenic 7440-38-2	-	TWA: 0.1 mg/m³ Ceiling: 0.4 mg/m³	TWA: 0.0028 mg/m³ STEL: 0.0056 mg/m³	TWA: 0.03 mg/m³ TWA: 0.01 mg/m³	TWA: 0.01 mg/m³

Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m³	TWA: 1 ppm TWA: 2.6 mg/m³	-	STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 2.6 mg/m³ STEL: 1 ppm

Selenium 7782-49-2	-	TWA: 0.05 mg/m³	TWA: 0.02 mg/m³ Peak: 0.16 mg/m³ Sk*	TWA: 0.2 mg/m³	-
Mercury 7439-97-6	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³ Sk* Sh+	TWA: 0.02 mg/m³ Peak: 0.16 mg/m³ Sk* skin sensitizer	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³ Sk* sz+
Beryllium Oxyacetate 19049-40-2	TWA: 0.0006 mg/m³	-	-	TWA: 0.005 mg/m³	TWA: 0.0006 mg/m³ Sk*
Arsenic 7440-38-2	-	-	-	TWA: 0.1 mg/m³	TWA: 0.01 mg/m³ Sk*
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³	TWA: 2 ppm TWA: 5.2 mg/m³ STEL: 4 ppm STEL: 10.3 mg/m³	TWA: 0.78 ppm TWA: 2 mg/m³ STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³
Selenium 7782-49-2	TWA: 0.1 mg/m³ STEL: 0.3 mg/m³	-	TWA: 0.2 mg/m³	-	TWA: 0.1 mg/m³
Mercury 7439-97-6	TWA: 0.02 mg/m³ STEL: 0.06 mg/m³	TWA: 0.02 mg/m³ Sk*	TWA: 0.025 mg/m³ Sk*	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³
Beryllium Oxyacetate 19049-40-2	TWA: 0.0002 mg/m³ STEL: 0.0006 mg/m³ Sk* Sens+	-	TWA: 0.00005 mg/m³	TWA: 0.001 mg/m³	-
Arsenic 7440-38-2	TWA: 0.01 mg/m³ STEL: 0.03 mg/m³	-	TWA: 0.01 mg/m³	-	-
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³	STEL: 0.5 ppm STEL: 1.3 mg/m³	TWA: 2 ppm TWA: 5 mg/m³ STEL: 4 ppm STEL: 10 mg/m³	TWA: 1.4 mg/m³ STEL: 2.6 mg/m³
Selenium 7782-49-2	-	-	-	TWA: 0.05 mg/m³ STEL: 0.15 mg/m³ A+	TWA: 0.1 mg/m³ STEL: 0.3 mg/m³
Mercury 7439-97-6	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³	TWA: 0.02 mg/m³ STEL: 0.06 mg/m³ A+	TWA: 0.02 mg/m³ Sk*
Beryllium Oxyacetate 19049-40-2	-	-	Sk*	-	-
Arsenic 7440-38-2	-	-	TWA: 0.28 µg/m³	TWA: 0.005 mg/m³ STEL: 0.015 mg/m³ Sk*	TWA: 0.01 mg/m³
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Nitric Acid 7697-37-2	TWA: 2 ppm STEL: 1 ppm	STEL: 1 ppm STEL: 2.6 mg/m³	Ceiling: 2.6 mg/m³	TWA: 1 ppm TWA: 2.6 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³

	STEL: 2.6 mg/m³			STEL: 1 ppm STEL: 2.6 mg/m³	
Selenium 7782-49-2	TWA: 0.2 mg/m³	TWA: 0.1 mg/m³ STEL: 0.2 mg/m³	TWA: 0.05 mg/m³	TWA: 0.05 mg/m³ STEL: 0.05 mg/m³	TWA: 0.1 mg/m³
Mercury 7439-97-6	TWA: 0.02 mg/m³ Sk*	TWA: 0.02 mg/m³	TWA: 0.1 mg/m³ Sk* S+	TWA: 0.02 mg/m³ STEL: 0.16 mg/m³ Sk*	TWA: 0.02 mg/m³
Beryllium Oxyacetate 19049-40-2	STEL: 0.01 mg/m³	TWA: 0.0002 mg/m³	TWA: 0.005 mg/m³ TWA: 0.002 mg/m³ STEL: 0.025 mg/m³ STEL: 0.01 mg/m³	-	TWA: 0.0002 mg/m³
Arsenic 7440-38-2	TWA: 0.01 mg/m³	TWA: 0.01 mg/m³ STEL: 0.1 mg/m³	-	-	TWA: 0.01 mg/m³

Chemical name	Sweden	Switzerland	United Kingdom
Nitric Acid 7697-37-2	NGV: 0.5 ppm NGV: 1.3 mg/m³ Bindande KGV: 1 ppm Bindande KGV: 2.6 mg/m³	TWA: 2 ppm TWA: 5 mg/m³ STEL: 2 ppm STEL: 5 mg/m³	STEL: 1 ppm STEL: 2.6 mg/m³
Selenium 7782-49-2	NGV: 0.1 mg/m³	TWA: 0.02 mg/m³ STEL: 0.16 mg/m³ Sk*	TWA: 0.1 mg/m³ STEL: 0.3 mg/m³
Mercury 7439-97-6	NGV: 0.02 mg/m³	TWA: 0.005 ppm TWA: 0.05 mg/m³ STEL: 0.04 ppm STEL: 0.4 mg/m³ Sk* S+	TWA: 0.02 mg/m³ STEL: 0.06 mg/m³
Beryllium Oxyacetate 19049-40-2	NGV: 0.0002 mg/m³ NGV: 0.0006 mg/m³ S+	TWA: 0.0006 mg/m³ S+	TWA: 0.002 mg/m³ STEL: 0.006 mg/m³
Arsenic 7440-38-2	NGV: 0.01 mg/m³	TWA: 0.01 mg/m³ Sk*	TWA: 0.1 mg/m³ STEL: 0.3 mg/m³

Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Mercury 7439-97-6	-	Check 25 µg/g Creatinine (urine - after end of work day, at the end of a work week/end of the shift)	100 µg/L - urine (Mercury) - not fixed	10 µg/L - blood (Mercury) - not critical 30 µg/g Creatinine - urine (Mercury) - single sample or urine collected over	0.056 µmol/mmol Creatinine (urine - Mercury discretionary) 0.1 mg/g Creatinine (urine - Mercury discretionary)

				24 hours	
Arsenic 7440-38-2	-	Check 3.2 million/µL Erythrocytes (red and white blood count - not provided) 3.8 million/µL Erythrocytes (red and white blood count - not provided) 4000 Leukocytes/µL (red and white blood count - not provided) 13000 Leukocytes/µL (red and white blood count - not provided) 10 g/dL Hemoglobin (red and white blood count - not provided) 12 g/dL Hemoglobin (red and white blood count - not provided) 30 % Hematocrit (red and white blood count - not provided) 35 % Hematocrit (red and white blood count - not provided) 50 µg/L (urine - after end of work day, at the end of a work week/end of the shift)	-	70 µg/L - urine (Arsenic) - at the end of the work shift or urine collected over 24 hours	0.05 mg/g Creatinine (urine - Arsenic end of workweek) 0.075 µmol/mmol Creatinine (urine - Arsenic end of workweek)
Chemical name	Denmark	Finland	France	Germany DFG	Germany TRGS
Selenium 7782-49-2	-	-	-	150 µg/L (serum - Selenium no restriction)	150 µg/L (serum - Selenium no restriction)

				150 µg/L - BAT (no restriction in steady state) serum 100 µg/L - BAR (no restriction in steady state) plasma/serum 30 µg/g Creatinine - BAR (for long-term exposures: at the end of the shift after several shifts) urine	
Mercury 7439-97-6	-	140 nmol/L (urine - Mercury in the morning after a working day at the end of a working week or exposure period) 50 nmol/L (blood - Mercury, inorganic at the end of a working week; time of day does not matter)	- blood (Total inorganic Mercury) - end of shift at end of workweek - urine (Total inorganic Mercury) - prior to shift	25 µg/g Creatinine (urine - Mercury no restriction) 25 µg/g Creatinine - BAT (no restriction in steady state) urine	25 µg/g Creatinine (urine - Mercury no restriction)
Arsenic 7440-38-2	-	70 nmol/L (urine - Arsenic, inorganic after the work phase or shift after a working week or exposure period)	- urine (Metabolites of inorganic Arsenic) - end of workweek	10 µg/L - BLW (end of exposure or end of shift) urine 0.5 µg/L - BAR (end of exposure or end of shift) urine 2 µg/L - BAR (end of exposure or end of shift) urine 10 µg/L - BAR (end of exposure or end of shift) urine 2 µg/L - (end of exposure or end of shift) - urine 2.5 µg/L - (end of exposure or end of shift) - urine 3 µg/L - (end of exposure or end of shift) - urine 8 µg/L - (end of exposure or end of	-

				shift) - urine 11 µg/L - (end of exposure or end of shift) - urine 13 µg/L - (end of exposure or end of shift) - urine 36 µg/L - (end of exposure or end of shift) - urine 57 µg/L - (end of exposure or end of shift) - urine	

Chemical name	Hungary	Ireland	Italy MDLPS	Italy AIDII
Selenium 7782-49-2	0.075 mg/g Creatinine (urine - Selenium not critical) 0.110 µmol/mmol Creatinine (urine - Selenium not critical)	-	-	-
Mercury 7439-97-6	0.030 mg/g Creatinine (urine - Mercury not critical) 0.017 µmol/mmol Creatinine (urine - Mercury not critical)	10 µg/L (blood - Mercury) 30 µg/g Creatinine (urine - Mercury)	-	20 µg/g Creatinine - urine (Total inorganic mercury) - prior to shift
Arsenic 7440-38-2	0.05 mg/L (urine - Arsenic end of shift) 0.67 µmol/L (urine - Arsenic end of shift)	35 µg/L (urine - inorganic Arsenic plus methylated metabolites end of workweek)	-	35 µg As/L - urine (Inorganic arsenic plus methylated metabolites) - end of workweek

Chemical name	Latvia	Luxembourg	Romania	Slovakia
Mercury 7439-97-6	10 µg/L - blood (Mercury) - 30 µg/g Creatinine - urine (Mercury) -	-	10 µg/L - blood (Mercury) - end of shift 30 µg/g Creatinine - urine (Mercury) - beginning of next shift	37.5 µg/L (urine - Mercury not critical) 15 mg/L (blood - Mercury after all work shifts)
Arsenic 7440-38-2	-	-	50 µg/g Creatinine - urine (Arsenic) - end of work week 0.5 mg/100 g - hair (Arsenic) - end of work week	-

Chemical name	Slovenia	Spain	Switzerland	United Kingdom
Selenium 7782-49-2	-	-	150 µg/L (serum - Selenium no restrictions)	-

			2 µmol/L (serum - Selenium no restrictions)	
Mercury 7439-97-6	0.25 µg/g Creatinine - urine (Mercury) - not relevant 30 µg/L urine - urine (Mercury) - not relevant	30 µg/g Creatinine (urine - total Inorganic mercury pre-shift) 10 µg/L (blood - total Inorganic mercury end of workweek)	25 µg/g creatinine (urine - Mercury inorganic before subsequent shift) 14.3 nmol/mmol creatinine (urine - Mercury inorganic before subsequent shift) 15 µg/L (whole blood - Mercury inorganic end of shift, and after several shifts (for long-term exposures)) 75 nmol/L (whole blood - Mercury inorganic end of shift, and after several shifts (for long-term exposures))	20 µmol/mol creatinine - urine (Mercury) - random
Arsenic 7440-38-2	-	35 µg As/L (urine - Inorganic arsenic plus Methylated metabolites end of workweek)	50 µg/L (urine - inorganic Arsenic and Methylated metabolite end of shift, and after several shifts (for long-term exposures)) 667 nmol/L (urine - inorganic Arsenic and Methylated metabolite end of shift, and after several shifts (for long-term exposures))	-

Derived No Effect Level (DNEL) No information available.
Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Personal protective equipment

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

Hand protection Wear protective Neoprene™ gloves. Wear suitable gloves. Impervious gloves. 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	Long sleeved clothing. Chemical resistant apron. 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.
General hygiene considerations	Regular cleaning of equipment, work area and clothing is recommended. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product. 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.
Environmental exposure controls	Do not allow into any sewer, on the ground or into any body of water.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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

Property	**Values**	**Remarks • Method**
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
pH	No data available	None known
pH (as aqueous solution)	No data available	No information available
Kinematic viscosity	No data available	None known
Dynamic viscosity	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

Vapour pressure	No data available	None known
Relative density	No data available	None known
Bulk density	No data available	
Liquid Density	No data available	
Relative vapour density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

9.2. Other information

9.2.1. Information with regards to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

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

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Incompatible materials Oxidising agent. Acids. Bases.

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.
Ingestion	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Numerical measures of toxicity

Acute 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)	99,999.000 mg/l
ATEmix (inhalation-vapour)	26.80 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Nitric Acid			= 2500 ppm (Rat) 1 h ATE (vapours) = 2.65 mg/L
Selenium	= 6700 mg/kg (Rat)		
Mercury			< 27 mg/m³ (Rat) 2 h
Arsenic	= 15 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 severe skin burns and eye damage.

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

Respiratory or skin sensitisation No information available.

Germ cell mutagenicity No information available.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	European Union
Beryllium Oxyacetate	Carc. 1B

Reproductive toxicity No information available.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
Mercury	Repr. 1B

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

Unknown aquatic toxicity Contains 0 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Selenium	-	LC50: >100mg/L (96h, Oncorhynchus mykiss)	-	-
Mercury	-	LC50: =0.5mg/L (96h, Cyprinus carpio) LC50: =0.16mg/L (96h, Cyprinus carpio) LC50: =0.18mg/L (96h, Cyprinus carpio) LC50: =0.9mg/L (96h, Oryzias latipes)	-	-

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Nitric Acid	-2.3

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

Chemical name	PBT and vPvB assessment
Nitric Acid	The substance is not PBT / vPvB
Selenium	PBT assessment does not apply
Arsenic	PBT assessment does not apply

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number UN2031
14.2 UN proper shipping name Nitric acid mixture
14.3 Transport hazard class(es) 8
14.4 Packing group II
Description UN2031, Nitric acid mixture, 8, II
14.5 Environmental hazards Not applicable

14.6 Special precautions for user
Special Provisions None
ERG Code 8L

IMDG
14.1 UN number or ID number UN2031
14.2 UN proper shipping name Nitric acid mixture
14.3 Transport hazard class(es) 8
14.4 Packing group II
Description UN2031, Nitric acid mixture, 8, II
14.5 Marine pollutant NP
14.6 Special precautions for user
Special Provisions None
EmS-No. F-A, S-B No information available
14.7 Maritime transport in bulk according to IMO instruments No information available

RID
14.1 UN number or ID number UN2031
14.2 UN proper shipping name Nitric acid mixture
14.3 Transport hazard class(es) 8
14.4 Packing group II
Description UN2031, Nitric acid mixture, 8, II
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None
Classification code C1

ADR
14.1 UN number or ID number UN2031
14.2 UN proper shipping name Nitric acid mixture
14.3 Transport hazard class(es) 8
14.4 Packing group II
Description UN2031, Nitric acid mixture, 8, II, (E)
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None
Classification code C1
Tunnel restriction code (E)

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

France
Occupational Illnesses (R-463-3, France)

Chemical name	French RG number	Title
Selenium 7782-49-2	RG 75	-
Mercury 7439-97-6	RG 2	-
Arsenic 7440-38-2	RG 20,RG 20bis	-

Germany

Water hazard class (WGK) slightly hazardous to water (WGK 1)

TA Luft (German Air Pollution Control Regulation)

Netherlands

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Carcinogens	Netherlands - List of Reproductive Toxins
Selenium	-	-	Can be harmful via breastfeeding
Mercury	-	-	Development Category 1B
Beryllium Oxyacetate	Present	-	-
Arsenic	Present	-	Can be harmful via breastfeeding Development Category 1B Fertility Category 1B

Poland

SDS created according to the following Polish regulation: Act of February 25, 2011 on chemical substances and their mixtures (Journal of Laws of 2018, item 143, as amended). Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing the European Chemicals Agency (EC) as amended. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, as amended. Regulation of the Minister of Health of 10 August 2012 on the criteria and method of classifying chemical substances and their mixtures (Journal of Laws of 2012, item 1018). Regulation of the Minister of Health of 20 April 2012 on labeling packaging of hazardous substances and mixtures and some mixtures (Journal of Laws of 2012, item 445). Regulation of the Minister of Family, Labor and Social Policy of 12 June 2018 on the maximum allowable concentrations and intensities of factors harmful to health in the work environment (Journal of Laws of 2018, item 1286). Announcement of the Minister of Economy, Labor and Social Policy of August 28,

2003 on the publication of the unified text of the Ordinance of the Minister of Labor and Social Policy on general health and safety at work regulations (Journal of Laws of 2003, No. 169, item 1650) . Regulation of the Minister of Health of 30 December 2004 on occupational safety and health related to the presence of chemical agents in the workplace (Journal of Laws of 2005, No. 11, item 86). Act of December 14, 2012 on waste (Journal of Laws of 2013, item 21) Regulation of the Minister of Health of December 30, 2004 on occupational health and safety related to the presence of chemical agents in the workplace (Journal U. of 2005, No. 11, item 86). Waste Act of December 14, 2012 (Journal of Laws of 2013, item 21). Act of 13 June 2013 on the management of packaging and packaging waste, Journal of Laws 2013, item 888). Government statement of September 24, 2002 - European Agreement on the International Carriage of Dangerous Goods by Road (ADR) (Journal of Laws No. 194, item 1629 and Journal of Laws of 2003, No. 207, item 2013 and 2014).

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorisations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors

Product contains: Restricted explosives precursors. Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 5 (1) and (3)

Chemical name	RESTRICTED EXPLOSIVES PRECURSORS - ANNEX I	REPORTABLE EXPLOSIVES PRECURSORS - ANNEX II
Nitric Acid - 7697-37-2	3 %w/w	-

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
Nitric Acid - 7697-37-2	75.	
Selenium - 7782-49-2	75.	
Mercury - 7439-97-6	18[a]. 30. 75.	
Arsenic - 7440-38-2	75.	

Persistent Organic Pollutants

Not applicable

Export Notification requirements

This product contains substances which are regulated pursuant to Regulation (EC) No. 649/2012 of the European parliament and of the council concerning the export and import of dangerous chemicals

Chemical name	European Export/Import Restrictions per (EC) 649/2012 - Annex Number
Mercury - 7439-97-6	I.1

	I.2 V

Ozone-depleting substances (ODS) regulation (EC) 1005/2009
Not applicable

EU - Water Framework Directive (2000/60/EC)

Chemical name	EU - Water Framework Directive (2000/60/EC)
Mercury - 7439-97-6	Priority hazardous substance

EU - Environmental Quality Standards (2008/105/EC)

Chemical name	EU - Environmental Quality Standards (2008/105/EC)
Mercury - 7439-97-6	Priority hazardous substance

International Inventories

TSCA	Complies under research and development exemption or is regulated by a different government agency.
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

15.2. Chemical safety assessment

Chemical Safety Report A Chemical Safety Assessment is not required for this substance

SECTION 16: Other information

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

Full text of H-Statements referred to under section 3
EUH071 - Corrosive to the respiratory tract
H272 - May intensify fire; oxidiser
H290 - May be corrosive to metals
H301 - Toxic if swallowed
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H330 - Fatal if inhaled
H331 - Toxic if inhaled
H335 - May cause respiratory irritation
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H360D - May damage the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H411 - Toxic to aquatic life with long lasting effects
H413 - May cause long lasting harmful effects to aquatic life

Legend
SVHC: Substances of Very High Concern for Authorisation:

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

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	On basis of test data
Serious eye damage/eye irritation	On basis of test data
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method

Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method
Corrosive to metals	On basis of test data

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

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