



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 26-Aug-2024

Revision Number 1.01

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

1.1. Product identifier

Product Code(s)	VHG-QC7A-500
Product Name	QC Standard 7A: Ag @ 50; Al, B, Ba, Na @ 100; Si @ 500; K @ 1000 µg/mL in 5% HNO ₃ , tr. F-
Form	Not applicable
Unique Formula Identifier (UFI)	Y1GT-N073-M00R-UW7Q
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



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Rest of the world +1 703-741-3877

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 2 - (H315)
Serious eye damage/eye irritation	Category 1 - (H318)
Chronic aquatic toxicity	Category 2 - (H411)
Corrosive to metals	Category 1 - (H290)

2.2. Label elements



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Signal word
Danger

Hazard statements

H315 - Causes skin irritation
H318 - Causes serious eye damage
H411 - Toxic to aquatic life with long lasting effects
H290 - May be corrosive to metals
EUH071 - Corrosive to the respiratory tract

Precautionary Statements - EU (§28, 1272/2008)

P264 - Wash face, hands and any exposed skin thoroughly after handling
P273 - Avoid release to the environment
P280 - Wear protective gloves and eye/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor
P391 - Collect spillage
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

Toxic to aquatic life.

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	-	-
Ammonium silicofluoride	-	-
Boric acid	-	-
Barium nitrate	-	-



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Aluminum nitrate nonahydrate	-	-
Silver	-	-

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	3 - <5	-	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%		
Ammonium silicofluoride 16919-19-0	<0.1	-	240-968-3 (009-012-00-0)	Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) Eye Irrit. 2 (H319) Aquatic Chronic 3 (H412)			
Boric acid 10043-35-3	<0.1	-	233-139-2	Repr. 1B (H360FD)			
Barium nitrate 10022-31-8	<0.1	-	233-020-5 (056-002-00-7)	Ox. Sol. 2 (H272) Acute Tox. 3 (H301) Acute Tox. 4 (H332) Eye Irrit. 2 (H319)			
Aluminum nitrate nonahydrate 7784-27-2	<0.1	-	616-523-8	Ox. Sol. 3 (H272) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)			



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Silver 7440-22-4	<0.1	-	231-131-3	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)			
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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
Boric acid 10043-35-3	2660	2001	2.12	No data available	No data available
Barium nitrate 10022-31-8	355	No data available	1.1138	No data available	No data available
Aluminum nitrate nonahydrate 7784-27-2	542.5	No data available	No data available	No data available	No data available
Silver 7440-22-4	5000	2000	5.16	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (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. Get medical attention immediately if symptoms occur.

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



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	while rinsing. Do not rub affected area. Get immediate medical attention.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

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

Note to doctors	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
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Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
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5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	No information available.
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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.
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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
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protective equipment as required.

Other information

Refer to protective measures listed in Sections 7 and 8.

For emergency responders

Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions

Prevent further leakage or spillage if safe to do so.

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. 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. 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)



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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/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³
Ammonium silicofluoride 16919-19-0	TWA: 2.5 mg/m ³	-	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³
Boric acid 10043-35-3	-	-	TWA: 2 mg/m ³ STEL: 6 mg/m ³	TWA: 5.0 mg/m ³	-
Barium nitrate 10022-31-8	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³ STEL 2 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³
Aluminum nitrate nonahydrate 7784-27-2	-	-	TWA: 2 mg/m ³	-	TWA: 2 mg/m ³
Silver 7440-22-4	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³ STEL 0.1 mg/m ³ Ceiling: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m ³	TWA: 1 mg/m ³ Ceiling: 2.5 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³	TWA: 0.5 ppm TWA: 1.3 mg/m ³ STEL: 1 ppm STEL: 2.6 mg/m ³
Ammonium silicofluoride 16919-19-0	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³ Ceiling: 5 mg/m ³	TWA: 2.5 mg/m ³ STEL: 5 mg/m ³ except those mentioned elsewhere in the list	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³
Barium nitrate 10022-31-8	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³ Ceiling: 2.5 mg/m ³	TWA: 0.5 mg/m ³ STEL: 1 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³
Aluminum nitrate nonahydrate 7784-27-2	-	-	TWA: 1 mg/m ³ STEL: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³
Silver 7440-22-4	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³ Ceiling: 0.3 mg/m ³	TWA: 0.01 mg/m ³ STEL: 0.02 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary



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Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m ³	TWA: 1 ppm TWA: 2.6 mg/m ³	-	STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 2.6 mg/m ³ STEL: 1 ppm
Ammonium silicofluoride 16919-19-0	TWA: 2.5 mg/m ³	TWA: 1 mg/m ³	TWA: 1 mg/m ³ Sk*	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³ Sk*
Boric acid 10043-35-3	-	TWA: 0.5 mg/m ³	TWA: 10 mg/m ³ Peak: 10 mg/m ³	-	-
Barium nitrate 10022-31-8	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³ Peak: 4 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³
Aluminum nitrate nonahydrate 7784-27-2	TWA: 2 mg/m ³	-	-	TWA: 2 mg/m ³	-
Silver 7440-22-4	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³ Peak: 0.8 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³	TWA: 2 ppm TWA: 5.2 mg/m ³ STEL: 4 ppm STEL: 10.3 mg/m ³	TWA: 0.78 ppm TWA: 2 mg/m ³ STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³
Ammonium silicofluoride 16919-19-0	TWA: 2.5 mg/m ³ STEL: 7.5 mg/m ³	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³	TWA: 0.2 mg/m ³	TWA: 2.5 mg/m ³
Boric acid 10043-35-3	TWA: 2 mg/m ³ STEL: 6 mg/m ³	-	TWA: 2 mg/m ³ STEL: 6 mg/m ³	TWA: 10 mg/m ³	TWA: 10 mg/m ³
Barium nitrate 10022-31-8	TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³ Sk*	TWA: 0.5 mg/m ³
Aluminum nitrate nonahydrate 7784-27-2	TWA: 2 mg/m ³ STEL: 6 mg/m ³	-	-	-	TWA: 1 mg/m ³
Silver 7440-22-4	TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Nitric Acid 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 0.5 ppm STEL: 1.3 mg/m ³	TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 1.4 mg/m ³ STEL: 2.6 mg/m ³
Ammonium silicofluoride 16919-19-0	TWA: 2.5 mg/m ³	-	-	TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³	TWA: 2 mg/m ³
Barium nitrate 10022-31-8	TWA: 0.5 mg/m ³	-	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³	TWA: 0.5 mg/m ³
Aluminum nitrate nonahydrate 7784-27-2	-	-	-	TWA: 2 mg/m ³ STEL: 4 mg/m ³	-
Silver 7440-22-4	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³	TWA: 0.05 mg/m ³
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain



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Nitric Acid 7697-37-2	TWA: 2 ppm STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³	Ceiling: 2.6 mg/m ³	TWA: 1 ppm TWA: 2.6 mg/m ³ STEL: 1 ppm STEL: 2.6 mg/m ³	STEL: 1 ppm STEL: 2.6 mg/m ³
Ammonium silicofluoride 16919-19-0	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³	TWA: 2.5 mg/m ³ STEL: 10 mg/m ³ Sk*	TWA: 2.5 mg/m ³
Boric acid 10043-35-3	TWA: 2 mg/m ³ STEL: 6 mg/m ³	-	-	TWA: 0.5 mg/m ³ STEL: 1.0 mg/m ³	TWA: 2 mg/m ³ STEL: 6 mg/m ³
Barium nitrate 10022-31-8	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³ STEL: 0.5 mg/m ³	TWA: 0.5 mg/m ³
Aluminum nitrate nonahydrate 7784-27-2	-	-	TWA: 2 mg/m ³	-	-
Silver 7440-22-4	TWA: 0.01 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.01 mg/m ³ STEL: 0.02 mg/m ³	TWA: 0.1 mg/m ³
Chemical name	Sweden		Switzerland		United Kingdom
Nitric Acid 7697-37-2	NGV: 0.5 ppm NGV: 1.3 mg/m ³ Bindande KGV: 1 ppm Bindande KGV: 2.6 mg/m ³		TWA: 2 ppm TWA: 5 mg/m ³ STEL: 2 ppm STEL: 5 mg/m ³		STEL: 1 ppm STEL: 2.6 mg/m ³
Ammonium silicofluoride 16919-19-0	NGV: 2 mg/m ³		-		TWA: 2.5 mg/m ³ STEL: 7.5 mg/m ³
Boric acid 10043-35-3	-		TWA: 1.8 mg/m ³ STEL: 1.8 mg/m ³		-
Barium nitrate 10022-31-8	NGV: 0.5 mg/m ³		TWA: 0.5 mg/m ³ STEL: 4 mg/m ³		TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³
Aluminum nitrate nonahydrate 7784-27-2	NGV: 1 mg/m ³		TWA: 2 mg/m ³		TWA: 2 mg/m ³ STEL: 6 mg/m ³
Silver 7440-22-4	NGV: 0.1 mg/m ³		TWA: 0.1 mg/m ³ STEL: 0.8 mg/m ³		TWA: 0.1 mg/m ³ STEL: 0.3 mg/m ³

Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Ammonium silicofluoride 16919-19-0	-	Check 4 mg/g Creatinine (urine - before following shift) 7 mg/g Creatinine (urine - immediately after exposure or	-	8 mg/g Creatinine - urine (Fluorides) - at the end of the work shift 4.0 mg/g Creatinine - urine (Fluorides) - before the start of	-



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		end of the shift)			the work shift in the middle of the week	
Chemical name	Denmark	Finland		France	Germany DFG	Germany TRGS
Ammonium silicofluoride 16919-19-0	-	-		- urine (Fluorides) - beginning of shift - urine (Fluorides) - end of shift	4.0 mg/g Creatinine (urine - Fluoride end of shift)	4.0 mg/g Creatinine (urine - Fluoride end of shift)
Barium nitrate 10022-31-8	-	-		-	10 µg/L - BAR (for long-term exposures: at the end of the shift after several shifts) urine	-
Chemical name	Hungary		Ireland	Italy MDLPS		Italy AIDII
Ammonium silicofluoride 16919-19-0	7 mg/g Creatinine (urine - Fluoride end of shift) 4 mg/g Creatinine (urine - Fluoride prior to next shift) 42 µmol/mmol Creatinine (urine - Fluoride end of shift) 24 µmol/mmol Creatinine (urine - Fluoride prior to next shift)		2 mg/L (urine - Fluoride prior to shift) 3 mg/L (urine - Fluoride end of shift)	-		2 mg/g Creatinine - urine (Fluorides) - prior to shift 3 mg/g Creatinine - urine (Fluorides) - end of shift
Chemical name	Latvia		Luxembourg	Romania		Slovakia
Ammonium silicofluoride 16919-19-0	-		-	5 mg/g Creatinine - urine (Fluorine) - end of shift		-
Chemical name	Slovenia		Spain	Switzerland		United Kingdom
Ammonium silicofluoride 16919-19-0	7.0 mg/g Creatinine - urine (Fluoride) - at the end of the work shift 4.0 mg/g Creatinine - urine () - before the next working day		-	-		-

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. Avoid contact with eyes. Wear safety glasses with side shields



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(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. 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. 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



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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. Strong acids. Strong bases.



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

Symptoms related to the physical, chemical and toxicological characteristics

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

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)	99,999.00 mg/l
ATEmix (inhalation-vapour)	58.90 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Nitric Acid			= 2500 ppm (Rat) 1 h



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			ATE (vapours) = 2.65 mg/L
Boric acid	= 2660 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 2.12 mg/L (Rat) 4 h
Barium nitrate	= 355 mg/kg (Rat)		> 1.1 mg/L (Rat) 243 min
Aluminum nitrate nonahydrate	= 542.5 mg/kg (Rat)		
Silver	> 5000 mg/kg (Rat)	> 2000 mg/kg (rat)	> 5.16 mg/L (Rat) 4 h

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

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

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

Chemical name	European Union
Boric acid	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



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11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

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

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Ammonium silicofluoride	-	LC50: =25.8mg/L (96h, Pimephales promelas)	-	-
Boric acid	-	-	-	EC50: 115 - 153mg/L (48h, Daphnia magna)
Silver	-	LC50: 0.00155 - 0.00293mg/L (96h, Pimephales promelas) LC50: =0.0062mg/L (96h, Oncorhynchus mykiss) LC50: =0.064mg/L (96h, Lepomis macrochirus)	-	EC50: =0.00024mg/L (48h, Daphnia magna)

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
Ammonium silicofluoride	-6.01 @ 20 °C



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Boric acid	-1.09
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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
Ammonium silicofluoride	PBT assessment does not apply
Boric acid	The substance is not PBT / vPvB
Barium nitrate	The substance is not PBT / vPvB
Aluminum nitrate nonahydrate	PBT assessment does not apply
Silver	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 UN3264
14.2 UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
14.3 Transport hazard class(es) 8



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14.4 Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III
14.5 Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	A3, A803
ERG Code	8L

IMDG

14.1 UN number or ID number	UN3264
14.2 UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s.(Nitric Acid), 8, III, Marine pollutant
14.5 Marine pollutant	P
Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	223, 274
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	UN3264
14.2 UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, Environmentally Hazardous
14.5 Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	274
Classification code	C1

ADR

14.1 UN number or ID number	UN3264
14.2 UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	III
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid), 8, III, (E), Environmentally Hazardous
14.5 Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	274
Classification code	C1
Tunnel restriction code	(E)



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SECTION 15: Regulatory information

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

National regulations

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
Boric acid	-	-	Fertility Category 1B Development Category 1B
Aluminum nitrate nonahydrate	-	-	Can be harmful via breastfeeding Development 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



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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: Reportable explosives precursors. Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 9

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.	
Boric acid - 10043-35-3	30. 75.	
Silver - 7440-22-4	75.	

Persistent Organic Pollutants

Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

E2 - Hazardous to the Aquatic Environment in Category Chronic 2

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Biocidal Products Regulation (EU) No 528/2012 (BPR)



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Chemical name	Biocidal Products Regulation (EU) No 528/2012 (BPR)
Boric acid - 10043-35-3	Product-type 8: Wood preservatives
Silver - 7440-22-4	Product-type 2: Disinfectants and algicides not intended for direct application to humans or animals Product-type 4: Food and feed area Product-type 5: Drinking water Product-type 9: Fibre, leather, rubber and polymerised materials preservatives Product-type 11: Preservatives for liquid-cooling and processing systems

International Inventories

TSCA

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

DSL/NDSL

Contact supplier for inventory compliance status

EINECS/ELINCS

Contact supplier for inventory compliance status

ENCS

Contact supplier for inventory compliance status

IECSC

Contact supplier for inventory compliance status

KECI

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



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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
H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H331 - Toxic if inhaled
H332 - Harmful if inhaled
H360FD - May damage fertility. May damage the unborn child
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H412 - Harmful to aquatic life with long lasting effects

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



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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

Revision date 26-Aug-2024

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

Disclaimer

The information in this safety data sheet (SDS) has been prepared with due care and is true and accurate to the best of our knowledge. The user must determine the suitability of the information for its particular purpose, ensure compliance with existing laws and regulations, and be aware that other or additional safety or performance considerations may arise when using, handling and/ or storing the material. The information in this SDS does not purport to be all inclusive or a guarantee as to the properties of the material supplied, and should be used only as a guide. LGC makes no warranties or representations as to the accuracy and completeness of the information contained herein, shall not be held responsible for the suitability of this information for the user's intended purposes or the consequences of such use, and shall not be liable for any damage or loss, howsoever arising, direct or otherwise.

End of Safety Data Sheet