

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

1.1. Product identifier

Product form : Mixture
Product name : ImmEdge® Hydrophobic Barrier Pen
Product code : H-4000
Product group : Blend

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

Vector Laboratories, Inc.
6737 Mowry Ave
Newark, CA 94560
U.S.A
T (650) 697-3600, F (650) 697-0339
customerservice@vectorlabs.com

1.4. Emergency telephone number

Emergency number : US only (800) 227-6666 or outside of the US +1 (650) 697-3600 (7:15 AM - 5:00 PM PST)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable liquids, Category 2	H225
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Reproductive toxicity, Category 1B	H360FD
Specific target organ toxicity – Single exposure, Category 3, Narcosis	H336
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335
Specific target organ toxicity – Repeated exposure, Category 2	H373

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

Adverse physicochemical, human health and environmental effects

Highly flammable liquid and vapour. May damage fertility. May damage the unborn child. (inhalation). May cause damage to organs (liver, central nervous system) through prolonged or repeated exposure (inhalation). May cause drowsiness or dizziness. May cause respiratory irritation. Causes skin irritation. Causes serious eye irritation.

2.2. Label elements

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

Hazard pictograms (CLP) :



	GHS02	GHS07	GHS08
Signal word (CLP)	: Danger		
Contains	: 1-bromopropane; n-propyl bromide		
Hazard statements (CLP)	: H225 - Highly flammable liquid and vapour. H315 - Causes skin irritation. H319 - Causes serious eye irritation. H335 - May cause respiratory irritation. H336 - May cause drowsiness or dizziness. H360FD - May damage fertility. May damage the unborn child. inhalation. H373 - May cause damage to organs (liver, central nervous system) through prolonged or repeated exposure (inhalation).		
Precautionary statements (CLP)	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 - Keep container tightly closed. P240 - Ground and bond container and receiving equipment. P241 - Use explosion-proof electrical, lighting, ventilating equipment.		

2.3. Other hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Component	
1-bromopropane; n-propyl bromide (106-94-5)	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

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

Component	
1-bromopropane; n-propyl bromide (106-94-5)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

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]
1-bromopropane; n-propyl bromide substance listed as REACH Candidate (1-bromopropane (n-propyl bromide)) substance listed in REACH Annex XIV (1-Bromopropane (n-propyl bromide)) substance with national workplace exposure limit(s) (BE, ES, FI, IE, PL, PT)	CAS-No.: 106-94-5 EC-No.: 203-445-0 EC Index-No.: 602-019-00-5	> 90	Flam. Liq. 2, H225 Repr. 1B, H360FD STOT RE 2, H373 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 STOT SE 3, H336
Paraffin wax ; Paraffin waxes and Hydrocarbon waxes substance with national workplace exposure limit(s) (BE, DK, EE, ES, FI, FR, GB, GR, HR, IE, PL, PT, RO, SK, CH)	CAS-No.: 8002-74-2 EC-No.: 232-315-6	0.1 – 1	Not classified

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
acetic acid ... % substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, CH)	CAS-No.: 64-19-7 EC-No.: 200-580-7 EC Index-No.: 607-002-00-6	0.047	Flam. Liq. 3, H226 Skin Corr. 1A, H314

Specific concentration limits:		
Name	Product identifier	Specific concentration limits
acetic acid ... %	CAS-No.: 64-19-7 EC-No.: 200-580-7 EC Index-No.: 607-002-00-6	(10 ≤ C < 25) Skin Irrit. 2; H315 (10 ≤ C < 25) Eye Irrit. 2; H319 (25 ≤ C < 90) Skin Corr. 1B; H314 (90 ≤ C ≤ 100) Skin Corr. 1A; H314

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.
First-aid measures after skin contact	: Rinse skin with water/shower. Take off immediately all contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
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

Symptoms/effects	: May cause drowsiness or dizziness.
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: Irritation.
Symptoms/effects after eye contact	: Eye irritation.
Symptoms/effects after ingestion	: None under normal conditions.
Chronic symptoms	: May damage fertility or the unborn child.

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.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Highly flammable liquid and vapour.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
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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

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : No open flames, no sparks, and no smoking. Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe mist, spray, vapours.

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".
Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist, spray, vapours. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.
Hygiene measures : Separate working clothes from town clothes. Launder separately. 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

Technical measures : Ground/bond container and receiving equipment.
Storage conditions : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
Packaging materials : Store always product in container of same material as original container.
Storage class (LGK, TRGS 510) : LGK 3 - Flammable liquids

Joint storage table

LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13

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Joint storage not permitted for : LGK 1, LGK 2A, LGK 4.1A, LGK 4.1B, LGK 4.2, LGK 4.3, LGK 5.1A, LGK 5.1C, LGK 5.2, LGK 6.1B, LGK 6.2, LGK 7
Joint storage with restrictions permitted for : LGK 5.1B, LGK 6.1D, LGK 11, LGK 10-13
Joint storage permitted for : LGK 2B, LGK 3, LGK 6.1A, LGK 6.1C, LGK 8A, LGK 8B, LGK 10, LGK 12, LGK 13

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

1-bromopropane; n-propyl bromide (106-94-5)	
Austria - Occupational Exposure Limits	
Local name	1-Bromopropan
Remark	H. Fortpflanzungsgefährdend: F, D
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	1-Bromopropane # 1-Broompropan
OEL TWA	0.5 mg/m ³
	0.1 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Finland - Occupational Exposure Limits	
Local name	1-Bromipropaani
HTP (OEL TWA)	50 mg/m ³
	10 ppm
HTP (OEL STEL)	250 mg/m ³
	50 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
Ireland - Occupational Exposure Limits	
Local name	1-Bromopropane (n-Propyl bromide)
OEL TWA	0.1 ppm
Regulatory reference	Chemical Agents Code of Practice 2021
Poland - Occupational Exposure Limits	
Local name	1-Bromopropan
NDS (OEL TWA)	42 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	1-Bromopropano
OEL TWA	0.1 ppm
Remark	A3 (Agente carcinogénico confirmado nos animais de laboratório con relevância desconhecida no Homem)

1-bromopropane; n-propyl bromide (106-94-5)	
Regulatory reference	Norma Portuguesa NP 1796:2014
Spain - Occupational Exposure Limits	
Local name	1-Bromopropano
VLA-ED (OEL TWA)	10 ppm
Remark	TR1B (Cuando las pruebas utilizadas para la clasificación procedan principalmente de datos en animales), r (Esta sustancia tiene establecidas restricciones a la fabricación, la comercialización o el uso en los términos especificados en el "Reglamento (CE) nº 1907/2006 sobre Registro, Evaluación, Autorización y Restricción de sustancias y preparados químicos" (REACH) de 18 de diciembre de 2006 (DOUE L 369 de 30 de diciembre de 2006). Las restricciones de una sustancia pueden aplicarse a todos los usos o sólo a usos concretos. El anexo XVII del Reglamento REACH contiene la lista de todas las sustancias restringidas y especifica los usos que se han restringido).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
USA - ACGIH - Occupational Exposure Limits	
Local name	1-Bromopropane
ACGIH OEL TWA	0.1 ppm
Remark (ACGIH)	TLV® Basis: CNS impair, peripheral neuropathy; hematological eff; developmental & repro toxicity (male & female). Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
Regulatory reference	ACGIH 2022
Paraffin wax ; Paraffin waxes and Hydrocarbon waxes (8002-74-2)	
Belgium - Occupational Exposure Limits	
Local name	Paraffine (cire de) (fumées) # Paraffinewas (rook)
OEL TWA	2 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Croatia - Occupational Exposure Limits	
Local name	Parafinski vosak, dim
GVI (OEL TWA)	2 mg/m ³
KGVI (OEL STEL)	6 mg/m ³
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
Denmark - Occupational Exposure Limits	
Local name	Paraffinrøg
OEL TWA	2 mg/m ³
Regulatory reference	BEK nr 202 af 21/02/2023
Estonia - Occupational Exposure Limits	
Local name	Parafiin
OEL TWA	2 mg/m ³ aurud
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)
Finland - Occupational Exposure Limits	
Local name	Parafiinihuurut

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Paraffin wax ; Paraffin waxes and Hydrocarbon waxes (8002-74-2)	
HTP (OEL TWA)	1 mg/m ³
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Paraffine (cire de), fumé
VME (OEL TWA)	2 mg/m ³
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Greece - Occupational Exposure Limits	
Local name	Παραφινικός κηρός (καπνός)
OEL TWA	2 mg/m ³
OEL STEL	6 mg/m ³
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Ireland - Occupational Exposure Limits	
Local name	Paraffin wax, fume
OEL TWA	2 mg/m ³
OEL STEL	6 mg/m ³
Regulatory reference	Chemical Agents Code of Practice 2021
Poland - Occupational Exposure Limits	
Local name	Parafina stała
NDS (OEL TWA)	2 mg/m ³ frakcja wdychalna
Remark	Frakcja wdychalna – frakcja aerozolu wnikająca przez nos i usta, która po zdeponowaniu w drogach oddechowych stwarza zagrożenie dla zdrowia.
Regulatory reference	Dz. U. 2018 poz. 1286 wraz z późn. zm.
Portugal - Occupational Exposure Limits	
Local name	Parafina (cera), fumos
OEL TWA	2 mg/m ³
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Parafină
OEL TWA	2 mg/m ³ (Fumuri)
OEL STEL	6 mg/m ³ (Fumuri)
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Slovakia - Occupational Exposure Limits	
Local name	Parafín, dymy
NPHV (OEL TWA)	2 mg/m ³
NPHV (OEL STEL)	6 mg/m ³
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)

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Paraffin wax ; Paraffin waxes and Hydrocarbon waxes (8002-74-2)	
Spain - Occupational Exposure Limits	
Local name	Cera de parafina
VLA-ED (OEL TWA)	2 mg/m ³ humos
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2023. INSHT
United Kingdom - Occupational Exposure Limits	
Local name	Paraffin wax
WEL TWA (OEL TWA)	2 mg/m ³ fume
WEL STEL (OEL STEL)	6 mg/m ³ fume
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Switzerland - Occupational Exposure Limits	
Local name	Paraffine (fumée) / Paraffinrauch
MAK (OEL TWA)	2 mg/m ³ (a) / (a)
Critical toxicity	Nausée, VRS / Nausea, OAW
Regulatory reference	www.suva.ch, 01.01.2023
USA - ACGIH - Occupational Exposure Limits	
Local name	Paraffin wax fume
ACGIH OEL TWA	2 mg/m ³
Remark (ACGIH)	TLV® Basis: URT irr; nausea
Regulatory reference	ACGIH 2023
acetic acid ... % (64-19-7)	
Austria - Occupational Exposure Limits	
Local name	Essigsäure
MAK (OEL TWA)	25 mg/m ³
	10 ppm
MAK (OEL STEL)	50 mg/m ³ (8x 5(Mow) min)
	20 ppm (8x 5(Mow) min)
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Acide acétique # Azijnzuur
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	38 mg/m ³
	15 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Оцетна киселина
OEL TWA	25 mg/m ³

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acetic acid ... % (64-19-7)	
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
Remark	• (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	Octena kiselina
GVI (OEL TWA)	25 mg/m ³
	10 ppm
KGVI (OEL STEL)	50 mg/m ³
	20 ppm
Remark	Direktiva: 2017/164/EU
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 1/2021)
Cyprus - Occupational Exposure Limits	
Local name	Οξικό οξύ
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
Regulatory reference	Κανονισμοί του 2019 (Κ.Δ.Π. 16/2019)
Czech Republic - Occupational Exposure Limits	
Local name	Kyselina octová (Kyselina ethanová)
PEL (OEL TWA)	25 mg/m ³
	10 ppm
NPK-P (OEL C)	50 mg/m ³
	20 ppm
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Eddikesyre (Ethansyre)
OEL TWA	25 mg/m ³
	10 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Etaanhape (äädikhape)

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acetic acid ... % (64-19-7)	
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	25 mg/m ³
	10 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Etikkahappo
HTP (OEL TWA)	13 mg/m ³
	5 ppm
HTP (OEL STEL)	25 mg/m ³
	10 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
Local name	Acide acétique
VME (OEL TWA)	25 mg/m ³
	10 ppm
VLE (OEL C/STEL)	50 mg/m ³
	20 ppm
Remark	Valeurs réglementaires indicatives
Regulatory reference	Circulaire du Ministère du travail (réf.: Arrête du 27 septembre 2019)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Essigsäure
AGW (OEL TWA)	25 mg/m ³
	10 ppm
Peak exposure limitation factor	2(l)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden
Regulatory reference	TRGS900
Greece - Occupational Exposure Limits	
Local name	Οξικό οξύ
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	37 mg/m ³
	15 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους

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acetic acid ... % (64-19-7)	
Hungary - Occupational Exposure Limits	
Local name	ECETSAV
AK (OEL TWA)	25 mg/m ³
CK (OEL STEL)	50 mg/m ³
Remark	m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat); 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	Acetic acid
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Italy - Occupational Exposure Limits	
Local name	Acido acetico
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Etiķskābe (etānskābe)
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
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	Acto rūgštis
IPRV (OEL TWA)	25 mg/m ³
	10 ppm
TPRV (OEL STEL)	50 mg/m ³
	20 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)

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acetic acid ... % (64-19-7)	
Luxembourg - Occupational Exposure Limits	
Local name	Acide acétique
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
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	Acetic acid
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Azijnzuur (ethaanzuur)
TGG-8u (OEL TWA)	25 mg/m ³
TGG-15min (OEL STEL)	50 mg/m ³
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Kwas octowy
NDS (OEL TWA)	25 mg/m ³
NDSCh (OEL STEL)	50 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Ácido acético
OEL TWA	10 ppm
OEL STEL	15 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Acid acetic
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)

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acetic acid ... % (64-19-7)	
Slovakia - Occupational Exposure Limits	
Local name	Kyselina octová (kyselina etánová)
NPHV (OEL TWA)	25 mg/m ³
	10 ppm
NPHV (OEL STEL)	50 mg/m ³
	20 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	ocetna kislina
OEL TWA	25 mg/m ³
	10 ppm
OEL STEL	50 mg/m ³
	20 ppm
Remark	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
Spain - Occupational Exposure Limits	
Local name	Ácido acético
VLA-ED (OEL TWA)	25 mg/m ³
	10 ppm
VLA-EC (OEL STEL)	50 mg/m ³
	20 ppm
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Ättiksyra
NGV (OEL TWA)	13 mg/m ³
	5 ppm
KGV (OEL STEL)	25 mg/m ³
	10 ppm
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Acetic acid
WEL TWA (OEL TWA)	25 mg/m ³
	10 ppm
WEL STEL (OEL STEL)	50 mg/m ³
	20 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

acetic acid ... % (64-19-7)	
Switzerland - Occupational Exposure Limits	
Local name	Acide acétique / Essigsäure
MAK (OEL TWA)	25 mg/m ³
	10 ppm
KZGW (OEL STEL)	50 mg/m ³
	20 ppm
Critical toxicity	VRS, Yeux / OAW, Auge
Notation	SS _C / SS _C
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Acetic acid
ACGIH OEL TWA	10 ppm
ACGIH OEL STEL	15 ppm
Remark (ACGIH)	TLV® Basis: URT & eye irr; pulm func
Regulatory reference	ACGIH 2022

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

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	: Light blue
Appearance	: Enclosed equipment.
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: ≈ 159.8 °F (71°C)
Flammability	: Not available
Explosive limits	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: 70 – 78 °F (21 - 25.5°C)
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable liquid and vapour.

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

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

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 (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

1-bromopropane; n-propyl bromide (106-94-5)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LC50 Inhalation - Rat	≈ 0.035 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

Paraffin wax ; Paraffin waxes and Hydrocarbon waxes (8002-74-2)	
LD50 oral rat	> 5000 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LD50 dermal rabbit	> 3600 mg/kg Source: NITE

acetic acid ... % (64-19-7)	
LD50 oral rat	3310 mg/kg bodyweight Animal: rat, Remarks on results: other:
LD50 oral	4960 mg/kg bodyweight Animal: mouse, Remarks on results: other:
LD50 dermal rabbit	1060 mg/kg Source: HSDB, NITE
LC50 Inhalation - Rat [ppm]	16000 ppm Source: ChemIDPlus

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

1-bromopropane; n-propyl bromide (106-94-5)	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity : May damage fertility. May damage the unborn child. inhalation.
STOT-single exposure : May cause drowsiness or dizziness. May cause respiratory irritation.

1-bromopropane; n-propyl bromide (106-94-5)	
STOT-single exposure	May cause respiratory irritation. May cause drowsiness or dizziness.
STOT-repeated exposure	: May cause damage to organs (liver, central nervous system) through prolonged or repeated exposure (inhalation).

1-bromopropane; n-propyl bromide (106-94-5)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Paraffin wax ; Paraffin waxes and Hydrocarbon waxes (8002-74-2)	
NOAEL (dermal, rat/rabbit, 90 days)	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)

acetic acid ... % (64-19-7)	
NOAEL (oral, rat, 90 days)	290 mg/kg bodyweight Animal: rat, Animal sex: male

Aspiration hazard : Not classified

11.2. Information on other hazards

No additional information available

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

Not rapidly degradable

1-bromopropane; n-propyl bromide (106-94-5)	
LC50 - Fish [1]	24.3 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	99.3 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 260 mg/l Source: ECHA
EC50 96h - Algae [1]	≈ 50 mg/l Test organisms (species): other:

acetic acid ... % (64-19-7)	
LC50 - Fish [1]	> 1000 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
LC50 - Fish [2]	> 300.82 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	> 1000 mg/l Test organisms (species): Daphnia magna
EC50 - Crustacea [2]	> 300.82 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 1000 mg/l Test organisms (species): Skeletonema costatum
EC50 72h - Algae [2]	> 300.82 mg/l Test organisms (species): Skeletonema costatum

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

1-bromopropane; n-propyl bromide (106-94-5)	
Partition coefficient n-octanol/water (Log Pow)	2.1 Source: ECHA
acetic acid ... % (64-19-7)	
Partition coefficient n-octanol/water (Log Pow)	-0.17 Source: ECHA

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Flammable vapours may accumulate in the container. Do not re-use empty containers.

SECTION 14: Transport information

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

14.1. UN number or ID number

UN-No. (ADR)	: UN 2344
UN-No. (IMDG)	: UN 2344
UN-No. (IATA)	: UN 2344
UN-No. (ADN)	: UN 2344
UN-No. (RID)	: UN 2344

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: BROMOPROPANES
Proper Shipping Name (IMDG)	: BROMOPROPANES
Proper Shipping Name (IATA)	: Bromopropanes
Proper Shipping Name (ADN)	: BROMOPROPANES
Proper Shipping Name (RID)	: BROMOPROPANES

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 3
Danger labels (ADR)	: 3



IMDG

Transport hazard class(es) (IMDG) : 3
Danger labels (IMDG) : 3



IATA

Transport hazard class(es) (IATA) : 3
Danger labels (IATA) : 3



ADN

Transport hazard class(es) (ADN) : 3
Danger labels (ADN) : 3



RID

Transport hazard class(es) (RID) : 3
Danger labels (RID) : 3



14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR) : F1
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001, IBC02, R001
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T4
Portable tank and bulk container special provisions (ADR) : TP1
Tank code (ADR) : LGBF
Vehicle for tank carriage : FL
Transport category (ADR) : 2

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Special provisions for carriage - Operation (ADR) : S2, S20
Hazard identification number (Kemler No.) : 33
Orange plates :



Tunnel restriction code (ADR) : D/E
EAC code : 2YE

Transport by sea

Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D
Stowage category (IMDG) : B
Stowage and handling (IMDG) : SW2
Segregation (IMDG) : SGG10
Properties and observations (IMDG) : Colourless liquids. Immiscible with water. When involved in a fire, evolve toxic fumes.
Harmful by inhalation.

Air transport

PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 353
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
Special provisions (IATA) : A3
ERG code (IATA) : 3L

Inland waterway transport

Classification code (ADN) : F1
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 1

Rail transport

Classification code (RID) : F1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Packing instructions (RID) : P001, IBC02, R001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T4
Portable tank and bulk container special provisions (RID) : TP1
Tank codes for RID tanks (RID) : LGBF
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE7
Hazard identification number (RID) : 33

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

15.1.1. EU-Regulations

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(a)	1-bromopropane; n-propyl bromide ; acetic acid ... %	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
3(b)	ImmEdge® Hydrophobic Barrier Pen ; 1-bromopropane; n-propyl bromide ; acetic acid ... %	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
3(c)	ImmEdge® Hydrophobic Barrier Pen ; 1-bromopropane; n-propyl bromide	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 class 4.1
30.	1-bromopropane; n-propyl bromide	Substances which are classified as reproductive toxicant category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 5 or Appendix 6, respectively.
40.	1-bromopropane; n-propyl bromide ; acetic acid ... %	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.

Contains substance(s) listed on the REACH Candidate List in concentrations $\geq 0.1\%$ or SCL: 1-bromopropane (n-propyl bromide) (EC 203-445-0, CAS 106-94-5)

Contains substance(s) listed on REACH Annex XIV: 1-bromopropane (n-propyl bromide) (EC 203-445-0, CAS 106-94-5)

Contains substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals): 1-bromopropane (n-propyl bromide) (106-94-5)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG)
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG)

Water hazard class (WGK) : WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category : Z(1) - non biodegradable substances with hazardous properties for humans and the environment (carcinogenicity/ mutagenicity/ reprotoxicity/bioaccumulative potential/ toxicity or persistence)

SZW-lijst van kankerverwekkende stoffen : Paraffin wax ; Paraffin waxes and Hydrocarbon waxes is listed

SZW-lijst van mutagene stoffen : Paraffin wax ; Paraffin waxes and Hydrocarbon waxes is listed

SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed

SZW-lijst van reprotoxische stoffen – : 1-bromopropane; n-propyl bromide is listed

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen – Ontwikkeling : 1-bromopropane; n-propyl bromide is listed

Denmark

Class for fire hazard	: Class III-1
Store unit	: 50 liter
Classification remarks	: Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed
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

Switzerland

Storage class (LK)	: LK 3 - Flammable liquids
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15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
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
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet

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Abbreviations and acronyms:	
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disruptor

Full text of H- and EUH-statements:	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H360FD	May damage fertility. May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
Repr. 1B	Reproductive toxicity, Category 1B
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis

The classification complies with : ATP 12

Custom_SDS_EU_VECTOR

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.