Environmental Standard - 26 components; 100mg/l each of Ag ; Al ; As ; Ba ; Be ; Ca ; Cd ; Co ; Cr ; Cu ; Fe ; K ; Mg ; Mn ; Mo ; Na ; Ni ; Pb ; Sb ; Se ; Sn ; Sr ; Ti ; Tl ; V ; Zn in HNO3 5%/ tr. HF/ tr. Tart. Ac. Equivalent to Perkin Elmer Ref: N9301721MS

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 09/10/2016 Revision date: 09/10/2016 Version: 1.1

SECTION 1: Identification

1.1. Identification

Product form : Mixture

Name : Environmental Standard - 26 components; 100mg/l each of Ag ; Al ; As ; Ba ; Be ; Ca ; Cd ; Co ; Cr ; Cu ; Fe ; K ; Mg ; Mn ; Mo ; Na ; Ni ; Pb ; Sb ; Se ; Sn ; Sr ; Ti ; Tl ; V ; Zn in HNO3 5%/ tr. HF/ tr. Tart. Ac. Equivalent to Perkin Elmer Ref: N9301721MS

Product code : EQ0184

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

Use of the substance/mixture : Certified reference material for laboratory use

1.3. Details of the supplier of the safety data sheet

Spectracer UK Ltd.
Second Floor,
27 Gloucester Place,
London,
W1U 8HU,
United Kingdom.

Tel: +44 (0) 207 193 9114
Fax:+44 (0) 203 432 4686
Email: contact@spectracer.co.uk
Web: www.spectracer.com

1.4. Emergency telephone number

Emergency number : Tel: +44(0)1933445260 Option 1. Language: English only.
For Chemical Emergencies Only
Llewellyn (Safety Advisors) Europe Ltd

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Corrosive to metals Category 1	H290
Skin corrosion/irritation Category 1A	H314
Skin sensitization Category 1	H317
Carcinogenicity Category 1B	H350
Hazardous to the aquatic environment - Acute Hazard Category 2	H401
Hazardous to the aquatic environment - Chronic Hazard Category 3	H412

Full text of H statements : see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS05 GHS07 GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H350 - May cause cancer
H401 - Toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (GHS-US) :
P202 - Do not handle until all safety precautions have been read and understood
P234 - Keep only in original container
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P272 - Contaminated work clothing must not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a poison center/doctor/…
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P363 - Wash contaminated clothing before reuse
P390 - Absorb spillage to prevent material damage
P405 - Store locked up
P501 - Dispose of contents/container to ..

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
nitric acid	(CAS No) 7697-37-2	5 - 15	Ox. Liq. 3, H272 Met. Corr. 1, H290 Skin Corr. 1A, H314
hydrofluoric acid	(CAS No) 7664-39-3	0.1 - 1	Met. Corr. 1, H290 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation), H330 Skin Corr. 1A, H314
beryllium nitrate	(CAS No) 13597-99-4	0.1 - 1	Acute Tox. 3 (Oral), H301 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1, H317 Carc. 1B, H350 STOT SE 3, H335 STOT RE 1, H372 Aquatic Acute 3, H402 Aquatic Chronic 2, H411
chromium(III) nitrate	(CAS No) 13548-38-4	< 0.1	Skin Sens. 1, H317
iron(III) nitrate	(CAS No) 10421-48-4	< 0.1	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
manganese(II)nitrate	(CAS No) 10377-66-9	< 0.1	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
nickel nitrate	(CAS No) 13138-45-9	< 0.1	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1A, H350 Repr. 1B, H360 STOT RE 1, H372 Aquatic Acute 3, H402 Aquatic Chronic 3, H412
cobalt dinitrate	(CAS No) 10141-05-6	< 0.1	Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 2, H351 Repr. 1B, H360 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
cadmium nitrate	(CAS No) 10325-94-7	< 0.1	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
hexafluoroantimonyic acid	(CAS No) 16950-06-4	< 0.1	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1B, H314 Aquatic Chronic 2, H411
arsenic acid	(CAS No) 7778-39-4	< 0.1	Acute Tox. 2 (Oral), H300 Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
barium nitrate	(CAS No) 10022-31-8	< 0.1	Acute Tox. 4 (Oral), H302
selenious acid	(CAS No) 7783-00-8	< 0.1	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Inhalation), H331 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
lead nitrate	(CAS No) 10099-74-8	< 0.1	Carc. 1B, H350 Repr. 1A, H360 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Name	Product identifier	%	GHS-US classification
silver nitrate	(CAS No) 7761-88-8	< 0.1	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
thallium(I)nitrate	(CAS No) 10102-45-1	< 0.1	Acute Tox. 2 (Oral), H300 STOT RE 2, H373 Aquatic Acute 2, H401 Aquatic Chronic 2, H411

Full text of hazard classes and H-statements : see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a physician immediately.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

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

Symptoms/injuries after skin contact : Burns. May cause an allergic skin reaction.

Symptoms/injuries after eye contact : Serious damage to eyes.

Symptoms/injuries after ingestion : Burns.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapors/spray.

6.1.2. For emergency responders

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

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray.

Hygiene measures : Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in corrosive resistant container with a resistant inner liner. Keep only in original container. Store locked up. Store in a well-ventilated place. Keep cool.

Incompatible materials : Metals.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

nitric acid (7697-37-2)		
ACGIH	ACGIH TWA (ppm)	2 ppm
ACGIH	ACGIH STEL (ppm)	4 ppm
ACGIH	Remark (ACGIH)	URT & eye irr; dental erosion
OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	2 ppm

hydrofluoric acid (7664-39-3)		
ACGIH	ACGIH TWA (ppm)	0.50 ppm
ACGIH	ACGIH Ceiling (ppm)	2 ppm
ACGIH	Remark (ACGIH)	URT, LRT, skin, & eye irr
OSHA	Remark (OSHA)	(2) See Table Z-2.

silver nitrate (7761-88-8)		
ACGIH	ACGIH TWA (mg/m³)	0.01 mg/m³ (Silver Soluble compounds, as Ag; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Not applicable		

arsenic acid (7778-39-4)		
ACGIH	ACGIH TWA (mg/m³)	0.01 mg/m³ (Arsenic, inorganic compounds (exept Arsine), as As; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Not applicable		

barium nitrate (10022-31-8)		
ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³ (Barium, soluble compounds, as Ba; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
OSHA	OSHA PEL (TWA) (mg/m³)	0.5 mg/m³

beryllium nitrate (13597-99-4)		
ACGIH	ACGIH TWA (mg/m³)	0.00005 mg/m³
ACGIH	Remark (ACGIH)	Beryllium sens; chronic beryllium; Skin; DSEN; RSEN; A1
OSHA	Remark (OSHA)	(2) See Table Z-2.

cadmium nitrate (10325-94-7)		
ACGIH	ACGIH TWA (mg/m³)	0.01 mg/m³ (Cadmium, compounds, as Cd; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Cadmium, compounds, as Cd; 0.002 mg/m³; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Respirable fraction)
Not applicable		

cobalt dinitrate (10141-05-6)		
ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³ (Cobalt, inorganic compounds, as Co; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Not applicable		

chromium(III) nitrate (13548-38-4)		
ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³ (Chromium,inorganic Cr III compounds; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Not applicable		

iron(III) nitrate (10421-48-4)		
ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (Iron salts, soluble, as Fe; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Not applicable		

manganese(II)nitrate (10377-66-9)		
ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³
ACGIH	Remark (ACGIH)	CNS impair; A4

nickel nitrate (13138-45-9)		
ACGIH	ACGIH TWA (mg/m³)	0.1 mg/m³ (Nickel, Soluble inorganic compounds (NOS), as Ni; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Inhalable fraction)
Not applicable		

lead nitrate (10099-74-8)		
ACGIH	ACGIH TWA (mg/m³)	0.05 mg/m³ (Lead, inorganic compounds, as Pb; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	Remark (ACGIH)	CNS & PNS impair

hexafluoroantimonyic acid (16950-06-4)		
ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³
ACGIH	Remark (ACGIH)	Skin & URT irr
OSHA	OSHA PEL (TWA) (mg/m³)	0.5 mg/m³

selenious acid (7783-00-8)		
ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³ (Selenium compounds, as Se; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	Remark (ACGIH)	78.96 Eye & URT irr

selenious acid (7783-00-8)		
OSHA	OSHA PEL (TWA) (mg/m³)	0.2 mg/m³

thallium(I)nitrate (10102-45-1)		
ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³
ACGIH	Remark (ACGIH)	dam; peripheral neuropathy
OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Personal protective equipment : Avoid all unnecessary exposure. Gloves. Safety glasses. Protective clothing.

Hand protection : Protective gloves.

Eye protection : Safety glasses.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Wear respiratory protection.

Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Color : Mixture contains one or more component(s) which have the following colour(s): colorless to yellow On exposure to light: red-brown Colorless Colourless to white Colourless to grey On exposure to light: dark grey to black White White to light yellow Light red Light green Blue-green Light violet Colourless-white Colourless to light rose Green Colourless to light brown Colourless or white On exposure to air: turns dark White or colourless

Odor : There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure.
Mixture contains one or more component(s) which have the following odour(s): irritating/pungent odor asphyxiating odor Odorless No data available on odour Mild odour

Odor threshold : No data available

pH : No data available

Melting point : Not applicable

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Flammability (solid, gas) : Not applicable.

Vapor pressure : No data available

Relative vapor density at 20 °C : No data available

Relative density : 1.09

Solubility : Miscible with water.

Log Pow : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

metals.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

hydrofluoric acid (7664-39-3)	
ATE US (oral)	5.000 mg/kg body weight
ATE US (dermal)	5.000 mg/kg body weight
ATE US (gases)	100.000 ppmV/4h
ATE US (vapors)	0.500 mg/l/4h
ATE US (dust, mist)	0.050 mg/l/4h

silver nitrate (7761-88-8)	
LD50 oral rat	1173 mg/kg (Rat)
ATE US (oral)	1173.000 mg/kg body weight

arsenic acid (7778-39-4)	
LD50 oral rat	48 mg/kg (Rat)
ATE US (oral)	48.000 mg/kg body weight

barium nitrate (10022-31-8)	
LD50 oral rat	355 mg/kg (Rat)
ATE US (oral)	355.000 mg/kg body weight

beryllium nitrate (13597-99-4)	
ATE US (oral)	100.000 mg/kg body weight

cadmium nitrate (10325-94-7)	
LD50 oral rat	300 mg/kg (Rat)
ATE US (oral)	300.000 mg/kg body weight
ATE US (dermal)	1100.000 mg/kg body weight
ATE US (gases)	4500.000 ppmV/4h

cadmium nitrate (10325-94-7)	
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/4h

chromium(III) nitrate (13548-38-4)	
LD50 oral rat	3250 mg/kg (Rat)
ATE US (oral)	3250.000 mg/kg body weight

nickel nitrate (13138-45-9)	
ATE US (oral)	500.000 mg/kg body weight
ATE US (gases)	4500.000 ppmV/4h
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/4h

lead nitrate (10099-74-8)	
LD50 oral rat	4665 mg/kg body weight (Rat; Equivalent or similar to OECD 401; Read-across; 5610 mg/kg bodyweight; Rat; Equivalent or similar to OECD 401; Read-across)
ATE US (oral)	4665.000 mg/kg body weight

hexafluoroantimonyic acid (16950-06-4)	
ATE US (oral)	500.000 mg/kg body weight
ATE US (gases)	4500.000 ppmV/4h
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/4h

selenious acid (7783-00-8)	
ATE US (oral)	100.000 mg/kg body weight
ATE US (gases)	700.000 ppmV/4h
ATE US (vapors)	3.000 mg/l/4h
ATE US (dust, mist)	0.500 mg/l/4h

thallium(I)nitrate (10102-45-1)	
ATE US (oral)	5.000 mg/kg body weight

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified

Carcinogenicity : May cause cancer.

arsenic acid (7778-39-4)	
IARC group	2B - Possibly carcinogenic to humans

beryllium nitrate (13597-99-4)	
IARC group	1 - Carcinogenic to humans

cadmium nitrate (10325-94-7)	
IARC group	1 - Carcinogenic to humans

cobalt dinitrate (10141-05-6)	
IARC group	2B - Possibly carcinogenic to humans

chromium(III) nitrate (13548-38-4)	
IARC group	3 - Not classifiable

lead nitrate (10099-74-8)	
IARC group	2A - Probably carcinogenic to humans

selenious acid (7783-00-8)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after skin contact : Burns. May cause an allergic skin reaction.

Symptoms/injuries after eye contact : Serious damage to eyes.

Symptoms/injuries after ingestion : Burns.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life with long lasting effects. Toxic to aquatic life.

nitric acid (7697-37-2)	
EC50 Daphnia 1	180 mg/l (EC50; 48 h)
LC50 fish 2	72 ppm (LC50; 96 h)
Threshold limit algae 1	> 19 mg/l (EC0)

hydrofluoric acid (7664-39-3)	
LC50 fish 1	107.5 mg/l (LC50; 96 h)
EC50 Daphnia 1	270 mg/l (EC50; 48 h)
Threshold limit algae 1	95 mg/l (EC0; 96 h)

silver nitrate (7761-88-8)	
EC50 Daphnia 1	0.0006 mg/l (EC50; 48 h)
LC50 fish 2	0.006 mg/l (LC50; 96 h; Salmo gairdneri)

arsenic acid (7778-39-4)	
LC50 fish 1	25.6 mg/l (LC50; 96 h)
EC50 Daphnia 1	0.93 mg/l (EC50; 672 h)
Threshold limit algae 1	< 0.002 mg/l (EC0)

barium nitrate (10022-31-8)	
LC50 fish 1	> 1000 mg/l (LC50; 96 h)

beryllium nitrate (13597-99-4)	
LC50 fish 1	8 mg/l (LC50)
EC50 Daphnia 1	18 mg/l (EC50; 24 h)
Threshold limit algae 1	0.03 mg/l (EC0)

cadmium nitrate (10325-94-7)	
EC50 Daphnia 1	0.04 mg/l (EC50; 48 h)
LC50 fish 2	0.055 mg/l (LC50; 48 h)

cobalt dinitrate (10141-05-6)	
LC50 fish 1	0.490 mg/l (LC50; 672 h)
EC50 Daphnia 2	0.021 mg/l (EC50; 48 h)

cobalt dinitrate (10141-05-6)	
Threshold limit algae 1	0.018 mg/l (EC50; 96 h)

nickel nitrate (13138-45-9)	
LC50 fish 1	17.1 mg/l (LC50; 672 h)
Threshold limit algae 1	0.18 mg/l (EC50; 72 h)

lead nitrate (10099-74-8)	
EC50 Daphnia 1	0.3 mg/l (LC50; 48 h)
LC50 fish 2	7.48 mg/l (TLm; 96 h)
Threshold limit algae 1	0.14 mg/l (EC50)

selenious acid (7783-00-8)	
LC50 fish 1	0.62 - 0.97 mg/l (LC50; 96 h; Pimephales promelas)
EC50 Daphnia 2	0.430 mg/l (EC50; 48 h)

thallium(I)nitrate (10102-45-1)	
LC50 fish 1	180 mg/l (LC50)
EC50 Daphnia 1	1.6 mg/l (EC50; 24 h)

12.2. Persistence and degradability

nitric acid (7697-37-2)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

hydrofluoric acid (7664-39-3)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

silver nitrate (7761-88-8)	
Persistence and degradability	Biodegradability: Not applicable. May cause long-term adverse effects in the environment.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

arsenic acid (7778-39-4)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

barium nitrate (10022-31-8)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

beryllium nitrate (13597-99-4)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

cadmium nitrate (10325-94-7)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

cobalt dinitrate (10141-05-6)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

chromium(III) nitrate (13548-38-4)	
Persistence and degradability	Biodegradability: Not applicable. Adsorbs into the soil.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

iron(III) nitrate (10421-48-4)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

manganese(II)nitrate (10377-66-9)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

nickel nitrate (13138-45-9)	
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

lead nitrate (10099-74-8)	
Persistence and degradability	Biodegradability: Not applicable. Adsorbs into the soil.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

hexafluoroantimonyic acid (16950-06-4)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

selenious acid (7783-00-8)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

thallium(I)nitrate (10102-45-1)	
Persistence and degradability	Biodegradability: Not applicable. Adsorbs into the soil.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

nitric acid (7697-37-2)	
BCF fish 1	<= 1 (BCF)
Log Pow	-2.3 (OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)
Bioaccumulative potential	Bioaccumulation: Not applicable.

hydrofluoric acid (7664-39-3)	
Log Pow	-1.4 (Experimental value)
Bioaccumulative potential	Bioaccumulation: Not applicable.

silver nitrate (7761-88-8)	
BCF fish 1	11 - 19 (BCF)
BCF fish 2	15 - 150 (BCF)
Log Pow	0.19 (Estimated value)
Bioaccumulative potential	Low bioaccumulation potential (BCF < 500). Not established.

arsenic acid (7778-39-4)	
Bioaccumulative potential	bioaccumulative.

barium nitrate (10022-31-8)	
Bioaccumulative potential	Not bioaccumulative.

beryllium nitrate (13597-99-4)	
Bioaccumulative potential	Not bioaccumulative.

cadmium nitrate (10325-94-7)	
BCF other aquatic organisms 1	1220 (BCF)
BCF other aquatic organisms 2	603 (BCF; 504 h)
Bioaccumulative potential	bioaccumulative.

cobalt dinitrate (10141-05-6)	
Bioaccumulative potential	Bioaccumulation: No data available.

chromium(III) nitrate (13548-38-4)	
BCF other aquatic organisms 1	17000 (BCF)
BCF other aquatic organisms 2	6500 (BCF)
Bioaccumulative potential	Bioaccumulation: No data available.

iron(III) nitrate (10421-48-4)	
Bioaccumulative potential	Not bioaccumulative.

manganese(II)nitrate (10377-66-9)	
Bioaccumulative potential	Bioaccumulation: No data available.

lead nitrate (10099-74-8)	
Bioaccumulative potential	bioaccumulative.

hexafluoroantimonyic acid (16950-06-4)	
Bioaccumulative potential	Bioaccumulation: No data available.

selenious acid (7783-00-8)	
BCF fish 1	20 (BCF)
Bioaccumulative potential	bioaccumulative.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known effects from this product.

GWPmix comment : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (CONTAINS ; nitric acid ; hydrofluoric acid ; tartaric acid, L-(+)-), 8, II

UN-No.(DOT) : UN3264

Proper Shipping Name (DOT) : Corrosive liquid, acidic, inorganic, n.o.s.
CONTAINS ; nitric acid ; hydrofluoric acid ; tartaric acid, L-(+)-

Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102)	:	B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	30 L
DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded
DOT Vessel Stowage Other	:	40 - Stow ‘‘clear of living quarters’’
Emergency Response Guide (ERG) Number	:	154
Other information	:	No supplementary information available.

TDG

Transport document description	:	UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS ; nitric acid ; hydrofluoric acid ; tartaric acid, L-(+)-), 8, II
UN-No. (TDG)	:	UN3264
Proper Shipping Name (TDG)	:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
TDG Primary Hazard Classes	:	8 - Class 8 - Corrosives
Packing group	:	II - Medium Danger
TDG Special Provisions	:	16 - (1) The technical name of at least one of the most dangerous substances that predominantly contributes to the hazard or hazards posed by the dangerous goods must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(ii)(A) of Part 3 (Documentation). The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4 (Dangerous Goods Safety Marks). (2) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical name: (a)UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; (b)UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; (c)UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; (d)UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or (e)UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the “Food and Drugs Act”. (3) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a small means of containment: (a)UN2814, INFECTIOUS SUBSTANCE, AFFECTING HUMANS; or (b)UN2900, INFECTIOUS SUBSTANCE, AFFECTING ANIMALS. SOR/2014-306
Explosive Limit and Limited Quantity Index	:	1 L
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	:	1 L

Transport by sea

UN-No. (IMDG)	:	3264
Proper Shipping Name (IMDG)	:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Class (IMDG)	:	8 - Corrosive substances
Packing group (IMDG)	:	II - substances presenting medium danger
Limited quantities (IMDG)	:	1 L

Air transport

UN-No. (IATA)	:	3264
Proper Shipping Name (IATA)	:	Corrosive liquid, acidic, inorganic, n.o.s.
Class (IATA)	:	8 - Corrosives
Packing group (IATA)	:	II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

nitric acid (7697-37-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	1000 lb

hydrofluoric acid (7664-39-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA
CERCLA RQ	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	100 lb

silver nitrate (7761-88-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1 lb

arsenic acid (7778-39-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1 lb

barium nitrate (10022-31-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

beryllium nitrate (13597-99-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1 lb

cadmium nitrate (10325-94-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

cobalt dinitrate (10141-05-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

chromium(III) nitrate (13548-38-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

iron(III) nitrate (10421-48-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Not subject to reporing requirements of the United States SARA Section 313	
CERCLA RQ	1000 lb

manganese(II)nitrate (10377-66-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

nickel nitrate (13138-45-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb

lead nitrate (10099-74-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	10 lb

hexafluoroantimonyic acid (16950-06-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

selenious acid (7783-00-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	10 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	10000 lb 1,000lb if the substance is solid in powder form with particle size less than 100 microns, or is in solution or molten form

thallium(I)nitrate (10102-45-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

No additional information available

SECTION 16: Other information

Revision date : 09/10/2016

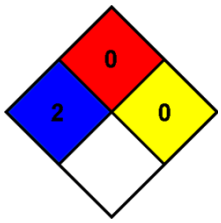
Full text of H-phrases:

H272	May intensify fire; oxidizer
H290	May be corrosive to metals
H300	Fatal if swallowed
H301	Toxic if swallowed
H302	Harmful if swallowed
H310	Fatal in contact with skin
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H341	Suspected of causing genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H360	May damage fertility or 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
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating		
Health	:	4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures * - Chronic (long-term) health effects may result from repeated overexposure
Flammability	:	0 Minimal Hazard - Materials that will not burn
Physical	:	0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.
Personal protection	:	C C - Safety glasses, Gloves, Synthetic apron

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.