



# 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 25-08-2026

Revision Number 1

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

### 1.1. Product identifier

**Product Code** CC10434211  
**Material number(s):** CC10434211BG  
**Product Name** AB53132112 BLA PA6 UV AO SMARTBATCH

### Other means of identification

**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<br>Emergency phone number: 112                                                                      |
| Belgium                                                  | Belgium Emergency phone number: +32 (0) 70 245 245<br>Emergency phone number: 112                                                                      |
| Bulgaria                                                 | Bulgaria Emergency phone number : Hospital for Active Medical Treatment and Emergency Medicine "N.I.Pirogov"<br>Emergency number/ fax: +359 2 9154 233 |
| Croatia                                                  | Croatia Emergency phone number: Poison Control Center: +385 (01) 23 48 342<br>Emergency phone number: 112                                              |

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

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

|                                                       |                     |
|-------------------------------------------------------|---------------------|
| <b>Serious eye damage</b>                             | Category 1 - (H318) |
| <b>Reproductive toxicity</b>                          | Category 2 - (H361) |
| <b>Hazardous to the aquatic environment - chronic</b> | Category 3 - (H412) |

### 2.2. Label elements

Contains Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester



### Signal word

Danger

### Hazard statements

H318 - Causes serious eye damage.

H361 - Suspected of damaging fertility or the unborn child.

H412 - Harmful to aquatic life with long lasting effects.

### Precautionary statements

P201 - Obtain special instructions before use.

P273 - Avoid release to the environment.

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

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a POISON CENTER or doctor.

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

Toxic 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 Information

The 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 |
|-----------------------------------------------------------------------------------|----------|---------------------------|--------------------|------------------------------------------------------------------------------------|------------------------------------|----------|----------------------|-------|
| Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (CAS #: 52829-07-9) | 3 - 5%   | No data available         | 258-207-9          | Repr. 2 (H361)<br>Eye Dam. 1 (H318)<br>Aquatic Chronic 2 (H411)<br>Aquatic Acute 1 | -                                  | 1        | -                    | -     |

|                                                                                          |          |                   |                          | (H400)                                                                                                        |   |   |   |   |
|------------------------------------------------------------------------------------------|----------|-------------------|--------------------------|---------------------------------------------------------------------------------------------------------------|---|---|---|---|
| 1,3-Benzenedicarboxamide, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)-(CAS #: 42774-15-2) | 1 - 3%   | No data available | 419-710-0 (616-129-00-6) | Eye Irrit. 2 (H319)<br>Acute Tox. 4 (H302)                                                                    | - | - | - | - |
| epsilon.-Caprolactam (CAS #: 105-60-2)                                                   | 0.1 - 1% | No data available | 203-313-2 (613-069-00-2) | Acute Tox. 4 (H302)<br>Skin Irrit. 2 (H315)<br>Eye Irrit. 2 (H319)<br>Acute Tox. 4 (H332)<br>STOT SE 3 (H335) | - | - | - | - |

**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 |
|-----------------------------------------------------------------------------------|-------------------|-------------------|---------------------------------------------|-----------------------------------------|--------------------------------------|
| Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (52829-07-9)        | No data available | 3170              | No data available                           | No data available                       | No data available                    |
| 1,3-Benzenedicarboxamide, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)-(42774-15-2) | 500               | 2002              | No data available                           | No data available                       | No data available                    |
| epsilon.-Caprolactam (105-60-2)                                                   | 1210              | 2002              | 1.5                                         | No data available                       | 4500                                 |

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**

|                                           |                                                                                                                                                                                                                                                           |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.                                                                                                                                                         |
| <b>Inhalation</b>                         | Remove to fresh air. Get medical attention immediately if symptoms occur.                                                                                                                                                                                 |
| <b>Eye contact</b>                        | Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. |
| <b>Skin contact</b>                       | Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.                                                                                                                    |
| <b>Ingestion</b>                          | Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.                                                                                                                                             |
| <b>Self-protection of the first aider</b> | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).                                                                                                                                                             |

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

|                     |                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------|
| Symptoms            | Burning sensation. May cause blindness. May cause redness and tearing of the eyes.           |
| Effects of Exposure | May cause adverse reproductive effects - such as birth defect, miscarriages, or infertility. |

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

|                    |                        |
|--------------------|------------------------|
| Note to physicians | 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 | No information available.                                                                                                                                                                                                                                           |
| Hazardous combustion products              | Decomposition products can include and are not limited to: Carbon monoxide, Carbon dioxide (CO2), Nitrogen oxides (NOx), Ammonia, 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. Use personal protective equipment as required. |
| Other information        | Refer to protective measures listed in Sections 7 and 8.                                  |
| For emergency responders | Use personal protection recommended in Section 8.                                         |

#### 6.2. Environmental precautions

|                           |                                                       |
|---------------------------|-------------------------------------------------------|
| Environmental precautions | Prevent further leakage or spillage if safe to do so. |
|---------------------------|-------------------------------------------------------|

#### 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         | Take up mechanically, placing in appropriate containers for disposal.                |
| 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.

## 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. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear protective gloves, eye protection and face protection. 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. Keep out of the reach of children.

**Storage class (TRGS 510)** Storage class 11.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## 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 <sup>3</sup> ; dust and vapour<br>STEL: 40 mg/m <sup>3</sup> ; 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)                                                                   |
| epsilon.-Caprolactam (105-60-2) | TWA-TMW: 5 mg/m <sup>3</sup> ; inhalable fraction<br>STEL-KZGW: 40 mg/m <sup>3</sup> (4 X 15 min); inhalable fraction | TWA: 2.2 ppm; vapor<br>TWA: 1 mg/m <sup>3</sup> ; dust<br>TWA: 10 mg/m <sup>3</sup> ; vapor<br>STEL: 8.7 ppm; vapor<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>STEL: 40 mg/m <sup>3</sup> ; vapor | TWA: 1.0 mg/m <sup>3</sup> ; dust and vapor<br>STEL: 3.0 mg/m <sup>3</sup> ; dust and vapor                                                                                                                     | TWA-GVI: 10 mg/m <sup>3</sup> ; dust and vapor<br>STEL-KGVI: 40 mg/m <sup>3</sup> ; dust and vapor<br>Sk |
| 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 <sup>3</sup> ; dust or vapor<br>STEL: 40 mg/m <sup>3</sup> ; dust or vapor                               | TWA: 1 mg/m <sup>3</sup> ; dust<br>TWA: 10 mg/m <sup>3</sup> ; vapor<br>Ceiling: 3 mg/m <sup>3</sup> ; dust<br>Ceiling: 40 mg/m <sup>3</sup> ; vapor                                          | TWA: 2 ppm; vapor<br>TWA: 10 mg/m <sup>3</sup> ; vapor<br>TWA: 1 mg/m <sup>3</sup> ; dust and powder<br>STEL: 20 mg/m <sup>3</sup> ; vapor<br>STEL: 4 ppm; vapor<br>STEL: 2 mg/m <sup>3</sup> ; dust and powder | TWA: 5 mg/m <sup>3</sup> ; dust and fume<br>STEL: 40 mg/m <sup>3</sup> ; dust and fume                   |
| Chemical name                   | Finland (HTP-ARVOT)                                                                                                   | France (INRS ED 6443)                                                                                                                                                                         | Germany (TRGS 900)                                                                                                                                                                                              | Germany (DFG)                                                                                            |

|                                    |                                                                                                                                                        |                                                                                                                                             |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                          |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | 2025)                                                                                                                                                  |                                                                                                                                             |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                          |
| epsilon.-Caprolactam<br>(105-60-2) | TWA: 10 mg/m <sup>3</sup> ;<br>STEL: 40 mg/m <sup>3</sup> ;                                                                                            | TWA-VME (indicatif): 1<br>0 mg/m <sup>3</sup> ; powder and<br>vapor<br>STEL-VLCT (indicatif):<br>40 mg/m <sup>3</sup> ; powder and<br>vapor | TWA-AGW;<br>5 mg/m <sup>3</sup> (2(l)); inhalable<br>fraction; dust and vapor<br>Sk                                                                                                                                                                                                                   | TWA-MAK: 0.42 ppm; l(<br>2);<br>TWA-MAK: 2 mg/m <sup>3</sup> ; l(2<br>); inhalable fraction                                                                                              |
| Chemical name                      | Greece (Presidential<br>Decrees 90/1999,<br>338/2001 and 212/2006)                                                                                     | Hungary (5/2020 ITM<br>Decree)                                                                                                              | Italy (Legislative Decree<br>no. 81)                                                                                                                                                                                                                                                                  | Italy (AIDII)                                                                                                                                                                            |
| epsilon.-Caprolactam<br>(105-60-2) | TWA: 5 ppm; vapor<br>TWA: 20 mg/m <sup>3</sup> ; vapor<br>TWA: 5 mg/m <sup>3</sup> ; dust<br>STEL: 10 ppm; vapor<br>STEL: 40 mg/m <sup>3</sup> ; vapor | TWA-AK: 10 mg/m <sup>3</sup> ;<br>STEL-CK: 40 mg/m <sup>3</sup> ;                                                                           | TWA: 10 mg/m <sup>3</sup> ; dust<br>and vapor<br>STEL: 40 mg/m <sup>3</sup> ; dust<br>and vapor                                                                                                                                                                                                       | TWA: 5 mg/m <sup>3</sup> ;<br>inhalable fraction and<br>aerosol and vapor                                                                                                                |
| Chemical name                      | Ireland (CoP 2024)                                                                                                                                     | Latvia (Cabinet of<br>Ministers Regulation No.<br>325)                                                                                      | Lithuania (HN 23:2011)                                                                                                                                                                                                                                                                                | Luxembourg (A-N°684)                                                                                                                                                                     |
| epsilon.-Caprolactam<br>(105-60-2) | TWA: 10 mg/m <sup>3</sup> ;<br>STEL: 40 mg/m <sup>3</sup> ;                                                                                            | TWA: 10 mg/m <sup>3</sup> ; dust<br>and vapor<br>STEL: 40 mg/m <sup>3</sup> ; dust<br>and vapor                                             | TWA-IPRD: 10 mg/m <sup>3</sup> ;<br>dust and fume<br>STEL-TPRD: 40 mg/m <sup>3</sup> ;<br>dust and fume                                                                                                                                                                                               | TWA: 10 mg/m <sup>3</sup> ; powder<br>and vapor<br>STEL: 40 mg/m <sup>3</sup> ;<br>powder and vapor                                                                                      |
| Chemical name                      | Malta (Subsidiary<br>Legislation 424.24)                                                                                                               | Netherlands (Working<br>Conditions Regulations)                                                                                             | Norway<br>(FOR-2011-12-06-1358)                                                                                                                                                                                                                                                                       | Poland (Legislative<br>Journal 2018 item 1286)                                                                                                                                           |
| epsilon.-Caprolactam<br>(105-60-2) | TWA: 10 mg/m <sup>3</sup> ; dust<br>and vapour<br>STEL: 40 mg/m <sup>3</sup> ; dust<br>and vapour                                                      | TWA: 20 mg/m <sup>3</sup> ; fume<br>TWA: 1 mg/m <sup>3</sup> ; dust                                                                         | TWA: 10 ppm;<br>TWA: 40 mg/m <sup>3</sup> ;<br>STEL: 20 ppm (total<br>sum of gas and<br>particulate matter<br>(aerosol) of the<br>substance;value<br>calculated);<br>STEL: 60 mg/m <sup>3</sup> (total<br>sum of gas and<br>particulate matter<br>(aerosol) of the<br>substance;value<br>calculated); | TWA-NDS: 5 mg/m <sup>3</sup> ;<br>vapor and inhalable<br>fraction<br>STEL-NDSch: 15<br>mg/m <sup>3</sup> ; vapor and<br>inhalable fraction                                               |
| Chemical name                      | Portugal (NP<br>1796:2014)                                                                                                                             | Romania (Government<br>Decision no. 1218/2006)                                                                                              | Slovakia (Gov. Decree<br>122/2024)                                                                                                                                                                                                                                                                    | Slovenia (Regulation<br>Nos. 100/2001 and<br>29/2024)                                                                                                                                    |
| epsilon.-Caprolactam<br>(105-60-2) | TWA (VLE-MP): 10<br>mg/m <sup>3</sup> ; inhalable<br>fraction; vapor<br>STEL (VLE-CD): 40<br>mg/m <sup>3</sup> ; dust; vapor                           | TWA: 10 mg/m <sup>3</sup> ; dust<br>and vapor<br>STEL: 40 mg/m <sup>3</sup> ; dust<br>and vapor                                             | TWA: 10 mg/m <sup>3</sup> ; dust<br>and vapor<br>Ceiling: 40 mg/m <sup>3</sup> ; dust<br>and vapor                                                                                                                                                                                                    | TWA: 10 mg/m <sup>3</sup> ;<br>inhalable fraction; dust<br>and vapor<br>STEL: 40 mg/m <sup>3</sup> ;<br>inhalable fraction; dust<br>and vapor                                            |
| Chemical name                      | Spain (Occupational<br>exposure limits for<br>chemical agents in<br>Spain, 2025)                                                                       | Sweden (AFS 2023:14)                                                                                                                        | Switzerland (MAK<br>Values)                                                                                                                                                                                                                                                                           | United Kingdom                                                                                                                                                                           |
| epsilon.-Caprolactam<br>(105-60-2) | TWA-(VLA-ED): 10<br>mg/m <sup>3</sup> ; dust and vapor<br>STEL (VLA-EC): 40<br>mg/m <sup>3</sup> ; dust and vapor                                      | TLV-NGV: 5 mg/m <sup>3</sup> ;<br>dust and vapor<br>STEL (Bindande KGV):<br>40 mg/m <sup>3</sup> ; dust and<br>vapor                        | TWA-MAK: 5 mg/m <sup>3</sup> ;<br>aerosol, inhalable dust,<br>vapour                                                                                                                                                                                                                                  | TWA: 1 mg/m <sup>3</sup> ; dust<br>only<br>TWA: 10 mg/m <sup>3</sup> ; dust<br>and vapour<br>STEL: 3 mg/m <sup>3</sup> ; dust<br>only<br>STEL: 20 mg/m <sup>3</sup> ; dust<br>and vapour |

**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                                                  |
|------------------------------------------------------------------------------------|------|---------------------------|-------------------------------------------------------------|
| Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (52829-07-9)         | -    | 1.8 mg/kg bw/day [4] [6]  | 1.27 mg/m <sup>3</sup> [4] [6]                              |
| 1,3-Benzenedicarboxamide, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)- (42774-15-2) | -    | 11.3 mg/kg bw/day [4] [6] | 79.3 mg/m <sup>3</sup> [4] [6]                              |
| .epsilon.-Caprolactam (105-60-2)                                                   | -    | -                         | 5 mg/m <sup>3</sup> [5] [6]<br>10 mg/m <sup>3</sup> [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                                                   |
|------------------------------------------------------------------------------------|---------------------------|--------|--------------------------------------------------------------|
| Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (52829-07-9)         | 0.18 mg/kg bw/day [4] [6] | -      | 0.31 mg/m <sup>3</sup> [4] [6]                               |
| 1,3-Benzenedicarboxamide, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)- (42774-15-2) | 5.6 mg/kg bw/day [4] [6]  | -      | 19.6 mg/m <sup>3</sup> [4] [6]                               |
| .epsilon.-Caprolactam (105-60-2)                                                   | 8.55 mg/kg bw/day [4] [6] | -      | 2.5 mg/m <sup>3</sup> [5] [6]<br>5 mg/m <sup>3</sup> [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 |
|-------------------|--------------|-----------------------------------|--------------|-------------------------------------|-----|
| Decanedioic acid, | 0.00376 mg/L | 0.007 mg/L                        | 0.38 µg/L    | -                                   | -   |

| Chemical name                                                                            | Freshwater | Freshwater<br>(intermittent release) | Marine water | Marine water<br>(intermittent release) | Air |
|------------------------------------------------------------------------------------------|------------|--------------------------------------|--------------|----------------------------------------|-----|
| bis(2,2,6,6-tetramethyl-4-piperidiny) ester<br>(52829-07-9)                              |            |                                      |              |                                        |     |
| 1,3-Benzenedicarboxamide,<br>N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)-<br>(42774-15-2) | 64 µg/L    | -                                    | 6.4 µg/L     | -                                      | -   |
| epsilon.-Caprolactam<br>(105-60-2)                                                       | 2 mg/L     | 1 mg/L                               | 0.2 mg/L     | -                                      | -   |

| Chemical name                                                                            | Freshwater<br>sediment | Marine sediment        | Sewage treatment | Soil               | Food chain |
|------------------------------------------------------------------------------------------|------------------------|------------------------|------------------|--------------------|------------|
| Decanedioic acid,<br>bis(2,2,6,6-tetramethyl-4-piperidiny) ester<br>(52829-07-9)         | 5.9 mg/kg sediment dw  | 0.59 mg/kg sediment dw | 1 mg/L           | 1.18 mg/kg soil dw | -          |
| 1,3-Benzenedicarboxamide,<br>N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)-<br>(42774-15-2) | -                      | -                      | 14.8 mg/L        | -                  | -          |
| epsilon.-Caprolactam<br>(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

Face protection shield. Tight sealing safety goggles.

#### Hand protection

Wear suitable gloves.

#### Skin and body protection

Wear suitable protective clothing.

#### Respiratory protection

Consult with an industrial hygienist to determine the appropriate respiratory protection for your specific use of this material. Use appropriate respiratory protection.

**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     | Pellets or Beads         |
| Physical state | Solid                    |
| Color          | No information available |

Odor Slight  
Odor threshold No information available

| <u>Property</u>                                          | <u>Values</u>     | <u>Remarks • Method</u> |
|----------------------------------------------------------|-------------------|-------------------------|
| 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** Strong acids. Strong bases. Strong oxidizing agents.

#### 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. May result in permanent damage including blindness. Causes serious eye damage.

**Skin contact** Specific test data for the substance or mixture is not available. May cause irritation.

**Ingestion** Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

##### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Burning sensation. May cause blindness. May cause redness and tearing of the eyes.

**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) 33,333.30 mg/kg  
ATEmix (dermal) 79,250.00 mg/kg

##### **Component Information**

| Chemical name                                                                      | Oral LD50   | Dermal LD50          | Inhalation LC50 |
|------------------------------------------------------------------------------------|-------------|----------------------|-----------------|
| Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (52829-07-9)         | -           | > 3170 mg/kg ( Rat ) | -               |
| 1,3-Benzenedicarboxamide, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)- (42774-15-2) | = 500 mg/kg | > 2000 mg/kg ( Rat ) | -               |
| epsilon.-Caprolactam (105-60-2)                                                    | 1210        | > 2000 mg/kg         | -               |

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

|                                          |                                                                                                                                                                |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Skin corrosion/irritation</b>         | May cause skin irritation.                                                                                                                                     |
| <b>Serious eye damage/eye irritation</b> | Classification based on data available for ingredients. Causes burns. Causes serious eye damage.                                                               |
| <b>Respiratory or skin sensitization</b> | Based on available data, the classification criteria are not met.                                                                                              |
| <b>Germ cell mutagenicity</b>            | Based on available data, the classification criteria are not met.                                                                                              |
| <b>Carcinogenicity</b>                   | Based on available data, the classification criteria are not met.                                                                                              |
| <b>Reproductive toxicity</b>             | Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. Suspected of damaging fertility or the unborn child. |
| <b>STOT - single exposure</b>            | Based on available data, the classification criteria are not met.                                                                                              |
| <b>STOT - repeated exposure</b>          | Based on available data, the classification criteria are not met.                                                                                              |
| <b>Aspiration hazard</b>                 | Based on available data, the classification criteria are not met.                                                                                              |

#### 11.2. Information on other hazards

##### 11.2.1. Endocrine disrupting properties

|                                              |                                                                   |
|----------------------------------------------|-------------------------------------------------------------------|
| <b>Endocrine disruption for human health</b> | Based on available data, the classification criteria are not met. |
|----------------------------------------------|-------------------------------------------------------------------|

##### 11.2.2. Other information

|                              |                           |
|------------------------------|---------------------------|
| <b>Other adverse effects</b> | No information available. |
|------------------------------|---------------------------|

## **SECTION 12: Ecological information**

|                              |                                                                           |
|------------------------------|---------------------------------------------------------------------------|
| <b><u>12.1. Toxicity</u></b> | Toxic to aquatic life. Harmful to aquatic life with long lasting effects. |
|------------------------------|---------------------------------------------------------------------------|

### **Aquatic toxicity**

### **Component Information**

|                                                   |                           |
|---------------------------------------------------|---------------------------|
| <b><u>12.2. Persistence and degradability</u></b> | No information available. |
|---------------------------------------------------|---------------------------|

### **12.3. Bioaccumulative potential**

### **Component Information**

|               |                       |                               |                              |
|---------------|-----------------------|-------------------------------|------------------------------|
| Chemical name | Partition coefficient | Bioconcentration factor (BCF) | Trophic magnification factor |
|---------------|-----------------------|-------------------------------|------------------------------|

|                                                                            |      |   | (TMF) |
|----------------------------------------------------------------------------|------|---|-------|
| Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (52829-07-9) | 0.35 | - | -     |

**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 |
|-----------------------------------------------------------------------------------|-------------------------|
| Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (52829-07-9)        | Not PBT/vPvB            |
| 1,3-Benzenedicarboxamide, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)-(42774-15-2) | Not PBT/vPvB            |
| epsilon.-Caprolactam (105-60-2)                                                   | Not PBT/vPvB            |

**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

### 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:**

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 |
|----------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|
| 1,3-Benzenedicarboxamide, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)- 42774-15-2 | Use restricted. See entry 75.             | -                                                      |
| epsilon.-Caprolactam 105-60-2                                                    | Use restricted. See entry 75.             | -                                                      |

##### **Regulation (EC) No. 1907/2006 (REACH), Annex XVII, entry number 78 as regards synthetic polymer microplastics (Commission Regulation (EU) 2023/2055):**

The synthetic polymer microparticles supplied are subject to conditions laid down by entry 78 of Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council.

|                                                                                               |                              |
|-----------------------------------------------------------------------------------------------|------------------------------|
| <b>Maximum concentration of Synthetic Polymer Microparticles in the substance or mixture:</b> | 100%                         |
| <b>Generic information on the identity of the polymers in the substance or mixture::</b>      | Polyamides in primary forms. |

##### International Inventories

TSCA Complies

|          |                |
|----------|----------------|
| DSL/NDSL | Complies       |
| ENCS     | Not determined |
| IECSC    | Complies       |
| KECL     | Not determined |
| PICCS    | Not determined |
| AIIC     | Not determined |
| 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

H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H318 - Causes serious eye damage  
H319 - Causes serious eye irritation  
H332 - Harmful if inhaled  
H335 - May cause respiratory irritation  
H361 - Suspected of damaging fertility or the unborn child  
H400 - Very toxic to aquatic life  
H411 - Toxic to aquatic life with long lasting effects  
P280 - Wear protective gloves, protective clothing, eye protection and face protection  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor  
P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P308 + P313 - IF exposed or concerned: Get medical advice and attention  
P405 - Store locked up  
P501 - Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable  
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

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|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                                                                          |

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| 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

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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**