



British Pharmacopoeia - Titanium Trichloride - Sulphuric Acid Reagent.

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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Version: 1.4

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

1.1. Product identifier

Product form : Mixture
Product name : British Pharmacopoeia - Titanium Trichloride - Sulphuric Acid Reagent.
Product code : BPR342

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, Industrial use
Use of the substance/mixture : Laboratory chemical
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.

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)1933 445260 Option 1. Language: English only.
For Chemical Emergencies Only
Llewellyn (Safety Advisors) Europe Ltd

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	: +353 1 8379964	
United Kingdom	National Poisons Information Service (NHS Direct)	http://www.npis.org	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, H290

Category 1

Skin corrosion/irritation, H314

Category 1B

Serious eye damage/eye irritation, H318

irritation, Category 1

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

Signal word (CLP) :

Danger

Hazardous ingredients :

sulphuric acid; hydrochloric acid; titanium(III)chloride

Hazard statements (CLP) :

H290 - May be corrosive to metals.
H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP) :

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 .
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.. Immediately call a POISON CENTER or doctor.
P310 - Immediately call a POISON CENTER or doctor.
P390 - Absorb spillage to prevent material damage.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

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]
sulphuric acid	(CAS-No.) 7664-93-9 (EC-No.) 231-639-5 (EC Index-No.) 016-020-00-8	5 - 30	Skin Corr. 1A, H314
titanium(III)chloride	(CAS-No.) 7705-07-9 (EC-No.) 231-728-9	1 - 5	Pyr. Sol. 1, H250 Skin Corr. 1B, H314
hydrochloric acid	(CAS-No.) 7647-01-0 (EC-No.) 231-595-7 (EC Index-No.) 017-002-01-X (REACH-no) 01-2119484862-27-XXXX	1 - 5	Met. Corr. 1, H290 Skin Corr. 1B, H314 STOT SE 3, H335

Specific concentration limits:

Name	Product identifier	Specific concentration limits
sulphuric acid	(CAS-No.) 7664-93-9 (EC-No.) 231-639-5 (EC Index-No.) 016-020-00-8	(5 =<C < 15) Eye Irrit. 2, H319 (5 =<C < 15) Skin Irrit. 2, H315 (C >= 15) Skin Corr. 1A, H314
hydrochloric acid	(CAS-No.) 7647-01-0 (EC-No.) 231-595-7 (EC Index-No.) 017-002-01-X (REACH-no) 01-2119484862-27-XXXX	(C >= 10) STOT SE 3, H335 (10 =<C < 25) Eye Irrit. 2, H319 (10 =<C < 25) Skin Irrit. 2, H315 (C >= 25) Skin Corr. 1B, H314

Full text of 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. 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/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects 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

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. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/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.

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. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Wear personal protective equipment.
Hygiene measures : Wash contaminated clothing before reuse. 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.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

sulphuric acid (7664-93-9)		
EU	Local name	Sulphuric acid (mist)

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sulphuric acid (7664-93-9)		
EU	IOELV TWA (mg/m ³)	0,05 mg/m ³
Austria	Local name	Schwefelsäure
Austria	MAK (mg/m ³)	0,1 mg/m ³
Austria	MAK Short time value (mg/m ³)	0,2 mg/m ³
Belgium	Local name	Acide sulfurique (brume) # Zwavelzuur (nevel)
Belgium	Limit value (mg/m ³)	0,2 mg/m ³
Belgium	Short time value (mg/m ³)	3 mg/m ³
Belgium	Remark (BE)	C: la mention "C" signifie que l'agent en question relève du champ d'application de l'arrêté royal du 2 décembre 1993 concernant la protection des travailleurs contre les risques liés à l'exposition à des agents cancérigènes et mutagènes au travail. # C: de vermelding "C" betekent dat het betrokken agens valt onder het toepassingsgebied van het koninklijk besluit van 2 december 1993 betreffende de bescherming van de werknemers tegen de risico's van blootstelling aan kankerverwekkende en mutagene agentia op het werk.
Bulgaria	Local name	Сярна киселина
Bulgaria	OEL TWA (mg/m ³)	0,05 mg/m ³ аерозоли
Croatia	Local name	Sumporna kiselina
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,05 mg/m ³
Croatia	Naznake (HR)	C (nagrizajuće); EU*** (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2009/161/ EU (treća lista))
Czech Republic	Local name	Kyselina sírová, jako SO
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	2 mg/m ³
Czech Republic	Remark (CZ)	I (dráždí sliznice (oči, dýchací cesty) resp. kůži)
Denmark	Local name	Svovlsyre
Denmark	Grænseværdie (langvarig) (mg/m ³)	0,05 mg/m ³
Estonia	Local name	Väävelhape, udu
Estonia	OEL TWA (mg/m ³)	0,05 mg/m ³
Finland	Local name	Rikkihappo
Finland	HTP-arvo (8h) (mg/m ³)	0,05 mg/m ³
Finland	HTP-arvo (15 min)	0,1 mg/m ³
Finland	Huomautus (FI)	torakaalijae
France	Local name	Acide sulfurique
France	VME (mg/m ³)	0,05 mg/m ³ (fraction thoracique)
France	VLE (mg/m ³)	3 mg/m ³
France	Note (FR)	VME réglementaire indicative; VLE recommandée/admise
Germany	Local name	Schwefelsäure
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	0,1 mg/m ³ (E)
Germany	Remark (TRGS 900)	DFG;EU;Y
Gibraltar	Eight hours mg/m ³	0,05 mg/m ³
Greece	OEL TWA (mg/m ³)	1 mg/m ³
Hungary	Local name	KÉNSAV
Hungary	AK-érték	0,05 mg/m ³
Hungary	Megjegyzések (HU)	m; l.
Ireland	Local name	Sulphuric acid
Ireland	OEL (8 hours ref) (ppm)	0,05 ppm
Ireland	Notes (IE)	IOELV
Italy	Local name	Acido solforico (nebulizzazione)

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Italy	OEL TWA (mg/m ³)	0,05 mg/m ³
Latvia	Local name	Sērskābe3 (migla, kas tiek definēta kā torakālā frakcija)
Latvia	OEL TWA (mg/m ³)	0,05 mg/m ³
Lithuania	Local name	Sieros rūgštis (rūkas)
Lithuania	IPRV (mg/m ³)	0,05 mg/m ³
Lithuania	TPRV (mg/m ³)	3 mg/m ³
Lithuania	Remark (LT)	Renkantis tinkamą poveikio stebėsenos modelį turi būti atsižvelgiama į galimus apribojimus ir trukdžius, galinčius kilti, kai esama kitų sieros junginių. Rūkas (migla) apibrėžiamas kaip įkvepiama dalis.
Luxembourg	Local name	Acide sulfurique (brume)
Luxembourg	OEL STEL (mg/m ³)	0,05 mg/m ³
Netherlands	Local name	Zwavelzuur
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0,05 mg/m ³ (nevel), gedefinieerd als de thoracale fractie
Netherlands	Grenswaarde TGG 8H (ppm)	0,012 ppm (Zwavelzuur (nevel), gedefinieerd als de thoracale fractie; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
Portugal	Local name	Ácido sulfúrico
Portugal	OEL TWA (mg/m ³)	0,2 mg/m ³ T (Fração torácica)
Romania	Local name	Acid sulfuric și anhidrida sulfuroasa
Romania	OEL TWA (mg/m ³)	0,5 mg/m ³
Romania	OEL STEL (mg/m ³)	1 mg/m ³
Slovakia	Local name	Kyselina sirová (hmla)
Slovakia	NPHV (priemerná) (mg/m ³)	0,05 mg/m ³
Slovenia	Local name	žveplova kislina - megla in žveplov trioksid (merjeno kot žveplova kislina)
Slovenia	OEL TWA (mg/m ³)	0,05 mg/m ³
Spain	Local name	Ácido sulfúrico
Spain	VLA-ED (mg/m ³)	0,05 mg/m ³ niebla
Spain	Notes	az (Al seleccionar un método adecuado de control de la exposición, deben tomarse en consideración posibles limitaciones e interferencias que pueden surgir en presencia de otros compuestos de azufre), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo), s (Esta sustancia tiene prohibida total o parcialmente su comercialización y uso como fitosanitario y/o como biocida. Para una información detallada acerca de las prohibiciones consúltese: Base de datos de productos biocidas: http://www.msssi.gob.es/ciudadanos/productos.do?tipo=plaguicidas Base de datos de productos fitosanitarios http://www.magrama.gob.es/agricultura/pags/fitos/registro/fichas/pdf/Lista_sa.pdf , 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).
Sweden	Local name	Svavelsyra
Sweden	nivågränsvärde (NVG) (mg/m ³)	0,1 mg/m ³ inhalerbar fraktion
Sweden	kortidsvärde (KTV) (mg/m ³)	0,2 mg/m ³ inhalerbar fraktion

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sulphuric acid (7664-93-9)		
Sweden	Anmärkning (SE)	C (Ämnet är cancerframkallande Risk för cancer finns även vid annan exponering än via inandning. För vissa cancerframkallande ämnen som inte har gränsvärden gäller förbud eller tillståndskrav enligt föreskrifterna om kemiska arbetsmiljörisiker); V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas); 2 (Med inhalerbart damm menas den dammfraktion som definieras i svensk standard SS-EN 481, Arbetsplatsluft – Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.3 och som har en provtagningskaraktäristik enligt punkt 5.1); 43 (Aerosoler av svavelsyra har i studier visats vara cancerframkallande)
United Kingdom	Local name	Sulphuric acid
United Kingdom	WEL TWA (mg/m ³)	0,05 mg/m ³ mist
United Kingdom	Remark (WEL)	The mist is defined as the thoracic fraction
Norway	Local name	Svovelsyreaerosol
Norway	Grenseverdier (AN) (mg/m ³)	0,1 mg/m ³ torakal fraksjon
Norway	Merknader (NO)	K (Kjemikalier som skal betraktes som kreftframkallende); E (EU har en veiledende grenseverdi for stoffet)
Switzerland	Local name	Schwefelsäure
Switzerland	MAK (mg/m ³)	0,1 mg/m ³
Switzerland	KZGW (mg/m ³)	0,1 mg/m ³
Switzerland	Remark (CH)	e(mg/m ³) - SS _C - Lunge ^{KT} HU - DFG, NIOSH, OSHA
Australia	Local name	Sulphuric acid
Australia	TWA (mg/m ³)	1 mg/m ³
Australia	STEL (mg/m ³)	3 mg/m ³
USA - ACGIH	Local name	Sulfuric acid
USA - ACGIH	ACGIH TWA (mg/m ³)	0,2 mg/m ³
USA - ACGIH	Remark (ACGIH)	Pulm func
USA - OSHA	Local name	Sulfuric acid
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
hydrochloric acid (7647-01-0)		
EU	Local name	Hydrogen chloride
EU	IOELV TWA (mg/m ³)	8 mg/m ³
EU	IOELV TWA (ppm)	5 ppm
EU	IOELV STEL (mg/m ³)	15 mg/m ³
EU	IOELV STEL (ppm)	10 ppm
Austria	Local name	Chlorwasserstoff
Austria	MAK (mg/m ³)	8 mg/m ³
Austria	MAK (ppm)	5 ppm
Austria	MAK Short time value (mg/m ³)	15 mg/m ³
Austria	MAK Short time value (ppm)	10 ppm
Belgium	Local name	Hydrogène (chlorure d') # Waterstofchloride
Belgium	Limit value (mg/m ³)	8 mg/m ³
Belgium	Limit value (ppm)	5 ppm
Belgium	Short time value (mg/m ³)	15 mg/m ³
Belgium	Short time value (ppm)	10 ppm
Bulgaria	Local name	Хлороводород
Bulgaria	OEL TWA (mg/m ³)	8 mg/m ³
Bulgaria	OEL TWA (ppm)	5 ppm
Bulgaria	OEL STEL (mg/m ³)	15 mg/m ³
Bulgaria	OEL STEL (ppm)	10 ppm
Croatia	Local name	Vodikov klorid
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	8 mg/m ³

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hydrochloric acid (7647-01-0)		
Croatia	GVI (granična vrijednost izloženosti) (ppm)	5 ppm
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	15 mg/m ³
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	10 ppm
Croatia	Naznake (HR)	EU* (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2000/39/ EC (prva lista)); T (otrovno); C (nagrizajuće)
Czech Republic	Local name	Chlorovodík
Czech Republic	Expoziční limity (PEL) (mg/m ³)	8 mg/m ³
Czech Republic	Expoziční limity (PEL) (ppm)	5,43 ppm
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	15 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (ppm)	10,19 ppm
Czech Republic	Remark (CZ)	I (dráždí sliznice (oči, dýchací cesty) resp. kůži)
Denmark	Local name	Hydrogenchlorid (Chlorbrinte)
Denmark	Grænseværdie (langvarig) (mg/m ³)	8 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	5 ppm
Denmark	Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi); L (markerer, at grænseværdien er en loftværdi, som ikke på noget tidspunkt må overskrides)
Estonia	Local name	Vesinikkloriid
Estonia	OEL TWA (mg/m ³)	8 mg/m ³
Estonia	OEL TWA (ppm)	5 ppm
Estonia	OEL STEL (mg/m ³)	15 mg/m ³
Estonia	OEL STEL (ppm)	10 ppm
Finland	Local name	Kloorivety, vedetön
Finland	HTP-arvo (15 min)	7,6 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	5 ppm
France	Local name	Chlorure d'hydrogène (Acide chlorhydrique)
France	VLE (mg/m ³)	7,6 mg/m ³
France	VLE (ppm)	5 ppm
France	Note (FR)	Valeurs réglementaires contraignantes
Germany	Local name	Hydrogenchlorid
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	3 mg/m ³
Germany	TRGS 900 Occupational exposure limit value (ppm)	2 ppm
Germany	Remark (TRGS 900)	DFG;EU;Y
Gibraltar	Eight hours mg/m ³	8 mg/m ³
Gibraltar	Eight hours ppm	5 ppm
Gibraltar	Short-term mg/m ³	15 mg/m ³
Gibraltar	Short-term ppm	10 ppm
Greece	OEL TWA (mg/m ³)	7 mg/m ³
Greece	OEL TWA (ppm)	5 ppm
Greece	OEL STEL (mg/m ³)	7 mg/m ³
Greece	OEL STEL (ppm)	5 ppm
Hungary	Local name	SÓSAV
Hungary	AK-érték	8 mg/m ³
Hungary	CK-érték	16 mg/m ³
Hungary	Megjegyzések (HU)	i, m; EU1
Ireland	Local name	Hydrogen chloride

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hydrochloric acid (7647-01-0)		
Ireland	OEL (8 hours ref) (mg/m ³)	8 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	5 ppm
Ireland	OEL (15 min ref) (mg/m ³)	15 mg/m ³
Ireland	OEL (15 min ref) (ppm)	10 ppm
Ireland	Notes (IE)	IOELV
Italy	Local name	Acido cloridrico
Italy	OEL TWA (mg/m ³)	8 mg/m ³
Italy	OEL TWA (ppm)	5 ppm
Italy	OEL STEL (mg/m ³)	15 mg/m ³
Italy	OEL STEL (ppm)	10 ppm
Latvia	Local name	Hlorūdeņradis
Latvia	OEL TWA (mg/m ³)	8 mg/m ³
Latvia	OEL TWA (ppm)	5 ppm
Latvia	OEL STEL (mg/m ³)	15 mg/m ³
Latvia	OEL STEL (ppm)	10 ppm
Lithuania	Local name	Vandenilio chloridas
Lithuania	IPRV (mg/m ³)	8 mg/m ³
Lithuania	IPRV (ppm)	5 ppm
Lithuania	TPRV (mg/m ³)	15 mg/m ³
Lithuania	TPRV (ppm)	10 ppm
Luxembourg	Local name	Chlorure d'hydrogène
Luxembourg	OEL TWA (mg/m ³)	8 mg/m ³
Luxembourg	OEL TWA (ppm)	5 ppm
Luxembourg	OEL STEL (mg/m ³)	15 mg/m ³
Luxembourg	OEL STEL (ppm)	10 ppm
Malta	Local name	Hydrogenchloride
Malta	OEL TWA (mg/m ³)	8 mg/m ³
Malta	OEL TWA (ppm)	5 ppm
Malta	OEL STEL (mg/m ³)	15 mg/m ³
Malta	OEL STEL (ppm)	10 ppm
Netherlands	Local name	Zoutzuur
Netherlands	Grenswaarde TGG 8H (mg/m ³)	8 mg/m ³
Netherlands	Grenswaarde TGG 8H (ppm)	5 ppm
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	15 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (ppm)	10 ppm
Poland	Local name	Chlorowodór
Poland	NDS (mg/m ³)	5 mg/m ³
Poland	NDSch (mg/m ³)	10 mg/m ³
Portugal	Local name	Ácido clorídrico
Portugal	OEL - Ceilings (mg/m ³)	2 mg/m ³
Portugal	OEL - Ceilings (ppm)	2 ppm
Romania	Local name	Acid clorhidric
Romania	OEL TWA (mg/m ³)	8 mg/m ³
Romania	OEL TWA (ppm)	5 ppm
Romania	OEL STEL (mg/m ³)	15 mg/m ³
Romania	OEL STEL (ppm)	10 ppm
Slovakia	Local name	Chlorovodík
Slovakia	NPHV (priemerná) (mg/m ³)	8 mg/m ³

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Slovakia	NPHV (priemerná) (ppm)	5 ppm
Slovakia	OEL STEL (mg/m ³)	15 mg/m ³
Slovakia	OEL STEL (ppm)	10 ppm
Slovenia	Local name	vodikov klorid, brezvodni (klorovodik, brezvodni)
Slovenia	OEL TWA (mg/m ³)	8 mg/m ³
Slovenia	OEL TWA (ppm)	5 ppm
Slovenia	OEL STEL (mg/m ³)	16 mg/m ³
Slovenia	OEL STEL (ppm)	10 ppm
Slovenia	KTV factor SL	2
Spain	Local name	Cloruro de hidrógeno
Spain	VLA-ED (mg/m ³)	7,6 mg/m ³
Spain	VLA-ED (ppm)	5 ppm
Spain	VLA-EC (mg/m ³)	15 mg/m ³
Spain	VLA-EC (ppm)	10 ppm
Spain	Notes	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país).
Sweden	Local name	Saltsyra (Väteklorid)
Sweden	nivågränsvärde (NVG) (mg/m ³)	3 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	2 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	6 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	4 ppm
United Kingdom	Local name	Hydrogen chloride
United Kingdom	WEL TWA (mg/m ³)	2 mg/m ³ gas and aerosol mists
United Kingdom	WEL TWA (ppm)	1 ppm gas and aerosol mists
United Kingdom	WEL STEL (mg/m ³)	8 mg/m ³ gas and aerosol mists
United Kingdom	WEL STEL (ppm)	5 ppm gas and aerosol mists
Iceland	Local name	Vetnisklórið (klórvetni)
Iceland	OEL (15 min ref) (mg/m ³)	8 mg/m ³
Iceland	OEL (15 min ref) (ppm)	5 ppm
Norway	Local name	Hydrogenklorid (Saltsyre)
Norway	Grenseverdier (AN) (mg/m ³)	7 mg/m ³
Norway	Grenseverdier (AN) (ppm)	5 ppm
Norway	Grenseverdier (Takverdi) (mg/m ³)	7 mg/m ³
Norway	Grenseverdier (Takverdi) (ppm)	5 ppm
Norway	Merknader (NO)	T (Takverdi er en øyeblikksverdi som angir maksimalkonsentrasjon av et kjemikalie i pustesonen som ikke skal overskrides); E (EU har en veiledende grenseverdi for stoffet)
Switzerland	Local name	Chlorwasserstoff
Switzerland	MAK (mg/m ³)	3 mg/m ³ 3 mg/m ³
Switzerland	MAK (ppm)	2 ppm 2 ppm
Switzerland	KZGW (mg/m ³)	6 mg/m ³ 6 mg/m ³

hydrochloric acid (7647-01-0)		
Switzerland	KZGW (ppm)	4 ppm 4 ppm
Switzerland	Remark (CH)	SSc - OAW ^{KT AN} - DFG, NIOSH, OSHA
Australia	Local name	Hydrogen chloride
USA - ACGIH	Local name	Hydrogen chloride
USA - ACGIH	ACGIH Ceiling (ppm)	2 ppm
USA - ACGIH	Remark (ACGIH)	URT irr
USA - OSHA	Local name	Hydrogen chloride
USA - OSHA	OSHA PEL (Ceiling) (mg/m ³)	7 mg/m ³
USA - OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm

8.2. Exposure controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
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
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	: No data available
Solubility	: Soluble in water. Completely miscible.
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.

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

sulphuric acid (7664-93-9)	
LD50 oral rat	2140 mg/kg bodyweight (Test data of the pure substance; Rat; Equivalent or similar to OECD 401; Experimental value)
Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: < 2
Serious eye damage/irritation	: Causes serious eye damage. pH: < 2
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

sulphuric acid (7664-93-9)	
Additional information	Strong inorganic acid mists containing sulfuric acid are carcinogenic to humans
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 : Before neutralisation, the product may represent a danger to aquatic organisms.

sulphuric acid (7664-93-9)	
LC50 fish 1	> mg/l >16 - <28,LC50; 96 h; Lepomis macrochirus; Static system; Fresh water
EC50 Daphnia 1	> 100 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
Threshold limit algae 1	> 100 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Desmodesmus subspicatus; Static system; Fresh water; Experimental value)
hydrochloric acid (7647-01-0)	
LC50 other aquatic organisms 2	250 (240 - 260) mg/l (48h) Crustaceans; Portmann, J.E., and K.W. Wilson 1971. The Toxicity of 140 Substances to the Brown Shrimp and Other Marine Animals. Shellfish Information Leaflet No.22 (2nd Ed.), Ministry of Agric.Fish.Food, Fish.Lab.Burnham-on-Crouch, Essex, and Fish Exp.Station Conway, North Wales :12 p.

12.2. Persistence and degradability

sulphuric acid (7664-93-9)	
Persistence and degradability	Biodegradability: Not applicable. Hydrolysis in water. Biodegradability in soil: Not applicable. No (test)data available on mobility of the substance.
ThOD	Not applicable

titanium(III)chloride (7705-07-9)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

sulphuric acid (7664-93-9)	
Bioaccumulative potential	Bioaccumulation: Not applicable.

titanium(III)chloride (7705-07-9)	
Bioaccumulative potential	Bioaccumulation: No data available.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

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.
Ecology - waste materials	: Avoid release to the environment.
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
14.1. UN number				
3264	3264	3264	3264	3264
14.2. UN proper shipping name				
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid)
Transport document description				
UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid), 8, II, (E)	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid), 8, II	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid), 8, II	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid), 8, II	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid ; titanium(III)chloride ; hydrochloric acid), 8, II
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
II	II	II	II	II

ADR	IMDG	IATA	ADN	RID
14.5. Environmental hazards				
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				

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: C1
Special provisions (ADR)	: 274
Limited quantities (ADR)	: 1I
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P001, IBC02
Mixed packing provisions (ADR)	: MP15
Portable tank and bulk container instructions (ADR)	: T11
Portable tank and bulk container special provisions (ADR)	: TP2, TP27
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
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)	: 274
Limited quantities (IMDG)	: 1L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T11
Tank special provisions (IMDG)	: TP2, TP27
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

- Air transport

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y840
PCA limited quantity max net quantity (IATA)	: 0.5L
PCA packing instructions (IATA)	: 851
PCA max net quantity (IATA)	: 1L
CAO packing instructions (IATA)	: 855
CAO max net quantity (IATA)	: 30L
Special provisions (IATA)	: A3
ERG code (IATA)	: 8L

- Inland waterway transport

Classification code (ADN)	: C1
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
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)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02
Mixed packing provisions (RID)	: MP15
Portable tank and bulk container instructions (RID)	: T11
Portable tank and bulk container special provisions (RID)	: TP2, TP27
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE6
Hazard identification number (RID)	: 80

14.7. Transport in bulk according to Annex II of MARPOL 73/78 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. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	British Pharmacopoeia - Titanium Trichloride - Sulphuric Acid Reagent. - sulphuric acid - hydrochloric acid
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	British Pharmacopoeia - Titanium Trichloride - Sulphuric Acid Reagent. - sulphuric acid - hydrochloric acid
40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	titanium(III)chloride

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

15.1.2. National regulations

Germany

Reference to AwSV	: Water hazard class (WGK) 1, low hazard to waters (Classification according to AwSV, Annex 1)
Storage class (LGK)	: LGK 8B - Non-combustible corrosive substances
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV	: Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen	: sulphuric acid is 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

Recommendations Danish Regulation	: 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

SECTION 16: Other information

Full text of H- and EUH-statements:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Met. Corr. 1	Corrosive to metals, Category 1
Pyr. Sol. 1	Pyrophoric Solids, Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H250	Catches fire spontaneously if exposed to air.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

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.