

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

#### 1.1. Product identifier

Product form : Mixture  
Product name : Single-element Standard Solution for AAS.  
Manganese (Mn) 1000mg/l in HNO<sub>3</sub> 2%  
Product code : B133

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

##### 1.2.1. Relevant identified uses

Main use category : Professional use  
Use of the substance/mixture : Reference material  
Function or use category : Laboratory chemicals

##### 1.2.2. Uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

##### Spectracer UK Ltd.

Third Floor,  
55 Blandford Street,  
London,  
W1U 7HW,  
United Kingdom.

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

#### 1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	: +353 1 8379964	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital MSD Msida	+356 2545 6504	
United Kingdom	National Poisons Information Service (NHS Direct)	<a href="http://www.npis.org">http://www.npis.org</a>	111 (England & Wales only) or 112 (EU) or 08454 24 24 24 (Scotland)	

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Corrosive to metals, Category 1 H290

Full text of H statements : see section 16

##### Adverse physicochemical, human health and environmental effects

May be corrosive to metals.

#### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

Signal word (CLP) : Warning  
Hazard statements (CLP) : H290 - May be corrosive to metals.  
Precautionary statements (CLP) : P390 - Absorb spillage to prevent material damage.

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### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
nitric acid	(CAS-No.) 7697-37-2 (EC-No.) 231-714-2 (EC Index-No.) 007-004-00-1 (REACH-no) 01-2119487297-23-XXXX	1 – 5	Ox. Liq. 2, H272 Met. Corr. 1, H290 Acute Tox. 3 (Inhalation:dust,mist), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318
manganese(II)nitrate substance with a Community workplace exposure limit substance with national workplace exposure limit(s) (BE, BG, CH, CZ, DE, DK, ES, FI, GB, HU, IE, IS, LV, NO, PL, PT, RO, SE, SK)	(CAS-No.) 10377-66-9 (EC-No.) 233-828-8	0,1 – 0,5	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Skin Corr. 1C, H314 Eye Dam. 1, H318 STOT RE 2, H373 Aquatic Chronic 3, H412

### Specific concentration limits:

Name	Product identifier	Specific concentration limits
nitric acid	(CAS-No.) 7697-37-2 (EC-No.) 231-714-2 (EC Index-No.) 007-004-00-1 (REACH-no) 01-2119487297-23-XXXX	( 5 ≤C < 20) Skin Corr. 1B, H314 ( 20 ≤C < 100) Skin Corr. 1A, H314 ( 65 ≤C < 99) Ox. Liq. 3, H272 ( 99 ≤C < 100) Ox. Liq. 2, H272

Full text of H-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

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

No additional information available

### 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

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 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 : Ventilate spillage area.

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### 6.1.2. For emergency responders

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material.

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

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.

Hygiene measures : 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 in a well-ventilated place. Keep cool.

Incompatible materials : Metals.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### manganese(II)nitrate (10377-66-9)

EU	Local name	Manganese
EU	IOELV TWA (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> (inhalable fraction) 0,05 mg/m <sup>3</sup> (respirable fraction)
EU	Notes	(Year of adoption 2011)
EU	Regulatory reference	SCOEL Recommendations
Belgium	Local name	Manganèse et ses composés (en Mn) # Mangaan, en - verbindingen (als Mn)
Belgium	Limit value [mg/m <sup>3</sup> ]	0,2 mg/m <sup>3</sup>
Belgium	Regulatory reference	Koninklijk besluit/Arrêté royal 19/11/2020
Bulgaria	Local name	Манган
Bulgaria	OEL TWA (mg/m <sup>3</sup> )	0,3 mg/m <sup>3</sup> оксид и неорганични съединения (като манган)
Bulgaria	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> оксид и неорганични съединения (като манган)
Croatia	Local name	Mangan i anorganski spojevi mangana (kao Mn)
Croatia	GVI (granična vrijednost izloženosti) (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> U (ukupna prašina) 0,05 mg/m <sup>3</sup> R (respirabilna prašina)
Croatia	Naznake (HR)	Direktiva: 2017/164/EU
Croatia	Regulatory reference	Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN 91/2018)
Czech Republic	Local name	Mangan
Czech Republic	Expoziční limity (PEL) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Czech Republic	Expoziční limity (NPK-P) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
Czech Republic	Remark (CZ)	V - vdechovatelná frakce aerosolu, R - respirabilní frakce aerosolu.
Czech Republic	Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 41/2020 Sb.)

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manganese(II)nitrates (10377-66-9)		
Denmark	Local name	Mangan, pulver, støv og uorganiske forbindelser
Denmark	Grænseværdi (8 timer) (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> beregnet som Mn 0,1 mg/m <sup>3</sup> respirabel
Denmark	Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi)
Denmark	Regulatory reference	BEK nr 698 af 28/05/2020
Finland	Local name	Mangaani, metalli
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup>
Finland	Huomautus (FI)	Mn, alveolijae
Finland	Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
Germany	TRGS 900 Local name	Mangan und seine anorganischen Verbindungen
Germany	Occupational exposure limit value (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup> A (mg/m <sup>3</sup> ) 0,2 mg/m <sup>3</sup> E (mg/m <sup>3</sup> )
Germany	Peak exposure limitation factor	8(II)
Germany	TRGS 900 Remark	DFG,Y,10,20
Germany	TRGS 900 Regulatory reference	TRGS900
Germany	TRGS 910 Acceptable concentration notes	
Hungary	Local name	MANGÁN ÉS SZERVETLEN SÓI (mangán-tetraoxid kivételével, Mn-ra számítva)
Hungary	AK-érték	5 mg/m <sup>3</sup>
Hungary	CK-érték	20 mg/m <sup>3</sup>
Hungary	Megjegyzések (HU)	EU4 (2017/164 EU irányelvben közölt érték); Por: T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkezik), füst: R+T (Azok az anyagok, amelyek RÖVID és TARTÓS expozíciója is egészségkárosodást okoz)
Hungary	Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland	Local name	Manganese, fume (as Mn)
Ireland	OEL (8 hours ref) (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> I (Inhalable Fraction) 0,02 mg/m <sup>3</sup> R (Respirable Fraction)
Ireland	OEL (15 min ref) (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
Ireland	Regulatory reference	Chemical Agents Code of Practice 2020
Latvia	Local name	Mangānsmetināšanas aerosols(kondensācijas aerosols)
Latvia	OEL TWA (mg/m <sup>3</sup> )	0,1 mg/m <sup>3</sup>
Latvia	Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Poland	Local name	Mangan i jego związki nieorganiczne w przeliczeniu na Mn
Poland	NDS (mg/m <sup>3</sup> )	0,3 mg/m <sup>3</sup>
Poland	Remark (PL)	Frakcja wdychalna – frakcja aerozolu wnikaćca przez nos i usta, która po zdeponowaniu w drogach oddechowych stwarza zagrożenie dla zdrowia. Frakcja respirabilna – frakcja aerozolu wnikaćca do dróg oddechowych, która stwarza zagrożenie dla zdrowia po zdeponowaniu w obszarze wymiany gazowej.
Poland	Regulatory reference	Dz. U. 2018 poz. 1286

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manganese(II)ntrate (10377-66-9)		
Portugal	Local name	Manganês e compostos inorgânicos, expressos em Mn
Portugal	OEL TWA (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup> R (Fração respirável) 0,1 mg/m <sup>3</sup> I (Fração inalável)
Slovakia	Regulatory reference	Norma Portuguesa NP 1796:2014
Romania	Local name	Mangan
Romania	OEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Romania	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
Slovakia	Local name	Mangán a jeho anorganické zlúčeniny
Slovakia	NPHV (priemerná) (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Slovakia	Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia	Local name	mangan in njegove anorganske spojine vključno strimanganovim tetraoksidom
Slovenia	OEL TWA (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup>
Slovenia	OEL STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
Slovenia	Remark (SI)	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), EU
Slovenia	Regulatory reference	Uradni list RS, št. 78/2019 z dne 20.12.2019
Spain	Local name	Manganeso
Spain	VLA-ED (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> elemental. Fracción inhalable 0,2 mg/m <sup>3</sup> Compuestos inorgánicos de Manganeso, como Mn. Fracción inhalable 0,05 mg/m <sup>3</sup> elemental. Fracción respirable 0,05 mg/m <sup>3</sup> Compuestos inorgánicos de manganeso, como Mn. Fracción respirable
Spain	Notes	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo), d (Véase UNE EN 481: Atmósferas en los puestos de trabajo. Definición de las fracciones por el tamaño de las partículas para la medición de aerosoles).
Spain	Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Sweden	Local name	Mangan, och org. föreningar (som Mn)
Sweden	nivågränsvärde (NVG) (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> totaldamm 0,1 mg/m <sup>3</sup> respirabelt damm
Sweden	Anmärkning (SE)	2 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagning av totaldamm och respirabelt damm, Metod nr 1010, Arbetskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Sweden	Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	0,05 mg/m <sup>3</sup> and its inorganic compounds (as Mn) respirable dust
Iceland	Local name	Mangan, duft, ryk (heildarryk) og ólífræn bindiefni, sem Mn
Iceland	OEL (8 hours ref) (mg/m <sup>3</sup> )	2,5 mg/m <sup>3</sup> heildarryk 1 mg/m <sup>3</sup> örfínt ryk
Iceland	OEL (15 min ref) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> heildarryk
Iceland	Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)

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manganese(II)nitrate (10377-66-9)		
Norway	Local name	Mangan og uorganiske manganforb. (beregnet som Mn)
Norway	Grenseverdier (AN) (mg/m <sup>3</sup> )	0,2 mg/m <sup>3</sup> Inhalerbar fraksjon 0,05 mg/m <sup>3</sup> Respirabel fraksjon
Norway	Merknader (NO)	E: EU har en veiledende grenseverdi for stoffet; 9) Enkelte bedrifter innen smelteverkindustrien vil av teknisk-økonomiske årsaker ikke kunne overholde grenseverdiene. Det er disse bedriftenes ansvar å dokumentere et forsvarlig arbeidsmiljø. Det forutsettes at bedriften(e) har en plan for reduksjon av eksponering og at man kan vise lavere verdier over tid. Arbeidstilsynet, ansattrepresentanter og verneombud skal konsulteres og informeres om årlige planer og oppnådde resultater.
Norway	Regulatory reference	FOR-2020-04-06-695
Switzerland	Local name	Manganèse et ses composés inorg. / Mangan und seine anorganischen Verbindungen
Switzerland	MAK (mg/m <sup>3</sup> )	0,5 mg/m <sup>3</sup> (i) / (e)
Switzerland	Critical toxicity	SNC / ZNS
Switzerland	Notation	SS <sub>C</sub> , B, P / SS <sub>C</sub> , B, P
Switzerland	Remark	NIOSH
Switzerland	Regulatory reference	www.suva.ch, 01.01.2021
USA - ACGIH	Local name	Manganese, elemental and inorganic compounds, as Mn
USA - ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0,02 mg/m <sup>3</sup> (R - Respirable particulate matter) 0,1 mg/m <sup>3</sup> (I - Inhalable particulate matter)
USA - ACGIH	Remark (ACGIH)	TLV® Basis: CNS impair. Notations: A4 (Not classifiable as a Human Carcinogen)
USA - ACGIH	Regulatory reference	ACGIH 2020

nitric acid (7697-37-2)		
EU	Local name	Nitric acid
EU	IOELV STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
EU	IOELV STEL (ppm)	1 ppm
EU	Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Austria	Local name	Salpetersäure
Austria	MAK Short time value [mg/m <sup>3</sup> ]	2,6 mg/m <sup>3</sup> (Mow)
Austria	MAK Short time value [ppm]	1 ppm (Mow)
Austria	Regulatory reference	BGBI. II Nr. 382/2020
Belgium	Local name	Acide nitrique # Salpeterzuur
Belgium	Short time value [mg/m <sup>3</sup> ]	2,6 mg/m <sup>3</sup>
Belgium	Short time value [ppm]	1 ppm
Belgium	Regulatory reference	Koninklijk besluit/Arrêté royal 19/11/2020
Bulgaria	Local name	Азотна киселина
Bulgaria	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Bulgaria	OEL STEL (ppm)	1 ppm
Bulgaria	Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)

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nitric acid (7697-37-2)		
Bulgaria	Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр.5 от 17 Януари 2020 г.)
Croatia	Local name	Dušična kiselina
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	1 ppm
Croatia	Naznake (HR)	Direktiva: 2006/15/EZ
Croatia	Regulatory reference	Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN 91/2018)
Czech Republic	Local name	Kyselina dusičná
Czech Republic	Expoziční limity (PEL) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Czech Republic	Expoziční limity (PEL) (ppm)	0,4 ppm
Czech Republic	Expoziční limity (NPK-P) (mg/m <sup>3</sup> )	2,5 mg/m <sup>3</sup>
Czech Republic	Expoziční limity (NPK-P) (ppm)	1 ppm
Czech Republic	Remark (CZ)	I - dráždí sliznice (oči, dýchací cesty), respektive kůži.
Czech Republic	Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 41/2020 Sb.)
Denmark	Local name	Salpetersyre
Denmark	Grænseværdi (STEL) (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Denmark	Grænseværdi (STEL) (ppm)	1 ppm
Denmark	Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi); S (betyder, at grænseværdien ikke bør overskrides. Værdien gælder for en eksponeringsperiode på 15 minutter)
Denmark	Regulatory reference	BEK nr 698 af 28/05/2020
Estonia	Local name	Lämmastikhape
Estonia	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Estonia	OEL STEL (ppm)	1 ppm
Estonia	Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 17.10.2019, 2); Vabariigi Valitsuse 10. märtsi 2019. a määruse nr 84
Finland	Local name	Typpihappo
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	1,3 mg/m <sup>3</sup>
Finland	HTP-arvo (8h) (ppm)	0,5 ppm
Finland	HTP-arvo (15 min)	2,6 mg/m <sup>3</sup>
Finland	HTP-arvo (15 min) (ppm)	1 ppm
Finland	Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France	Local name	Acide nitrique
France	VLE [mg/m <sup>3</sup> ]	2,6 mg/m <sup>3</sup>
France	VLE [ppm]	1 ppm
France	Note (FR)	Valeurs réglementaires indicatives
France	Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016)
Germany	TRGS 900 Local name	Salpetersäure

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nitric acid (7697-37-2)		
Germany	Occupational exposure limit value (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Germany	Occupational exposure limit value (ppm)	1 ppm
Germany	TRGS 900 Remark	EU;13;16
Germany	TRGS 900 Regulatory reference	TRGS900
Germany	TRGS 910 Acceptable concentration notes	
Gibraltar	Short term mg/m <sup>3</sup>	2,6 mg/m <sup>3</sup>
Gibraltar	Short-term ppm	1 ppm
Gibraltar	Name of agent	Nitric acid
Gibraltar	Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece	Local name	Νιτρικό οξύ
Greece	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Greece	OEL STEL (ppm)	1 ppm
Greece	Regulatory reference	Π.Δ. 162/2007 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary	Local name	SALÉTROMSAV
Hungary	CK-érték	2,6 mg/m <sup>3</sup>
Hungary	Megjegyzések (HU)	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindháromat), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindháromat); EU2 (2006/15/EK irányelvben közölt érték)
Hungary	Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland	Local name	Nitric acid
Ireland	OEL (15 min ref) (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Ireland	OEL (15 min ref) (ppm)	1 ppm
Ireland	Notes (IE)	IOELV (Indicative Occupational Exposure Limit Values)
Ireland	Regulatory reference	Chemical Agents Code of Practice 2020
Italy	Local name	Acido nitrico
Italy	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Italy	OEL STEL (ppm)	1 ppm
Italy	Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia	Local name	Slāpekļskābe
Latvia	OEL TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
Latvia	OEL TWA (ppm)	0,78 ppm
Latvia	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Latvia	OEL STEL (ppm)	1 ppm
Latvia	Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Lithuania	Local name	Nitrato rūgštis (azoto rūgštis)
Lithuania	TPRV (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Lithuania	TPRV (ppm)	1 ppm



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nitric acid (7697-37-2)		
Lithuania	Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg	Local name	Acide nitrique
Luxembourg	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Luxembourg	OEL STEL (ppm)	1 ppm
Luxembourg	Regulatory reference	Mémorial A N° 684 de 2018 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta	Local name	Nitric acid
Malta	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Malta	OEL STEL (ppm)	1 ppm
Malta	Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.57 of 2018)
Netherlands	Local name	Salpeterzuur
Netherlands	Grenswaarde TGG 15MIN (mg/m <sup>3</sup> )	1,3 mg/m <sup>3</sup>
Netherlands	Grenswaarde TGG 15MIN (ppm)	0,5 ppm (Salpeterzuur; Netherlands; Short time value; Public occupational exposure limit value)
Netherlands	Regulatory reference	Arbeidsomstandighedenregeling 2020
Poland	Local name	Kwas azotowy (V)
Poland	NDS (mg/m <sup>3</sup> )	1,4 mg/m <sup>3</sup>
Poland	NDSch (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Poland	Regulatory reference	Dz. U. 2018 poz. 1286
Portugal	Local name	Ácido nítrico
Portugal	OEL TWA (ppm)	2 ppm
Portugal	OEL STEL (ppm)	4 ppm
Slovakia	Regulatory reference	Norma Portuguesa NP 1796:2014
Romania	Local name	Acid nitric/Acid azotic
Romania	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Romania	OEL STEL (ppm)	1 ppm
Romania	Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 157/2020)
Slovakia	Local name	Kyselina dusičná
Slovakia	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Slovakia	OEL STEL (ppm)	1 ppm
Slovakia	Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia	Local name	dušikova kislina
Slovenia	OEL TWA (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Slovenia	OEL TWA (ppm)	1 ppm
Slovenia	OEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Slovenia	OEL STEL (ppm)	1 ppm
Slovenia	Remark (SI)	EU
Slovenia	Regulatory reference	Uradni list RS, št. 78/2019 z dne 20.12.2019
Spain	Local name	Ácido nítrico
Spain	VLA-EC (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>

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Spain	VLA-EC (ppm)	1 ppm
Spain	Notes	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Spain	Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Sweden	Local name	Salpetersyra
Sweden	nivågränsvärde (NVG) (mg/m <sup>3</sup> )	1,3 mg/m <sup>3</sup>
Sweden	nivågränsvärde (NVG) (ppm)	0,5 ppm
Sweden	kortidsvärde (KTV) (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Sweden	kortidsvärde (KTV) (ppm)	1 ppm
Sweden	Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom	Local name	Nitric acid
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
United Kingdom	WEL STEL (OEL STEL) [ppm]	1 ppm
United Kingdom	Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland	Local name	Salpéturssýra
Iceland	OEL (15 min ref) (mg/m <sup>3</sup> )	2,6 mg/m <sup>3</sup>
Iceland	OEL (15 min ref) (ppm)	1 ppm
Iceland	Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway	Local name	Salpetersyre
Norway	Grenseverdier (AN) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Norway	Grenseverdier (AN) (ppm)	2 ppm
Norway	Merknader (NO)	E: EU har en veiledende grenseverdi for stoffet.
Norway	Regulatory reference	FOR-2020-04-06-695
Switzerland	Local name	Acide nitrique / Salpetersäure
Switzerland	MAK (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Switzerland	MAK (ppm)	2 ppm
Switzerland	KZGW (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Switzerland	KZGW (ppm)	2 ppm
Switzerland	Critical toxicity	VRS, Yeux, Dent / OAW, Auge, Zahn
Switzerland	Remark	NIOSH, OSHA
Switzerland	Regulatory reference	www.suva.ch, 01.01.2021
USA - ACGIH	Local name	Nitric acid
USA - ACGIH	ACGIH TWA (ppm)	2 ppm
USA - ACGIH	ACGIH STEL (ppm)	4 ppm
USA - ACGIH	Remark (ACGIH)	TLV® Basis: URT & eye irr; dental erosion
USA - ACGIH	Regulatory reference	ACGIH 2020

## 8.2. Exposure controls

### Appropriate engineering controls:

Ensure good ventilation of the work station.

### Personal protective equipment:

Avoid all unnecessary exposure. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the protective equipment.

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### Hand protection:

Protective gloves

### Eye protection:

Safety glasses

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

### Personal protective equipment symbol(s):



### 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
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
pH	: < 2
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1,01
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 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.

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### 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 (oral) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

#### manganese(II)ntrate (10377-66-9)

LD50 oral rat	> 300 mg/kg
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#### nitric acid (7697-37-2)

LC50 Inhalation - Rat	> 2,65 mg/l
-----------------------	-------------

Skin corrosion/irritation : Not classified  
pH: < 2

Serious eye damage/irritation : Not classified  
pH: < 2

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

#### manganese(II)ntrate (10377-66-9)

LC50 fish 1	55 – 68 mg/l <i>Catla catla</i>
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EC50 Daphnia 1	> 100 mg/l
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EC50 72h algae (1)	61 mg/l <i>Desmodesmus subspicatus</i>
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#### nitric acid (7697-37-2)

LC50 fish 1	72 mg/l
-------------	---------

EC50 Daphnia 1	180 mg/l
----------------	----------

Threshold limit algae 1	> 19 mg/l
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### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

#### nitric acid (7697-37-2)

BCF fish 1	≤ 1
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Partition coefficient n-octanol/water (Log Pow)	-2,3
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#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

##### Component

manganese(II)nitrate (10377-66-9)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII  
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

#### 12.6. Other adverse effects

No additional information available






### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.  
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
European List of Waste (LoW) code : 16 05 06\* - laboratory chemicals consisting of or containing dangerous substances including mixtures of laboratory chemicals

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number</b>				
UN 3264	UN 3264	UN 3264	UN 3264	UN 3264
<b>14.2. UN proper shipping name</b>				
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)	Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)
<b>Transport document description</b>				
UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid), 8, III, (E)	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid), 8, III	UN 3264 Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid), 8, III	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid), 8, III	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid), 8, III
<b>14.3. Transport hazard class(es)</b>				
8	8	8	8	8
				
<b>14.4. Packing group</b>				
III	III	III	III	III
<b>14.5. Environmental hazards</b>				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				
<b>14.6. Special precautions for user</b>				
<b>Overland transport</b>				
Classification code (ADR)	: C1			
Special provisions (ADR)	: 274			
Limited quantities (ADR)	: 5I			
Excepted quantities (ADR)	: E1			

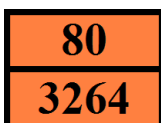
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Packing instructions (ADR)	: P001, IBC03, LP01, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T7
Portable tank and bulk container special provisions (ADR)	: TP1, TP28
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Hazard identification number (Kemler No.)	: 80
Orange plates	:



Tunnel restriction code (ADR)	: E
EAC code	: 2X
APP code	: B

### Transport by sea

Special provisions (IMDG)	: 223, 274
Packing instructions (IMDG)	: P001, LP01
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1, TP28
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

### Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y841
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 852
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 856
CAO max net quantity (IATA)	: 60L
Special provisions (IATA)	: A3, A803
ERG code (IATA)	: 8L

### Inland waterway transport

Classification code (ADN)	: C1
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0

### Rail transport

Classification code (RID)	: C1
Special provisions (RID)	: 274
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T7

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Portable tank and bulk container special provisions (RID)	: TP1, TP28
Tank codes for RID tanks (RID)	: L4BN
Special provisions for RID tanks (RID)	: TU42
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Colis express (express parcels) (RID)	: CE8
Hazard identification number (RID)	: 80

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3(a) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F	nitric acid
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3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	nitric acid
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Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

#### 15.1.2. National regulations

##### Germany

Regulatory reference	: WGK nwg, Non-hazardous to water (Classification according to AwSV, Annex 1)
Storage class (LGK)	: LGK 8B - Non-combustible corrosive substances
Hazardous Incident Ordinance (12. BImSchV)	: Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

##### Netherlands

SZW-lijst van kankerverwekkende stoffen	: None of the components are listed
SZW-lijst van mutagene stoffen	: None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding	: None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid	: None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling	: None of the components are listed

##### Denmark

Danish National Regulations	: Young people below the age of 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with the product The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal
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### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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### SECTION 16: Other information

#### Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

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

Met. Corr. 1	H290
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#### Full text of H- and EUH-statements:

Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Met. Corr. 1	Corrosive to metals, Category 1
Ox. Liq. 2	Oxidising Liquids, Category 2
Ox. Liq. 3	Oxidising Liquids, Category 3
Ox. Sol. 2	Oxidising Solids, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B



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Skin Corr. 1C	Skin corrosion/irritation, Category 1, Sub-Category 1C
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Met. Corr. 1	H290	On basis of test data
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SDS EU Mod H F (REACH ANNEX II)

*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.*