

Warning



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

1.1. Product identifier

SDS no : SDS 01530

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

Relevant identified uses : Industrial and professional use for chemical analysis, calibration, (routine) quality control, laboratory use, under controlled conditions.

Uses advised against : Consumer use.

Uses other than those listed above are not supported, contact your supplier for more information on other uses.

1.3. Details of the supplier of the safety data sheet

Air Liquide UK Ltd.
Station Road
Coleshill
B46 1JY Birmingham
United Kingdom
safety.aluk@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 01675 462695 (Available 24/7)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards : Gases under pressure : Compressed gas H280

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS04

Signal word (CLP) : Warning

Hazard statements (CLP) : H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP) : P403 - Store in a well-ventilated place.

- Storage

2.3. Other hazards

Asphyxiant in high concentrations.
Not classified as PBT or vPvB.
The substance/mixture has no endocrine disrupting properties.

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] ATE, EUH-statements, M-Factors
Nitrogen	CAS-No.: 7727-37-9 EC-No.: 231-783-9 EC Index-No.: --- REACH-no: *1	99.99	Press. Gas (Comp.), H280
hydrogen cyanide ... %; hydrocyanic acid ... %	CAS-No.: 74-90-8 EC-No.: 200-821-6 EC Index-No.: 006-006-01-7	≤ 0.01	Acute Tox. 2 (Inhalation), H330 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Oral), H300 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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

Contains no other components or impurities which will influence the classification of the product.

*1: Listed in Annex IV / V REACH, exempted from registration.

*3: Registration not required: Substance manufactured or imported < 1t/y.

SECTION 4: First aid measures

4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : Adverse effects not expected from this product.
- Eye contact : Adverse effects not expected from this product.
- Ingestion : Ingestion is not considered a potential route of exposure.

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

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
See section 11.

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.
Product does not burn, use fire control measures appropriate for the surrounding fire.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : None.

5.3. Advice for firefighters

- Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
Move containers away from the fire area if this can be done without risk.
- Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus.
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel : Act in accordance with local emergency plan.
Try to stop release.
Evacuate area.
Ensure adequate air ventilation.
Stay upwind.
See section 8 of the SDS for more information on personal protective equipment.
- For emergency responders : Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Oxygen detectors should be used when asphyxiating gases may be released.
See section 5.3 of the SDS for more information.

6.2. Environmental precautions

- Try to stop release.

6.3. Methods and material for containment and cleaning up

- Ventilate area.

6.4. Reference to other sections

- See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Safe use of the product : Do not breathe gas.
Avoid release of product into atmosphere.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Only experienced and properly instructed persons should handle gases under pressure.
Consider pressure relief device(s) in gas installations.
Ensure the complete gas system was (or is regularly) checked for leaks before use.
Do not smoke while handling product.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Avoid suck back of water, acid and alkalis.

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Safe handling of the gas receptacle

- : Refer to supplier's container handling instructions.
- Do not allow backfeed into the container.
- Protect containers from physical damage; do not drag, roll, slide or drop.
- When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.
- Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
- If user experiences any difficulty operating valve discontinue use and contact supplier.
- Never attempt to repair or modify container valves or safety relief devices.
- Damaged valves should be reported immediately to the supplier.
- Keep container valve outlets clean and free from contaminants particularly oil and water.
- Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
- Close container valve after each use and when empty, even if still connected to equipment.
- Never attempt to transfer gases from one cylinder/container to another.
- Never use direct flame or electrical heating devices to raise the pressure of a container.
- Do not remove or deface labels provided by the supplier for the identification of the content of the container.
- Suck back of water into the container must be prevented.
- Open valve slowly to avoid pressure shock.

7.2. Conditions for safe storage, including any incompatibilities

- Observe all regulations and local requirements regarding storage of containers.
- Containers should not be stored in conditions likely to encourage corrosion.
- Container valve guards or caps should be in place.
- Containers should be stored in the vertical position and properly secured to prevent them from falling over.
- Stored containers should be periodically checked for general condition and leakage.
- Keep container below 50°C in a well ventilated place.
- Store containers in location free from fire risk and away from sources of heat and ignition.
- Keep away from combustible materials.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

hydrogen cyanide ... %; hydrocyanic acid ... % (74-90-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Hydrogen cyanide (as cyanide)
IOEL TWA	1 mg/m ³
	0.9 ppm
IOEL STEL	5 mg/m ³
	4.5 ppm
Remark	Skin
Regulatory reference	COMMISSION DIRECTIVE (EU) 2017/164
Austria - Occupational Exposure Limits	
Local name	Cyanwasserstoff (Blausäure)
MAK (mg/m ³)	1 mg/m ³
MAK (OEL TWA)	0.9 ppm

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MAK (OEL STEL)	5 mg/m ³ (4x 15(Miw) min)
	4.5 ppm (4x 15(Miw) min)
Remark	H
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Hydrogène (cyanure d') (exprimé en cyanure) # Waterstofcyanide (als cyanide)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air, M: la mention "M" indique que lors d'une exposition supérieure à la valeur limite, des irritations apparaissent ou un danger d'intoxication aiguë existe. Le procédé de travail doit être conçu de telle façon que l'exposition ne dépasse jamais la valeur limite. Lors des mesurages, la période d'échantillonnage doit être aussi courte que possible afin de pouvoir effectuer des mesurages fiables. Le résultat des mesurages est calculé en fonction de la période d'échantillonnage. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht, M: de vermelding "M" duidt aan dat bij de blootstelling boven de grenswaarde irritatie optreedt of er gevaar bestaat voor acute vergiftiging. Het werkproces moet zo zijn ontworpen dat de blootstelling de grenswaarde nooit overschrijdt. Bij een controle geldt dat de bemonsterde periode zo kort mogelijk moet zijn om een betrouwbare meting te kunnen verrichten. Het meetresultaat wordt dan gerelateerd aan de beschouwde periode.
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Циановодород
OEL TWA	1 mg/m ³ (като цианид)
	0.9 ppm (като цианид)
OEL STEL	5 mg/m ³ (като цианид)
	4.5 ppm (като цианид)
Remark	Кожа (възможна е значителна резорбция чрез кожата); • (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
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. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Cijanovodik (kao CN); vodikov cijanid; cijanovodična kiselina
GVI (OEL TWA)	1 mg/m ³

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	0.9 ppm
KGVI (OEL STEL)	5 mg/m ³
	4.5 ppm
Remark	Direktiva: 2017/164/EU. Napomena: Koža (razvrstana kao tvar koja nadražuje kožu (H315))
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
Croatia - Biological limit values	
Local name	Cijanovodična kiselina (cijanovodik); cijanidi i alfatski nitrili
BLV	0.11 mmol Karakteristični pokazatelj: tiocijanati - Biološki uzorak: mokraća - Vrijeme uzorkovanja: mokraća skupljena tijekom 24 sata - Napomena: pušenje povisuje nalaz 6.5 mg/24 h Karakteristični pokazatelj: tiocijanati - Biološki uzorak: mokraća - Vrijeme uzorkovanja: mokraća skupljena tijekom 24 sata - Napomena: pušenje povisuje nalaz 3 Karakteristični pokazatelj: omjer između tiocijanata u mokraći (mg/g kreatinina) i karboksihemoglobina u krvi (%) - Biološki uzorak: mokraća i krv - Vrijeme uzorkovanja: mokraća i krv skupljeni na kraju radne smjene - Napomena: interferencija pušenja isključena
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 91/2018)
Cyprus - Occupational Exposure Limits	
Local name	Υδροκυάνιο (ως κυανίδιο)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	δέγμα
Regulatory reference	Κανονισμοί του 2019 (Κ.Δ.Π. 16/2019)
Czech Republic - Occupational Exposure Limits	
Local name	Kyanovodík jako CN ⁻
PEL (OEL TWA)	1 mg/m ³
	0.9 ppm
NPK-P (OEL C)	5 mg/m ³
	4.5 ppm
Remark	D - při expozici se významně uplatňuje pronikání faktoru kůží.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Hydrogencyanid (Blåsyre; Cyanbrite)
OEL TWA	1 mg/m ³
	0.9 ppm

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OEL STEL	5 mg/m ³ 4.5 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi); H (betyder, at stoffet kan optages gennem huden)
Regulatory reference	BEK nr 1054 af 28/06/2022
Estonia - Occupational Exposure Limits	
Local name	Vesiniktsüaniid (tsüaniidina)
OEL TWA	1 mg/m ³ 0.9 ppm
OEL STEL	5 mg/m ³ 4.5 ppm
Remark	A (Naha kaudu kergesti imenduv aine)
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Syaanivety
HTP (OEL TWA)	1 mg/m ³
HTP (OEL STEL)	5 mg/m ³
Remark	Iho
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystiete)
France - Occupational Exposure Limits	
Local name	Acide cyanhydrique exprimé en cyanure
VME (OEL TWA)	1 mg/m ³ 0.9 ppm
VLE (OEL C/STEL)	5 mg/m ³ 4.5 ppm
Remark	Valeurs réglementaires contraignantes; risque de pénétration percutanée
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 984, 2016; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Hydrogencyanid (Cyanwasserstoff, als CN)
AGW (OEL TWA)	1 mg/m ³ 0.9 ppm
Peak exposure limitation factor	5(II)
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); H - hautresorptiv; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden
Regulatory reference	TRGS900

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Gibraltar - Occupational Exposure Limits	
Local name	Hydrogen cyanide (as cyanide)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	Skin
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Υδροκυάνιο
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	Η ένδειξη «δέρμα» στις οριακές τιμές επαγγελματικής έκθεσης επισημαίνει το ενδεχόμενο σημαντικής διείσδυσης μέσω του δέρματος.
Regulatory reference	Π.Δ. 82/2018 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	CIÁN-HIDROGÉN (hidrogén-cianid)
AK (OEL TWA)	1 mg/m ³
CK (OEL STEL)	5 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát); EU4 (2017/164 EU irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Hydrogen cyanide (as cyanide)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values), Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body)
Regulatory reference	Chemical Agents Code of Practice 2021
Italy - Occupational Exposure Limits	
Local name	Cianuro di idrogeno (espresso come cianuro)

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OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	Cute
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Ciānūdeņradis (zilskābe)
OEL TWA	0.3 mg/m ³
	0.27 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	Āda
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2018. gada 10. jūlijā noteikumiem Nr. 407)
Lithuania - Occupational Exposure Limits	
Local name	Cianido rūgštis
IPRV (OEL TWA)	1 mg/m ³ (kaip cianidas)
	0.9 ppm (kaip cianidas)
NRV (OEL C)	5 mg/m ³ (kaip cianidas)
	4.5 ppm (kaip cianidas)
Remark	Ū (ūmus poveikis); O (medžiaga į organizmą gali prasiskverbti pro nepažeistą odą)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Cyanure d'hydrogène (exprimé en cyanure)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	Peau
Regulatory reference	Mémorial A N° 226 de 2021 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 - Occupational Exposure Limits	
Local name	Hydrogen cyanide (as cyanide)
OEL TWA	1 mg/m ³
	0.9 ppm

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OEL STEL	5 mg/m ³
	4.5 ppm
Remark	Skin # Ġilda
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Cyaniden
TGG-8u (OEL TWA)	1 mg/m ³ (als CN)
	0.9 ppm
TGG-15min (OEL STEL)	5 mg/m ³ (als CN)
	4.5 ppm
Remark	H (Huidopname) Stoffen die relatief gemakkelijk door de huid kunnen worden opgenomen, hetgeen een substantiële bijdrage kan betekenen aan de totale inwendige blootstelling, hebben in de lijst een H-aanduiding. Bij deze stoffen moeten naast maatregelen tegen inademing ook adequate maatregelen ter voorkoming van huidcontact worden genomen.
Regulatory reference	Arbeidsomstandighedenregeling 2023
Poland - Occupational Exposure Limits	
Local name	Cyjanowodór
NDS (OEL TWA)	1 mg/m ³ w przeliczeniu na CN
NDSP (OEL C)	5 mg/m ³ w przeliczeniu na CN
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Indicative Occupational Exposure Limit (IOEL)	
Local name	Cianeto de hidrogénio (como cianeto)
IOEL TWA	1 mg/m ³
	0.9 ppm
IOEL STEL	5 mg/m ³
	4.5 ppm
Remark	Cutânea.
Regulatory reference	Decreto-Lei n.º 1/2021 de 6 de janeiro
Portugal - Occupational Exposure Limits	
Local name	Ácido cianídrico, expressos em CN
OEL C	4.7 mg/m ³
	4.7 ppm
Remark	P (Toxicidade percutânea)
Regulatory reference	Norma Portuguesa NP 1796:2014

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Romania - Occupational Exposure Limits	
Local name	Acid cianhidric (Cianură de hidrogen) (exprimat în CN)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	P - posibilitatea unei penetrări cutanate importante
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	цијановодонична киселина
OEL TWA	1 mg/m ³
	1 ppm
OEL STEL	5 mg/m ³
	5 ppm
Remark	ЕУ**** – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2017/164/ЕУ (четврта листа); К – напомена да хемијска материја може штетно деловати на кожу
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Kyanovodík (kyselina kyanovodíková)
NPHV (OEL TWA)	1 mg/m ³
	0.9 ppm
NPHV (OEL STEL)	5 mg/m ³
	4.5 ppm
Remark	K - znamená, že faktor môže byť ľahko absorbovaný kožou
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	vodikov cianid (cianovodikova kislina)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021

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Spain - Occupational Exposure Limits	
Local name	Cianuro de hidrógeno
VLA-ED (OEL TWA)	1 mg/m ³ como CN
VLA-EC (OEL STEL)	5 mg/m ³ como CN
	4.7 ppm
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo), vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2023. INSHT
Sweden - Occupational Exposure Limits	
Local name	Vätecyanid (som CN)
NGV (OEL TWA)	1 mg/m ³
	0.9 ppm
KGV (OEL STEL)	4 mg/m ³
	3.6 ppm
Remark	H (Ämnet kan lätt upptas genom huden. Det föreskrivna gränsvärdet bedöms ge tillräckligt skydd endast under förutsättning att huden är skyddad mot exponering för ämnet ifråga)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Hydrogen cyanide
WEL TWA (OEL TWA)	1 mg/m ³
	0.9 ppm
WEL STEL (OEL STEL)	5 mg/m ³
	4.5 ppm
Remark	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Blásýra (sem sýaníð)
OEL TWA	1 mg/m ³
	0.9 ppm
OEL STEL	5 mg/m ³
	4.5 ppm
Remark	H (efnið getur auðveldlega borist inn í líkamann gegnum húð)

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Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 1069/2018)
Norway - Occupational Exposure Limits	
Local name	Hydrogencyanid (Blåsyre)
Grenseverdi (OEL TWA)	1 mg/m ³
	0.9 ppm
Korttidsverdi (OEL STEL)	5 mg/m ³
	4 ppm
Remark	H: Kjemikalier som kan tas opp gjennom huden; E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	Цијан водород (циановодородна киселина)
OEL TWA	11 mg/m ³
	10 ppm
KTV	4
Short time value [mg/m ³]	44 mg/m ³
Short time value [ppm]	40 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанци во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покосо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (K) својство на полесно пренесување на супстанците во организмот преку кожата; (BAT) биолошка гранична вредност – праг на биолошка гранична вредност, што значи предупредување на опасна хемиска супстанца и нејзини метаболити во ткивата, телесните течности или издишувањето на воздухот, без оглед на тоа, дали опасната хемиска супстанца е внесена во организмот со вдишување, голтање или преку кожата
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанци („Службен весник на Република Македонија” бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Acide cyanhydrique / Cyanwasserstoff [Blausäure]
MAK (OEL TWA)	2 mg/m ³
	2 ppm
KZGW (OEL STEL)	4 mg/m ³
	4 ppm
Critical toxicity	ReproM, ReproF / ReproM, ReproF
Notation	R, R2F, SS _C , O ^B / H, R2F, SS _C , O ^L

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Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2023
USA - ACGIH - Occupational Exposure Limits	
Local name	Hydrogen cyanide
ACGIH OEL C	4.7 ppm
Remark (ACGIH)	TLV® Basis: URT irr; headache; nausea; thyroid eff. Notations: Skin
Regulatory reference	ACGIH 2023

DNEL (Derived-No Effect Level) : None available.

PNEC (Predicted No-Effect Concentration) : None available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
Systems under pressure should be regularly checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Oxygen detectors should be used when asphyxiating gases may be released.
Consider the use of a work permit system e.g. for maintenance activities.

8.2.2. Individual protection measures, e.g. personal protective equipment

- A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.
The following recommendations should be considered:
PPE compliant to the recommended EN/ISO standards should be selected.
- Eye/face protection : Wear safety glasses with side shields.
Standard EN 166 - Personal eye-protection - specifications.
 - Skin protection : Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher.
 - Hand protection : Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
 - Other : Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
 - Respiratory protection : When indicated by a risk assessment, Respiratory Protective Equipment must be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD.
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.
 - Thermal hazards : None in addition to the above sections.

8.2.3. Environmental exposure controls

None necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance : Gas.
- Physical state at 20°C / 101.3kPa : Colourless.
- Colour : Odourless.
Odour : Not applicable for gases and gas mixtures.
Melting point / Freezing point

Boiling point	: Not applicable for gas mixtures. It is technically not possible to determine the boiling point or range of this mixture. Component with lowest boiling point: Nitrogen -196 °C
Flammability	: Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not applicable for gases and gas mixtures.
Auto-ignition temperature	: Non flammable.
Decomposition temperature	: Not applicable.
pH	: Not applicable for gases and gas mixtures.
Viscosity, kinematic	: Not applicable for gases and gas mixtures.
Water solubility [20°C]	: Mixture is partially soluble in water
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not applicable.
Density and/or relative density	: Not applicable.
Relative vapour density (air=1)	: Lighter or similar to air.
Particle characteristics	: Not applicable for gases and gas mixtures.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosion limits	: Non flammable.
Oxidising properties	: No oxidising properties.

9.2.2. Other safety characteristics

Other data	: None.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Data for mixtures are not available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Avoid moisture in installation systems.

10.5. Incompatible materials

For additional information on compatibility refer to ISO 11114.

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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	: Classification criteria are not met.
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hydrogen cyanide ... %; hydrocyanic acid ... % (74-90-8)

LC50 Inhalation - Rat [ppm]	140 ppm/4h
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Skin corrosion/irritation	: No known effects from this product.
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Serious eye damage/irritation	: No known effects from this product.
Respiratory or skin sensitisation	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Toxic for reproduction : Fertility	: No known effects from this product.
Toxic for reproduction : unborn child	: No known effects from this product.
STOT-single exposure	: No known effects from this product.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas mixtures.

11.2. Information on other hazards

Other information	: The substance/mixture has no endocrine disrupting properties.
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SECTION 12: Ecological information

12.1. Toxicity

Assessment	: No ecological damage caused by this product.
EC50 48h - Daphnia magna [mg/l]	: No data available.
EC50 72h - Algae [mg/l]	: No data available.
LC50 96 h - Fish [mg/l]	: No data available.

hydrogen cyanide ... %; hydrocyanic acid ... % (74-90-8)

EC50 48h - Daphnia magna [mg/l]	No data available.
EC50 72h - Algae [mg/l]	No data available.
LC50 96 h - Fish [mg/l]	No data available.

Nitrogen (7727-37-9)

EC50 48h - Daphnia magna [mg/l]	No data available.
EC50 72h - Algae [mg/l]	No data available.
LC50 96 h - Fish [mg/l]	No data available.

12.2. Persistence and degradability

Assessment	: No ecological damage caused by this product.
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12.3. Bioaccumulative potential

Assessment	: No data available.
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12.4. Mobility in soil

Assessment	: No ecological damage caused by this product.
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12.5. Results of PBT and vPvB assessment

Assessment	: Not classified as PBT or vPvB.
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12.6. Endocrine disrupting properties

Assessment	: The substance/mixture has no endocrine disrupting properties.
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12.7. Other adverse effects

Other adverse effects	: No known effects from this product.
Effect on the ozone layer	: No effect on the ozone layer.
Effect on global warming	: No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended)

May be vented to atmosphere in a well ventilated place.
Do not discharge into any place where its accumulation could be dangerous.
Return unused product in original container to supplier.
: 16 05 05 : Gases in pressure containers other than those mentioned in 16 05 04.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN
UN-No. :

1956

14.2. UN proper shipping name

Transport by road/rail/inland waterways
(ADR/RID/ADN)

: COMPRESSED GAS, N.O.S. (Nitrogen)

Transport by air (ICAO-TI / IATA-DGR)

: Compressed gas, n.o.s. (Nitrogen)

Transport by sea (IMDG)

: COMPRESSED GAS, N.O.S. (Nitrogen)

14.3. Transport hazard class(es)

Labelling



2.2 : Non-flammable, non-toxic gases.

Transport by road/rail/inland waterways
(ADR/RID/ADN)

Class : 2

Classification code : 1A

Hazard identification number : 20

Tunnel Restriction : E - Passage forbidden through tunnels of category E

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.2

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.2

Emergency Schedule (EmS) - Fire : F-C

Emergency Schedule (EmS) - Spillage : S-V

14.4. Packing group

Transport by road/rail/inland waterways
(ADR/RID/ADN) : Not applicable.

Transport by air (ICAO-TI / IATA-DGR) : Not applicable.

Transport by sea (IMDG) : Not applicable.

14.5. Environmental hazards

Transport by road/rail/inland waterways
(ADR/RID/ADN) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.

Transport by sea (IMDG) : None.

14.6. Special precautions for user

Packing Instruction(s)

Transport by road/rail/inland waterways (ADR/RID/ADN)	: P200.
Transport by air (ICAO-TI / IATA-DGR)	
Passenger and Cargo Aircraft	: 200.
Cargo Aircraft only	: 200.
Transport by sea (IMDG)	: P200.
Special transport precautions	: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

EU-Regulations

Restrictions on use	: Contains no substance(s) listed on the REACH Candidate List.
Other information, restriction and prohibition regulations	: Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals).
Seveso Directive : 2012/18/EU (Seveso III)	: Not covered.

National regulations

Water hazard class (WGK)	: nwg - Non-hazardous to water.
Regulatory reference	: Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

A CSA does not need to be carried out for this product.

SECTION 16: Other information

Indication of changes	: Safety data sheet in accordance with commission regulation (EU) No 2020/878.
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Abbreviations and acronyms

: ATE - Acute Toxicity Estimate.
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008.
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
EINECS - European Inventory of Existing Commercial Chemical Substances.
CAS# - Chemical Abstract Service number.
PPE - Personal Protection Equipment.
LC50 - Lethal Concentration to 50 % of a test population.
RMM - Risk Management Measures.
PBT - Persistent, Bioaccumulative and Toxic.
vPvB - Very Persistent and Very Bioaccumulative.
STOT- SE : Specific Target Organ Toxicity - Single Exposure.
CSA - Chemical Safety Assessment.
EN - European Standard.
UN - United Nations.
ADR - Agreement concerning the International Carriage of Dangerous Goods by Road.
IATA - International Air Transport Association.
IMDG code - International Maritime Dangerous Goods.
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail.
WGK - Water Hazard Class.
STOT - RE : Specific Target Organ Toxicity - Repeated Exposure.
UFI : Unique Formula Identifier.

Training advice

: The hazard of asphyxiation is often overlooked and must be stressed during operator training.
For more guidance, refer to EIGA SL 01 "Dangers of Asphyxiation", downloadable at <http://www.eiga.eu>.

Further information

: Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Data is maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at : <http://www.eiga.eu>.
Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).

Full text of H- and EUH-statements	
Acute Tox. 1 (Dermal)	Acute toxicity (dermal), Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
H280	Contains gas under pressure; may explode if heated.
H300	Fatal if swallowed.
H310	Fatal in contact with skin.
H330	Fatal if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Press. Gas (Comp.)	Gases under pressure : Compressed gas

DISCLAIMER OF LIABILITY

: Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Details given in this document are believed to be correct at the time of going to press.
Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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