



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 as amended by Regulation (EU) No. 2020/878, and
Regulation (EC) No. 1272/2008

Revision date 08-10-2026

Revision Number 1

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

1.1. Product identifier

Product Code FO00016343
Material number(s): FO00016343PW;FO00016343Z1;FO00016343Z5
Product Name PLHE9040 LB BARRIER CLEAR

Other means of identification

Unique Formula Identifier (UFI) HGA2-Q0J9-M00Q-4U7G
Substance/mixture Mixture

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

Recommended use For industrial use only
Uses advised against None

1.3. Details of the supplier of the safety data sheet

Supplier

Avient Luxembourg S.à.r.l.
19 Route de Bastogne, L-9638
Pommerloch, Luxembourg
Product Stewardship
+352 26 90 50 35

For further information, please contact

E-mail address SDS.MB.Europe@avient.com
Company Phone Number +352 26 90 50 35

1.4. Emergency telephone number

Emergency Telephone (Chemtrec 24h) +44 20 3885 0382

Poison control center phone number - §45 - (EC)1272/2008	
Europe	112
Austria	Austria Poison Information Center: +43 1 406 43 43 Emergency phone number: 112
Belgium	Belgium Emergency phone number: +32 (0) 70 245 245 Emergency phone number: 112
Bulgaria	Bulgaria Emergency phone number : Hospital for Active Medical Treatment and Emergency Medicine "N.I.Pirogov" Emergency number/ fax: +359 2 9154 233

Croatia	Croatia Emergency phone number: Poison Control Center: +385 (01) 23 48 342 Emergency phone number: 112
Cyprus	Cyprus Emergency phone number: Poison Control Center: 1401
Czech Republic	Czech Republic Toxicological Information Center (TIS), Clinic of Occupational Medicine: +420 224 919 293 or +420 224 915 402 Emergency phone number: 112
Denmark	Denmark Emergency phone number: Bispebjerg Hospital: +45 82 12 12 12 Emergency phone number: 112
Estonia	Estonia Emergency phone number: Poison Information Center: 16662 Emergency phone number: 112
Finland	Finland Emergency phone number: Poison Information Center: 0800 147 111 Emergency phone number: 112
France	France: National Poison center phone number (ORFILA) : (33) 1 45 42 59 59 24/24-7/7 emergency number : ANGERS: 02 41 48 21 21 BORDEAUX: 05 56 96 40 80 LILLE: 08 00 59 59 59 LYON: 04 72 11 69 11 MARSEILLE: 04 91 75 25 25 NANCY: 03 83 22 50 50 PARIS: 01 40 05 48 48 TOULOUSE: 05 61 77 74 47
Germany	Germany Emergency phone number: +49 30 19240 (Giftnotruf Berlin)
Greece	Greece Emergency phone number: Poison Center: +30 210 77 93 777 Emergency phone number: 112
Hungary	Hungary Emergency phone number: ETTSZ (Health Toxicological Information Service): +36 80 201 199 Emergency phone number: 112
Ireland	Ireland Emergency phone number: National Poisons Information Centre, Beaumont Hospital: +353 (0)1 809 2166 (from 8.00 to 22.00)
Italy	Italy Emergency phone number: Bambino Gesù Pediatric Hospital, Rome, Piazza Sant'Onofrio: 06 6859 3726 University Hospital Foggia, Viale Luigi Pinto: 800 183 459 A. Cardarelli Hospital, Naples, Via A. Cardarelli: 081 545 3333 Umberto I Hospital, Rome, Viale del Policlinico: 06 4997 8000 A. Gemelli Hospital, Rome, Largo Agostino Gemelli: 06 305 4343 Careggi Hospital, Medical Toxicology Unit, Florence, Largo Brambilla: 055 794 7819 National Center for Toxicological Information, Pavia, Via Salvatore Maugeri: 0382 24444 Niguarda Ca' Granda, Milan, Piazza Maggiore Hospital: 02 6610 1029 Giovanni XXII Hospital, Bergamo, Piazza OMS: 00 883 300 Verona Integrated Hospital Trust, Piazzale Aristide Stefani 1: 800 011 858 Emergency phone number: 112
Latvia	Latvia Emergency phone number: Toxicology and Sepsis Clinic, Poison and Drug Information Center: +371 67042473 Emergency phone number: 112
Lithuania	Lithuania Emergency phone number: Lithuanian Poison Control and Information Center: +370(5) 2362052 or +370 687 53378

	Emergency phone number: 112
Luxembourg	Luxembourg Emergency phone number: (+352) 8002 5500 Emergency phone number: 112
Malta	Malta Accident and Emergency Department phone number: 2545 4030
Netherlands	Netherlands Emergency phone number: NVIC Poison Center: +31 (0)88 755 8000 (For professionals only in case of acute poisoning).
Norway	Norway Poison Center Emergency phone number: +47 22 59 13 00
Poland	Poland Poison Information Center (Warsaw): +48226196654 Pomeranian Center of Toxicology (Gdansk): +48586821939 Sosnowiec Poison Center: +48323682210 Emergency phone number: 112
Portugal	Portugal Emergency phone number: Antivenom Information Center (CIAV): +351 800 250 250 Emergency phone number: 112
Romania	Romania Emergency phone number: Toxicological Information Center: +40 21 599 2300 Emergency phone number: 021 112
Slovakia	Slovakia Emergency phone number: National Toxicological Information Center (NTIC): 00421 (0) 2 5477 4166 Emergency phone number: 112
Slovenia	Slovenia Emergency phone number: 112
Spain	Spain Emergency phone number + 34 91 562 04 20 (for toxic emergencies only) Emergency phone number: 112
Sweden	Sweden Emergency phone number: 010-456 6700 Emergency phone number: 112
Switzerland	Switzerland Emergency phone number: 145 Outside Switzerland: +41 44 251 51 51

SECTION 2: Hazards identification

This mixture has not been evaluated as a whole for health effects. Information provided on health effects of this product is based on the individual components. However, some vapors or contaminants may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure. See sections 8 and 11 for special precautions.

2.1. Classification of the substance or mixture

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

Skin sensitization	Category 1 - (H317)
Germ cell mutagenicity	Category 2 - (H341)
Hazardous to the aquatic environment - chronic	Category 3 - (H412)

2.2. Label elements

Contains Diphenyloxide-4,4'-disulphonyl hydrazide

**Signal word**

Warning

Hazard statements

H317 - May cause an allergic skin reaction.

H341 - Suspected of causing genetic defects.

H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

P201 - Obtain special instructions before use.

P261 - Avoid breathing dust, fume, gas, mist, vapors and spray.

P280 - Wear protective gloves, protective clothing, eye protection and face protection.

P308 + P313 - IF exposed or concerned: Get medical advice and attention.

P362 + P364 - Take off contaminated clothing and wash it before reuse.

P501 - Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

Additional information

This product requires tactile warnings if supplied to the general public.

2.3. Other hazards**Other hazards**

Causes mild skin irritation. Harmful to aquatic life.

PBT or vPvB properties

The mixture does not contain any substances meeting the PBT or vPvB criteria according to Regulation (EC) No 1907/2006, Annex XIII.

Endocrine Disruptor InformationThe mixture does not contain substances $\geq 0.1\%$ that have endocrine disrupting properties according to Regulation (EC) No 1907/2006, Article 59(1) or Regulation (EU) 2017/2100 or Regulation (EU) 2018/605.**SECTION 3: Composition/information on ingredients****3.1. Substances**

Not applicable

3.2. Mixtures

Chemical name	Weight-%	REACH registration number	EC No. (Index No.)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	Notes
Diphenyloxide-4,4'-di sulphonyl hydrazide (CAS #: 80-51-3)	1 - 3%	No data available	201-286-1 442-990-0 (607-758-00-7)	Aquatic Acute 1 (H400) STOT RE 2 (H373) Skin Sens. 1 (H317) Skin Irrit. 2 (H315) Muta. 2 (H341) Eye Irrit. 2 (H319)	-	1	1	-

				Aquatic Chronic 1 (H410) Acute Tox. 4 (H302) Self-react. D (H242)				
.epsilon.-Caprolactam (CAS #: 105-60-2)	0.1 - 1%	No data available	203-313-2 (613-069-00-2)	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Acute Tox. 4 (H332) STOT SE 3 (H335)	-	-	-	-
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""], trihydrogen (CAS #: 113252-64-5)	0.1 - 1%	No data available	-	Not classified	-	-	-	-

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

Acute Toxicity Estimate

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	1500	No data available	No data available	No data available	No data available
.epsilon.-Caprolactam (105-60-2)	1210	2002	1.5	No data available	4500
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""], trihydrogen (113252-64-5)	5005	5005	5.1	21	20001

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59).

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice

Show this safety data sheet to the doctor in attendance.

Inhalation

Move victim to fresh air. Get medical attention immediately if symptoms occur.

Eye contact

In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists: Get medical advice and attention.

Skin contact

Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation

or allergic reactions see a physician.

Ingestion

Rinse mouth. Do NOT induce vomiting. Get medical attention if symptoms occur.

Self-protection of the first aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. First aider: Pay attention to self-protection.

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

Itching. Rashes. Hives. Prolonged contact may cause redness and irritation.

Effects of Exposure

Mutagenic effects.

4.3. Indication of any immediate medical attention and special treatment needed**Note to physicians**

May cause sensitization in susceptible persons. Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable Extinguishing Media**

Dry chemical, CO₂, water spray or regular foam.

Unsuitable extinguishing media

Do not use water jetstream.

5.2. Special hazards arising from the substance or mixture**Specific hazards arising from the chemical**

Product is or contains a sensitizer. May cause sensitization by skin contact.

Hazardous combustion products

Decomposition products can include and are not limited to: Carbon monoxide, Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Ammonia, Fluorinated oxides, Hydrogen fluoride, Hydrogen chloride, Hydrogen sulfide, Sulfur oxides, Sulfur trioxide, Oxides of sulfur, Phosphorus oxides, Phosphine, Metal oxides

5.3. Advice for firefighters**Special protective equipment and precautions for fire-fighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protective equipment.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****Personal precautions**

Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

For emergency responders

Use personal protection recommended in Section 8.

6.2. Environmental precautions**Environmental precautions**

Prevent entry into waterways, sewers, basements or confined areas. Do not allow to enter into soil/subsoil. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Remove contaminated clothing and shoes.
General hygiene considerations	Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up.
Storage class (TRGS 510)	Storage class 10.

7.3. Specific end use(s)

Risk Management Methods (RMM)	The information required is contained in this Safety Data Sheet.
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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union (Directives 98/24/EC and 2004/37/EC)			
.epsilon.-Caprolactam (105-60-2)	TWA: 10 mg/m ³ ; dust and vapour STEL: 40 mg/m ³ ; dust and vapour			
Chemical name	Austria (GKV BGBl. II Nr. 330/2024)	Belgium (Royal Decree 21/01/2020)	Bulgaria (Regulation No. 13)	Croatia (Official Gazette No. 91/2018)
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	DS	TWA: 0.1 mg/m ³ ;	-	-
.epsilon.-Caprolactam (105-60-2)	TWA-TMW: 5 mg/m ³ ; inhalable fraction STEL-KZGW: 40 mg/m ³ (4 X 15 min); inhalable fraction	TWA: 2.2 ppm; vapor TWA: 1 mg/m ³ ; dust TWA: 10 mg/m ³ ; vapor STEL: 8.7 ppm; vapor STEL: 3 mg/m ³ ; dust STEL: 40 mg/m ³ ; vapor	TWA: 1.0 mg/m ³ ; dust and vapor STEL: 3.0 mg/m ³ ; dust and vapor	TWA-GVI: 10 mg/m ³ ; dust and vapor STEL-KGVI: 40 mg/m ³ ; dust and vapor Sk
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-	TWA-TMW: 5 mg/m ³ ; inhalable fraction	TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ ;	-	TWA-GVI: 5 mg/m ³ ; STEL-KGVI: 10 mg/m ³ ;

1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)				
Chemical name	Cyprus (Cabinet of Ministers Regulation 268/2001)	Czech Republic (Regulation 361/2007)	Denmark (BEK no. 1619 of 19/12/2024)	Estonia (Regulation No. 105)
.epsilon.-Caprolactam (105-60-2)	TWA: 10 mg/m ³ ; dust or vapor STEL: 40 mg/m ³ ; dust or vapor	TWA: 1 mg/m ³ ; dust TWA: 10 mg/m ³ ; vapor Ceiling: 3 mg/m ³ ; dust Ceiling: 40 mg/m ³ ; vapor	TWA: 2 ppm; vapor TWA: 10 mg/m ³ ; vapor TWA: 1 mg/m ³ ; dust and powder STEL: 20 mg/m ³ ; vapor STEL: 4 ppm; vapor STEL: 2 mg/m ³ ; dust and powder	TWA: 5 mg/m ³ ; dust and fume STEL: 40 mg/m ³ ; dust and fume
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	-	-	TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ ;	-
Chemical name	Finland (HTP-ARVOT 2025)	France (INRS ED 6443)	Germany (TRGS 900)	Germany (DFG)
.epsilon.-Caprolactam (105-60-2)	TWA: 10 mg/m ³ ; STEL: 40 mg/m ³ ;	TWA-VME (indicatif): 10 mg/m ³ ; powder and vapor STEL-VLCT (indicatif): 40 mg/m ³ ; powder and vapor	TWA-AGW; 5 mg/m ³ (2(I)); inhalable fraction; dust and vapor Sk	TWA-MAK: 0.42 ppm; I(2); TWA-MAK: 2 mg/m ³ ; I(2); inhalable fraction
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	TWA: 1 mg/m ³ ;	-	-	-
Chemical name	Greece (Presidential Decrees 90/1999, 338/2001 and 212/2006)	Hungary (5/2020 ITM Decree)	Italy (Legislative Decree no. 81)	Italy (AIDII)
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	-	-	-	TWA: 0.1 mg/m ³ ; inhalable fraction
.epsilon.-Caprolactam (105-60-2)	TWA: 5 ppm; vapor TWA: 20 mg/m ³ ; vapor TWA: 5 mg/m ³ ; dust STEL: 10 ppm; vapor STEL: 40 mg/m ³ ; vapor	TWA-AK: 10 mg/m ³ ; STEL-CK: 40 mg/m ³ ;	TWA: 10 mg/m ³ ; dust and vapor STEL: 40 mg/m ³ ; dust and vapor	TWA: 5 mg/m ³ ; inhalable fraction and aerosol and vapor
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ ;	TWA-AK: 5 mg/m ³ ; STEL-CK: 20 mg/m ³ ;	-	TWA: 5 mg/m ³ ; STEL (REL): 10 mg/m ³ ;
Chemical name	Ireland (CoP 2024)	Latvia (Cabinet of Ministers Regulation No. 325)	Lithuania (HN 23:2011)	Luxembourg (A-N°684)
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	TWA: 0.1 mg/m ³ ; STEL: 0.3 mg/m ³ (calculated);	-	TWA-IPRD: 0.013 mg/m ³ ; TWA-IPRD: 0.01 ppm; Sk S	-
.epsilon.-Caprolactam	TWA: 10 mg/m ³ ;	TWA: 10 mg/m ³ ; dust	TWA-IPRD: 10 mg/m ³ ;	TWA: 10 mg/m ³ ; powder

(105-60-2)	STEL: 40 mg/m ³ ;	and vapor STEL: 40 mg/m ³ ; dust and vapor	dust and fume STEL-TPRD: 40 mg/m ³ ; dust and fume	and vapor STEL: 40 mg/m ³ ; powder and vapor
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]- 1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diiso octyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ ;	-	-	-
Chemical name	Malta (Subsidiary Legislation 424.24)	Netherlands (Working Conditions Regulations)	Norway (FOR-2011-12-06-1358)	Poland (Legislative Journal 2018 item 1286)
.epsilon.-Caprolactam (105-60-2)	TWA: 10 mg/m ³ ; dust and vapour STEL: 40 mg/m ³ ; dust and vapour	TWA: 20 mg/m ³ ; fume TWA: 1 mg/m ³ ; dust	TWA: 10 ppm; TWA: 40 mg/m ³ ; STEL: 20 ppm (total sum of gas and particulate matter (aerosol) of the substance;value calculated); STEL: 60 mg/m ³ (total sum of gas and particulate matter (aerosol) of the substance;value calculated);	TWA-NDS: 5 mg/m ³ ; vapor and inhalable fraction STEL-NDSch: 15 mg/m ³ ; vapor and inhalable fraction
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]- 1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diiso octyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	-	-	TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ (value calculated);	TWA-NDS: 5 mg/m ³ ; STEL-NDSch: 10 mg/m ³ ;
Chemical name	Portugal (NP 1796:2014)	Romania (Government Decision no. 1218/2006)	Slovakia (Gov. Decree 122/2024)	Slovenia (Regulation Nos. 100/2001 and 29/2024)
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	TWA (VLE-MP): 0.1 mg/m ³ ; inhalable fraction	-	-	-
.epsilon.-Caprolactam (105-60-2)	TWA (VLE-MP): 10 mg/m ³ ; inhalable fraction; vapor STEL (VLE-CD): 40 mg/m ³ ; dust; vapor	TWA: 10 mg/m ³ ; dust and vapor STEL: 40 mg/m ³ ; dust and vapor	TWA: 10 mg/m ³ ; dust and vapor Ceiling: 40 mg/m ³ ; dust and vapor	TWA: 10 mg/m ³ ; inhalable fraction; dust and vapor STEL: 40 mg/m ³ ; inhalable fraction; dust and vapor
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]- 1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diiso octyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	TWA (VLE-MP): 5 mg/m ³ ; STEL (VLE-CD): 10 mg/m ³ ;	TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ ;	TWA: 1 mg/m ³ ;	TWA: 1 mg/m ³ ; inhalable fraction STEL: 1 mg/m ³ ; inhalable fraction
Chemical name	Spain (Occupational exposure limits for chemical agents in Spain, 2025)	Sweden (AFS 2023:14)	Switzerland (MAK Values)	United Kingdom
.epsilon.-Caprolactam (105-60-2)	TWA-(VLA-ED): 10 mg/m ³ ; dust and vapor STEL (VLA-EC): 40 mg/m ³ ; dust and vapor	TLV-NGV: 5 mg/m ³ ; dust and vapor STEL (Bindande KGV): 40 mg/m ³ ; dust and vapor	TWA-MAK: 5 mg/m ³ ; aerosol, inhalable dust, vapour	TWA: 1 mg/m ³ ; dust only TWA: 10 mg/m ³ ; dust and vapour STEL: 3 mg/m ³ ; dust only STEL: 20 mg/m ³ ; dust

Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]- 1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diiso octyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	TWA-(VLA-ED): 5 mg/m ³ ; STEL (VLA-EC): 10 mg/m ³ ;	-	TWA-MAK: 5 mg/m ³ ; inhalable dust	and vapour TWA: 5 mg/m ³ ; STEL: 10 mg/m ³ ;
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Note See section 16 for terms and abbreviations

Biological occupational exposure limits This product, as supplied, contains materials that do not have reportable biological exposure limits or are not subject to the reporting requirements of the local jurisdiction.

Information on monitoring procedures Refer to European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) or equivalent national standard(s). Refer to European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) or equivalent national standard(s). Refer to European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) or equivalent national standard(s).

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	-	0.1 mg/kg bw/day [4] [6]	0.7 mg/m ³ [4] [6] 0.1 mg/m ³ [5] [6]
.epsilon.-Caprolactam (105-60-2)	-	-	5 mg/m ³ [5] [6] 10 mg/m ³ [5] [7]

Notes

- [4] Systemic health effects.
[5] Local health effects.
[6] Long term.
[7] Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
.epsilon.-Caprolactam (105-60-2)	8.55 mg/kg bw/day [4] [6]	-	2.5 mg/m ³ [5] [6] 5 mg/m ³ [5] [7]

Notes

- [4] Systemic health effects.
[5] Local health effects.
[6] Long term.
[7] Short term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
Diphenyloxide-4,4'-disulph onyl hydrazide (80-51-3)	5.9 µg/L	3.5 µg/L	0.59 µg/L	0.35 µg/L	-
.epsilon.-Caprolactam (105-60-2)	2 mg/L	1 mg/L	0.2 mg/L	-	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	0.54 mg/kg sediment dw	0.054 mg/kg sediment dw	0.5 mg/L	0.1 mg/kg soil dw	-
epsilon.-Caprolactam (105-60-2)	18.7 mg/kg sediment dw	1.87 mg/kg sediment dw	1737 mg/L	2.55 mg/kg soil dw	-

8.2. Exposure controls

Engineering controls	Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits.
Personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).
Hand protection	Wear suitable gloves.
Skin and body protection	Wear suitable protective clothing.
Respiratory protection	Use appropriate respiratory protection. Consult with an industrial hygienist to determine the appropriate respiratory protection for your specific use of this material.
Environmental exposure controls	Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Paste
Physical state	Liquid
Color	No Pigment
Odor	Slight
Odor threshold	No information available

Property	Values	Remarks • Method
Melting point / freezing point	No data available	None known
Boiling point or initial boiling point and boiling range	No data available	
Flammability	No data available	None known
Lower and upper explosion limit/flammability limit		None known
Lower explosion limit	No data available	
Upper explosion limit	No data available	
Flash point	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
SADT (°C)	No data available	None known
pH	No data available	None known
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Solubility	No data available	None known

Water solubility	No data available	None known
Partition coefficient n-octanol/water (log value)	No data available	None known
Vapor pressure	No data available	None known
Density and/or relative density	No data available	None known
Bulk density	No data available	
Liquid Density	No data available	
Relative vapor density	No data available	None known
Particle characteristics		None known
Particle Size	No data available	
Particle Size Distribution	No data available	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No information available

9.2.2. Other safety characteristics

No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under recommended storage conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Keep away from open flames, hot surfaces and sources of ignition. static discharge (electrostatic discharge). Storage near to reactive materials. Dust formation. Protect from moisture.

10.5. Incompatible materials

Incompatible materials Incompatible with strong oxidizers and with strong acids and bases (decomposes to form formaldehyde). At melt temperatures, acetal resins are incompatible with halogenated polymers such as vinyl (PVC) and any elastomers containing any halogenated polymers. At processing conditions, these materials are mutually destructive and involve rapid degradation. Even small amounts of such contaminants can cause sudden and spontaneous formaldehyde gas formation. Workplace fume well above threshold levels are a likely result. Unsafe pressurization of equipment such as extruder or mold can also result. Thoroughly purge and mechanically clean processing equipment to avoid even trace quantities of halogenated materials from coming in contact with the acetal. Prevent contamination of virgin or rework resin.

10.6. Hazardous decomposition products

Hazardous decomposition products None under normal use conditions.

SECTION 11: Toxicological information

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**Information on likely routes of exposure****Product Information**

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	May cause sensitization by skin contact. Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). Causes mild skin irritation.
Ingestion	Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Itching. Rashes. Hives. Prolonged contact may cause redness and irritation.
Acute toxicity	Based on available data, the classification criteria are not met.

Numerical measures of toxicity

The following ATE values have been calculated for the mixture
ATEmix (oral) 130,548.30 mg/kg

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	1500 mg/kg (Rat)	-	-
epsilon.-Caprolactam (105-60-2)	1210	> 2000 mg/kg	-
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	5005 mg/kg (rat)	> 5000 mg/kg (Rabbit)	20001 ppm

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Classification based on data available for ingredients. Causes mild skin irritation.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.
Respiratory or skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	Contains a known or suspected mutagen. Classification based on data available for ingredients. Suspected of causing genetic defects.
Carcinogenicity	Based on available data, the classification criteria are not met.

Reproductive toxicity Based on available data, the classification criteria are not met.

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disruption for human health Based on available data, the classification criteria are not met.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity Harmful to aquatic life with long lasting effects.

12.2. Persistence and degradability No information available.

12.3. Bioaccumulative potential

Component Information

Chemical name	Partition coefficient	Bioconcentration factor (BCF)	Trophic magnification factor (TMF)
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	-	3	-
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P,P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""]-, trihydrogen (113252-64-5)	-	-	-

12.4. Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment This product does not contain any substances that are assessed to be a PBT or a vPvB.

Chemical name	PBT and vPvB assessment
Diphenyloxide-4,4'-disulphonyl hydrazide (80-51-3)	Not PBT/vPvB

epsilon.-Caprolactam (105-60-2)	Not PBT/vPvB
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12.6. Endocrine disrupting properties Based on available data, the classification criteria are not met.

12.7. Other adverse effects No information available.

PMT or vPvM properties Based on available data, the classification criteria are not met.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

Note: This material is not subject to regulation as a hazardous material for shipping

IATA

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

IMDG

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable

14.6 Special precautions for user

Special Provisions None

ADN

14.1 UN number or ID number Not regulated

14.2 UN proper shipping name Not regulated

14.3 Transport hazard class(es) Not regulated

14.4 Packing group Not regulated

14.5 Environmental hazard Not applicable

14.6 Special precautions for user

Special Provisions None

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Germany**

Water hazard class (WGK) strongly hazardous to water (WGK 3)

European Union**Authorizations and/or restrictions on use:**

Use restricted. See item: 3.

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorization per REACH Annex XIV
.epsilon.-Caprolactam 105-60-2	Use restricted. See entry 75.	-
Zirconate(3-), [2,2-bis[(2-propenyloxy)methyl]-1-butanolato-O1][P, P-diisooctyl diphosphato(2-)-O"]bis[P,P-diisooctyl diphosphato(2-)-O",O""]-, trihydrogen 113252-64-5	75	-

International Inventories

TSCA	Complies
DSL/NDSL	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Not determined
AIIC	Complies
NZIoC	Complies
TCSI	Complies

15.2. Chemical safety assessment

Chemical Safety Report No information available

SECTION 16: Other information**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**

H242 - Heating may cause a fire

H302 - Harmful if swallowed

H315 - Causes skin irritation
 H317 - May cause an allergic skin reaction
 H319 - Causes serious eye irritation
 H332 - Harmful if inhaled
 H335 - May cause respiratory irritation
 H341 - Suspected of causing genetic defects
 H373 - May cause damage to organs through prolonged or repeated exposure
 H400 - Very toxic to aquatic life
 H410 - Very toxic to aquatic life with long lasting effects
 P261 - Avoid breathing dust, fume, gas, mist, vapors and spray
 P272 - Contaminated work clothing should not be allowed out of the workplace
 P280 - Wear protective gloves
 P302 + P352 - IF ON SKIN: Wash with plenty of water and soap
 P321 - Specific treatment (see supplemental first aid instructions on this label)
 P333 + P313 - If skin irritation or rash occurs: Get medical advice and attention
 P362 + P364 - Take off contaminated clothing and wash it before reuse
 P501 - Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable
 P201 - Obtain special instructions before use
 P202 - Do not handle until all safety precautions have been read and understood
 P280 - Wear protective gloves, protective clothing, eye protection and face protection
 P308 + P313 - IF exposed or concerned: Get medical advice and attention
 P405 - Store locked up
 P273 - Avoid release to the environment

Key or legend to abbreviations and acronyms used in the safety data sheet

List may include phrases which are not applicable to this product

ACGIH	American Conference of Governmental Industrial Hygienists
AIDII	Italian Association of Industrial Hygienists
ADN	Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe)
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)
AIIC	Australian Inventory of Industrial Chemicals
ATE	Acute Toxicity Estimate
ASTM	American Society for the Testing of Materials
bar	Biological Reference Values for Chemical Compounds in the Work Area
BAT	Biological tolerance values for occupational exposure
BEL	Biological exposure limits
bw	Body weight
Ceiling	Maximum limit value
CLP	Classification, Labelling and Packaging Regulation; Regulation (EC) No 1272/2008
CMR	Carcinogen, Mutagen or Reproductive Toxicant
DFG	German Research Foundation
DOT	Department of Transportation (United States)
DSL	Domestic Substances List (Canada)
ECHA	European Chemicals Agency
EC Number	European Community number
EINECS	European Inventory of Existing Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ENCS	Existing and New Chemical Substances (Japan)
EPA	U.S. Environmental Protection Agency
EWC	European Waste Codes
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO	International Civil Aviation Organization

IECSC	Inventory of Existing Chemical Substances in China
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISO	International Organization for Standardization
KECI	Korean Existing Chemicals Inventory
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
MAK	Maximum Concentration at the Workplace
MAL	Measuring Technical Hygienic Air Needs
MARPOL	International Convention for the Prevention of Pollution from Ships
MDLPS	Ministry of Labor and Social Policy
NDSL	Non-Domestic Substances List (Canada)
n.o.s.	Not Otherwise Specified
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOELR	No Observable Effect Loading Rate
NZIoC	New Zealand Inventory of Chemicals
OECD	Organization for Economic Cooperation and Development
OEL	Occupational exposure limits
PBT	Persistent, Bioaccumulative and Toxic substance
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PMT	Persistent, Mobile and Toxic
PPE	Personal protective equipment
QSAR	Quantitative Structure Activity Relationship
REACH	Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006)
RID	Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)
SADT	Self-Accelerating Decomposition Temperature
SAR	Structure-activity relationship
SDS	Safety Data Sheet
SL	Surface Limit
STEL	Short Term Exposure Limit
STOT RE	Specific target organ toxicity - Repeated exposure
STOT SE	Specific target organ toxicity - Single exposure
SVHC	Substance of very high concern
TCSI	Taiwan Chemical Substance Inventory
TDG	Transport of Dangerous Goods (Canada)
TRGS	Technical Rule for Hazardous Substances
TSCA	Toxic Substances Control Act (United States)
TWA	Time-Weighted Average
UN	United Nations
VOC	Volatile organic compounds
vPvB	Very Persistent and Very Bioaccumulative
vPvM	Very Persistent and Very Mobile
As	Allergenic substance
C	Carcinogen
DS	Dermal Sensitizer
Ot	Ototoxicant
pOt	Ototoxicant - potential to cause hearing disorders
PS	Photosensitizer
RS	Respiratory Sensitizer
S	Sensitizer
poS	Sensitizer - capable of causing occupational asthma
Sa	Simple asphyxiant
Sd	Skin designation
pSd	Skin designation - potential for cutaneous absorption
Sdv	Skin designation - vacated

Sk	Skin notation
dSk	Skin notation - danger of cutaneous absorption
pSk	Skin notation - potential for cutaneous absorption

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitization	Calculation method
Skin sensitization	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Chronic aquatic toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

U.S. Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
 European Chemicals Agency (ECHA) (ECHA_API)
 U.S. Environmental Protection Agency
 U.S. EPA Acute Exposure Guideline Level(s) (AEGL(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 U.S. Hazardous Substance Data Bank (HSDB)
 International Uniform Chemical Information Database (IUCLID)
 Japan National Institute of Technology and Evaluation (NITE)
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 U.S. National Institute for Occupational Safety and Health (NIOSH)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 U.S. National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 International Organization for Economic Co-operation and Development (OECD) Environment, Health, and Safety Publications
 International Organization for Economic Co-operation and Development (OECD) High Production Volume Chemicals Program
 International Organization for Economic Co-operation and Development (OECD) Screening Information Data Set
 United Nations World Health Organization (WHO)

Limit Value Legal Basis

European Union (Directive 98/24/EC)	Council Directive 98/24/EC of April 7, 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended
European Union (Directive 2004/37/EC)	Directive 2004/37/EC of April 29, 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work, as amended
Austria (GKV BGBl. II Nr. 330/2024)	Ordinance on Limit Values for Workplace Substances and on Carcinogens, as amended by BGBl. II Nr. 330/2024, from the Federal Ministry of Economics and Labor
Austria (VGÜ 2008)	Ordinance on health monitoring at the workplace 2008, published through BGBl. II Nr. 224/2007 by Austria Minister for Labor and Social Affairs, as amended

Belgium (Royal Decree 21/01/2020)	Royal Decree of March 11, 2002 on the protection of workers' health against risks from chemical agents at work, as amended
Bulgaria (Regulation No. 13)	Regulation No. 13 of December 30, 2003 on the Protection of Workers from Hazards Related to Exposure to Chemical Agents at Work, as amended
Bulgaria (Regulation No. 10)	Regulation No. 10 of September 26, 2003 on the Protection of Workers from the Risks Associated with Exposure to Carcinogens, Mutagens or Substances Toxic to Reproduction at Work, as amended
Croatia (Official Gazette No. 91/2018)	Official Gazette No. 91/2018 on the Protection of Workers from Exposure to Hazardous Chemicals at Work, the Limit Values of Exposure and the Biological Limit Values, as amended
Cyprus (Cabinet of Ministers Regulation 268/2001)	Cabinet of Ministers Regulation 268/2001 - Safety and Health in the Working Environment (Chemical Substances), as amended
Cyprus (Cabinet of Ministers Regulation 153/2001)	Cabinet of Ministers Regulation 153/2001 - Safety and Health in the Working Environment (Chemical Substances-Carcinogens), as amended
Czech Republic (Regulation 361/2007)	Conditions for the Protection of the Health of Employees at Work, Government Regulation 361/2007, as amended
Czech Republic (Decree Nos. 181/2015 and 240/2015)	Decree 181/2015 and Decree 240/2015, amending Decree No. 432/2003 Coll., laying down the conditions for the application of the work into categories, limit values for the parameters of biological exposure tests and requirements for reporting work with asbestos and biological agents
Denmark (BEK no. 1619 of 19/12/2024)	Statutory Order No. 507, Order on Limit Values for Substances and Materials, as amended by BEK no. 1619 of 19/12/2024
Estonia (Regulation No. 105)	Health and Safety Requirements for the Use of Dangerous Chemicals and Materials Containing Them and Occupational Exposure Limits to Chemical Agents, Regulation No. 105 of March 20, 2001, as amended
Finland (HTP-ARVOT 2025)	Regulation on Concentrations Known to be Hazardous, 55/2025, Publications of Ministry of Social Affairs and Health
France (INRS ED 6443)	Occupational Exposure Limit Values, ED 6443, Published 2021 by the INRS (the National Research and Safety Institute for the Prevention of Occupational Accidents and Diseases), as amended
France (Decree 2009-157)	Decree 2009-1570 of December 15, 2009, relative to the control of chemical risk on workplaces
Germany TRGS	TRGS 900 - Occupational Exposure Limits, Technical Rules for Dangerous Substances, 2025
Germany (TRGS 903)	Biological Threshold Limits (BGW-Values), Technical Rules for Dangerous Substances, 2025
Germany (DFG)	MAK and BAT values of Hazardous Chemical Compounds in the Work Area, published by the German Research Foundation on July 1, 2025
Greece (Presidential Decree 90/1999)	Presidential Decree 90/1999, Occupational Exposure Limits - Protection of workers' health and safety from exposure to certain chemical substances during the workday, as amended
Greece (Presidential Decree 212/2006)	Presidential Decree 212/2006, Protection of workers that are exposed to asbestos
Greece (Presidential Decree 338/2001)	Presidential Decree 338/2001, Protection of workers' health and safety from exposure to certain chemical substances during the workday
Hungary (5/2020 ITM Decree)	5/2020. (II. 6.) Ministry of Innovation and Technology decree on the protection of the health and safety of workers from the risks related to chemical agents, as amended
Ireland (CoP 2024)	2024 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2021) & the Safety, Health and Welfare at Work (Carcinogens, Mutagens and Reprotoxic Substances) Regulations (2024)
Italy (Legislative Decree no. 81)	Title IX, Annex XLIII and XXXVIII, Professional Exposure Limits and Annex XXXIX Mandatory Biological Limit Values and Health Monitoring, Legislative Decree no. 81 of April 9, 2008, as amended
Italy (AIDII)	Final Note (1), Ministerial Decree of August 20, 1999 by the Ministry of Health along with the Ministry of Industry, Trade, and Arts
Latvia (Cabinet of Ministers Regulation No. 325)	Cabinet of Ministers Regulation No. 325 of 2007 - Labor Protection Requirements when Coming in Contact with Chemical Substances at Workplaces, as amended
Lithuania (HN 23:2011)	Lithuanian Hygiene Standard HN 23:2011 Occupational Exposure limit values for chemical substances - General requirements of measurement and impact assessment, as amended
Luxembourg (A-N°684)	Grand-Ducal Regulation of 20 July 2018 amending the Grand-Ducal Regulation of 14 November 2016 concerning the protection of the safety and health of employees against the

	risks associated with chemical agents in the workplace, A-N°684 of 2018
Malta (Subsidiary Legislation 424.24)	Malta Occupational Health and Safety Authority Act: Chapter 424 - Protection of the health and safety of workers from the risks related to chemical agents at work, as amended
Netherlands (Working Conditions Regulations)	Occupational Working Conditions Regulation, Limit Values for substances harmful to health, Annex XIII, as amended
Norway (FOR-2011-12-06-1358)	Regulations concerning action and limit values for physical and chemical agents in the working environment and classified biological agents, as amended
Poland (Legislative Journal 2018 item 1286)	Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the Highest Allowable Concentrations and Intensities of Factors Harmful to Health in the Work Environment, as amended
Portugal (NP 1796:2014)	Portuguese Norm NP 1796:2014, Occupational exposure limits and biological exposure indices to chemical agents, Table 1 - Occupational exposure limits and biological exposure indices to chemical agents (OELs)
Romania (Government Decision no. 1218/2006)	Governmental Decision No. 1218 from September 6, 2006 on the minimum health and safety requirements for protection of workers from the risks related to exposure to chemical agents, Annex No. 1 Mandatory National Occupational Exposure Limit Values for Chemical Agents
Slovakia (Gov. Decree 122/2024)	Government Decree of Slovak Republic 122/2024 of May 22, 2024 amending Government Decree of Slovak Republic 355/2006 about protection of health of employees when working with chemical agents
Slovenia (Regulation No. 100/2001)	Regulation for protection of workers against risks related to exposure to chemical substances at the workplace, Annexes I and II, the Official Gazette of the Republic of Slovenia, No. 100/2001, as amended
Slovenia (Regulation No. 29/2024)	Regulation for protection of workers against risks related to carcinogenic, mutagenic or reprotoxic substances exposure at work, Annex III, The Official Journal of the Republic of Slovenia, No. 29/2024, as amended
Spain (Occupational exposure limits for chemical agents in Spain, 2025)	National Institute for Safety and Health at Work (INSST) - Occupational exposure limits for chemical agents in Spain, 2025, Tables 1 and 3
Sweden (AFS 2023:14)	The Swedish Work Environment Authority's Regulations and General Advice on Respiratory limit values in the work Environment
Switzerland (MAK Values)	Occupational Limit Values 2025, Swiss National Accident Insurance Fund, List of MAK Values
Switzerland (BAT Values)	Occupational Limit Values 2025, Swiss National Accident Insurance Fund, List of Biological Limit Values

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Disclaimer

Notice to reader: To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Particularly, this information may not be valid for such material used in conjunction with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet