

Sassuolo, 04/05/2023

Objet : Restriction n° 74 sur l'utilisation sûre des diisocyanates

Cher client,

Kerakoll souhaite vous informer que le Comité REACH a voté le 4 février 2020 en faveur de la proposition de la Commission européenne pour une restriction REACH sur les diisocyanates.

La restriction a été publiée le 4 août 2020 et s'applique à compter du 24 août 2023 après une période de transition de 3 ans.

La restriction prévoit qu'à partir du 24 août 2023 l'usage industriel et professionnel des diisocyanates ne soit plus autorisé, à moins que la concentration totale en diisocyanates soit inférieure à 0,1 % en poids ou que les opérateurs aient suivi une formation sur l'utilisation sûre des diisocyanates.

En outre, à partir du 24 février 2022, les diisocyanates ne peuvent plus être mis sur le marché, à moins que la concentration totale en diisocyanates soit inférieure à 0,1 % en poids ou que le fournisseur garantisse que le destinataire est au courant des prescriptions réglementaires relatives à la formation du personnel sur l'utilisation sûre des diisocyanates.

À cette fin, le fournisseur doit indiquer sur l'emballage la mention suivante :

« À partir du 24 août 2023, une formation adéquate est requise avant toute utilisation industrielle ou professionnelle ».

Le texte complet de la restriction peut être consulté au lien suivant

<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596534449847&uri=CELEX:32020R1149>

Kerakoll a adapté les étiquettes et les fiches de sécurité des produits concernés conformément à la réglementation.

Selon le Règlement diisocyanates, la formation peut également être effectuée en ligne (cf. points 4 et 5 de la restriction n° 74). Il existe d'ailleurs de nombreuses plateformes en ligne offrant un tel service.

La présente communication sera jointe aux fiches de sécurité des produits finis concernés par cette restriction.

Nous restons à votre disposition pour tout complément d'information.

Subject: Restriction 74 on the safe use of diisocyanates

Dear Customer,

Kerakoll would like to inform you that on February 4, 2020, the REACH Committee voted in favor of the European Commission's proposal for a REACH restriction on diisocyanates.

The restriction was published on August 4, 2020 and applies from August 24, 2023 after a 3-year transition period.

The restriction stipulates that from August 24, 2023, the industrial and professional use of diisocyanates will no longer be allowed unless the overall concentration of diisocyanates is less than 0.1 percent by weight or operators have been trained in the safe use of diisocyanates.

As of Feb. 24, 2022, the placing on the market of diisocyanates is also no longer permitted unless the overall concentration of diisocyanates is less than 0.1 percent by weight or the supplier ensures that the recipient is aware of the regulatory requirements regarding the training of employees on the safe use of diisocyanates.

To this end, the supplier shall include the following statement on the packaging:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596534449847&uri=CELEX:32020R1149>

Kerakoll has adapted the labels and MSDSs of the products involved as per the regulations.

Training, according to the Diisocyanates Regulation, can also be done online (see points 4 and 5 of restriction 74).

There are many online platforms in this regard that provide this service.

This same communication will be attached to the MSDSs of the finished products involved in this restriction.

We remain at your disposal for any clarification.

Safety Data Sheet

Conforms to Regulation (EC) No. 1907/2006 (REACH), Article 31, Annex II, as amended by Commission Regulation (EU) 2020/878

FAST TUILE

Date of first edition: 5/3/2021

Safety Data Sheet dated 19/03/2025

version 5

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

1.1. Product identifier

Mixture identification:

Trade name: FAST TUILE

Trade code: FBIFC485. 04

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

Recommended use: Adhesives, sealants

Uses advised against: All uses other than recommended ones

1.3. Details of the supplier of the safety data sheet

Company: KERAKOLL France

25, avenue de l'Industrie - 69960 Corbas - France

Tel. +33 472 890 684

safety@kerakoll.com

1.4. Emergency telephone number

European emergency phone number 112

Ireland Poison information centre: 01 809 2166 (Daily 8am-10pm) In case of emergency call 999 or 112

Malta In case of emergency call: +356 2395 2000 (24h)

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Resp. Sens. 1 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin Sens. 1A May cause an allergic skin reaction.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Regulation (EC) No 1272/2008 (CLP):

Hazard pictograms and Signal Word



Danger

Hazard statements

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

P102 Keep out of reach of children.

P260 Do not breathe vapours.

P280 Wear protective gloves and eye protection.

P302+P352 IF ON SKIN: Wash with plenty of water.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P501 Dispose of contents/container in accordance with applicable regulations.

Contains

4,4'-methylenediphenyl diisocyanate

1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate

CP polym. MDI, Amine, PG & PO

4,4' diphenylmethanediisocyanate, isomere, homologue and mixtures

Bis(2-(2-(1-methylethyl)-3-oxazolidinyl)ethyl) hexan-1,2-diylbiscarbamate

o-(p-isocyanatobenzyl)phenyl isocyanate

Special provisions according to Annex XVII of REACH and subsequent amendments:

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used

As from 24 August 2023 adequate training is required before industrial or professional use.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: FAST TUILE

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number
≥5-<10 %	Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	EC:918-481-9	Asp. Tox. 1, H304, EUH066	01-2119457273-39
≥0.5-<1 %	Calcium oxide	CAS:1305-78-8 EC:215-138-9	Skin Irrit. 2, H315; Eye Dam. 1, H318; STOT SE 3, H335	01-2119475325-36
≥0.5-<1 %	CP polym. MDI, Amine, PG & PO	CAS:67815-87-6 EC:642-899-8	Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335; STOT RE 2, H373	
≥0.5-<1 %	4,4'-methylenediphenyl diisocyanate	CAS:101-68-8 EC:202-966-0 Index:615-005-00-9	Carc. 2, H351 STOT RE 2, H373 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Acute Tox. 4, H332 Specific Concentration Limits: C ≥ 5%: Eye Irrit. 2 H319 C ≥ 5%: Skin Irrit. 2 H315 C ≥ 0.1%: Resp. Sens. 1 H334 C ≥ 5%: STOT SE 3 H335	01-2119457014-47
≥0.3-<0.5 %	4,4' diphenylmethanediisocyanate, isomere, homologue and mixtures	CAS:9016-87-9	Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1B, H334; Skin Sens. 1, H317; Carc. 2, H351; STOT RE 2, H373; STOT SE 3, H335	
≥0.3-<0.5 %	Bis(2-(2-(1-methylethyl)-3-oxazolidinyl)ethyl) hexan-1,2-diylbiscarbamate	CAS:59719-67-4 EC:261-879-6	Eye Irrit. 2, H319; Skin Sens. 1, H317; Aquatic Chronic 2, H411	01-2119983487-19
≥0.15-<0.20 %	xylene	CAS:95-47-6 EC:202-422-2 Index:601-022-00-9	Flam. Liq. 3, H226; Acute Tox. 4, H332; Acute Tox. 4, H312; Skin Irrit. 2, H315	

≥0.1-<0.15 %	1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	CAS:1065336-91-5 EC:915-687-0	Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Repr. 2, H361; Skin Sens. 1A, H317, M-Chronic:1, M-Acute:1	01-2119491304-40-XXXX
≥0.05-<0.1 %	o-(p-isocyanatobenzyl)phenyl isocyanate	CAS:5873-54-1 EC:227-534-9 Index:615-005-00-9	Carc. 2, H351 STOT RE 2, H373 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Acute Tox. 4, H332	01-2119480143-45
Specific Concentration Limits: C ≥ 5%: Eye Irrit. 2 H319 C ≥ 5%: Skin Irrit. 2 H315 C ≥ 0.1%: Resp. Sens. 1 H334 C ≥ 5%: STOT SE 3 H335				

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

- Immediately take off all contaminated clothing.
- Remove contaminated clothing immediately and dispose off safely.

In case of eyes contact:

- Wash immediately with water.

In case of Ingestion:

- Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

- Remove casualty to fresh air and keep warm and at rest.

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

N.A.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

- Water.
- Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:

- None in particular.

5.2. Special hazards arising from the substance or mixture

- Do not inhale explosion and combustion gases.
- Burning produces heavy smoke.

5.3. Advice for firefighters

- Use suitable breathing apparatus .
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

- Wear personal protection equipment.
- Remove persons to safety.
- See protective measures under point 7 and 8.

For emergency responders:

- Wear personal protection equipment.

6.2. Environmental precautions

- Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
- Retain contaminated washing water and dispose it.
- In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
- Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand
Wash with plenty of water.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.
Don't use empty container before they have been cleaned.
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
Contaminated clothing should be changed before entering eating areas.
Do not eat or drink while working.
See also section 8 for recommended protective equipment.

Advice on general occupational hygiene:

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

	OEL Type	Country	Occupational Exposure Limit
Limestone CAS: 1317-65-3	NATIONAL	BULGARIA	Long Term: 10 mg/m ³ Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL	ESTONIA	Long Term: 10 mg/m ³ Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	ESTONIA	Long Term: 5 mg/m ³ Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	GREECE	Long Term: 10 mg/m ³ εισπν. Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	GREECE	Long Term: 5 mg/m ³ αvapn. Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	SPAIN	Long Term: 10 mg/m ³ (1) inhalable aerosol Source: LEP 2022
	NATIONAL	HUNGARY	Long Term: 10 mg/m ³ N Source: 5/2020. (II. 6.) ITM rendelet
	WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m ³ Inhalable fraction Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
	WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4 mg/m ³ Respirable fraction Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
	NATIONAL	BELGIUM	Long Term: 10 mg/m ³

di isononylphthalate CAS: 28553-12-0	Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1	
	NATIONAL IRELAND	Long Term: 10 mg/m3 Source: 2021 Code of Practice
	NATIONAL IRELAND	Long Term: 4 mg/m3 Source: 2021 Code of Practice
	NATIONAL SWITZERLAND	Long Term: 3 mg/m3 (1) respirable aerosol Source: suva.ch/valeurs-limites
	NATIONAL UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 5 mg/m3 (8h)
	NATIONAL CROATIA	Long Term: 5 mg/m3 Source: NN 1/2021
	NATIONAL IRELAND	Long Term: 5 mg/m3 Source: 2021 Code of Practice
	NATIONAL CZECHIA	Long Term: 3 mg/m3; Short Term: Ceiling - 10 mg/m3 Source: Nařízení vlády č. 361-2007 Sb
	NATIONAL DENMARK	Long Term: 3 mg/m3 Source: BEK nr 2203 af 29/11/2021
	WEL-EH40 UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 5 mg/m3 Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
Calcium oxide CAS: 1305-78-8	NATIONAL AUSTRALIA	Long Term: 2 mg/m3 (8h)
	ACGIH	Long Term: 2 mg/m3 (8h) URT irr
	EU	Long Term: 1 mg/m3 (8h); Short Term: 4 mg/m3 Respirable fraction
	NATIONAL BELGIUM	Long Term: 1 mg/m3; Short Term: 4 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL CROATIA	Long Term: 1 mg/m3; Short Term: 4 mg/m3 R (14) Source: 2017/164/EU
	NATIONAL CYPRUS	Long Term: 1 mg/m3; Short Term: 4 mg/m3 9 (2019) Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
	NATIONAL GERMANY	Long Term: 1 mg/m3 Y, DFG, E, 2(I) Source: TRGS 900
	NATIONAL GREECE	Long Term: 1 mg/m3; Short Term: 4 mg/m3 9) Source: Π.Δ. 82/2018 (ΦΕΚ 152/Α` 21.8.2018)
	NATIONAL IRELAND	Long Term: 1 mg/m3; Short Term: 4 mg/m3 IOELV, R Source: 2021 Code of Practice
	NATIONAL ITALY	Long Term: 1 mg/m3; Short Term: 4 mg/m3 Frazione respirabile Source: D.lgs. 81/2008, Allegato XXXVIII
	NATIONAL LATVIA	Long Term: 1 mg/m3; Short Term: 4 mg/m3 Source: KN325P1
	NATIONAL LUXEMBOURG	Long Term: 1 mg/m3; Short Term: 4 mg/m3 14

Source: Mémorial A n.226 du 22 mars 2021

NATIONAL	MALTA	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ 10 Source: S.L.424.24
NATIONAL	PORTUGAL	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ (9) Source: Decreto-Lei n.º 1/2021
NATIONAL	ROMANIA	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ Frațiune respirabilă, Dir. 2017/164 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SLOVENIA	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ Y, EU4, (A) Source: UL št. 72, 11. 5. 2021
NATIONAL	SPAIN	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ d, VLI Source: LEP 2022
NATIONAL	AUSTRIA	Long Term: 1 mg/m ³ ; Short Term: Ceiling - 4 mg/m ³ 5(Mow), 8x, MAK, E Source: GKV, BGBl. II Nr. 156/2021
NATIONAL	BULGARIA	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ 5 Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATIONAL	CZECHIA	Long Term: 1 mg/m ³ ; Short Term: Ceiling - 4 mg/m ³ I, R Source: Nařízení vlády č. 361-2007 Sb
NATIONAL	DENMARK	Long Term: 2 mg/m ³ Source: BEK nr 2203 af 29/11/2021
NATIONAL	DENMARK	Long Term: 1 mg/m ³ E Source: BEK nr 2203 af 29/11/2021
NATIONAL	ESTONIA	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ 1 Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
NATIONAL	FINLAND	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ Source: INRS outil65, article R. 4412-149 du Code du travail
NATIONAL	HUNGARY	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ resp, EU4, N Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	LITHUANIA	Long Term: 2 mg/m ³ ; Short Term: 5 mg/m ³ Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL	NETHERLANDS	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ (2) Source: Arbeidsomstandighedenregeling - Lijst A
NATIONAL	NORWAY	Long Term: 1 mg/m ³ E Source: FOR-2021-06-28-2248
NATIONAL	NORWAY	Short Term: 4 mg/m ³ S Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 2 mg/m ³ ; Short Term: 6 mg/m ³ 4) Source: Dz.U. 2018 poz. 1286
NATIONAL	POLAND	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ 6) Source: Dz.U. 2018 poz. 1286
NATIONAL	SLOVAKIA	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ 11)

4,4'-methylenediphenyl diisocyanate CAS: 101-68-8	NATIONAL	SWEDEN	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ 3 Source: AFS 2021:3
	SUVA	SWITZERLAND	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ TWA mg/m ³ : (i), SSC, VRS / OAW, NIOSH Source: suva.ch/valeurs-limites
	WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 2 mg/m ³ Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
	WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 1 mg/m ³ ; Short Term: 4 mg/m ³ Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
	ACGIH		Long Term: 0.005 ppm (8h) Resp sens
	NATIONAL	AUSTRALIA	Long Term: 1 ppm (8h)
	NATIONAL	AUSTRIA	Long Term: 0.05 mg/m ³ - 0.005 ppm; Short Term: Ceiling - 0.1 mg/m ³ - 0.01 ppm 5(Mow), 8x, MAK, III B, Sah Source: GKV, BGBl. II Nr. 156/2021
	NATIONAL	CZECHIA	Long Term: 0.05 mg/m ³ ; Short Term: Ceiling - 0.1 mg/m ³ I, S Source: Nařízení vlády č. 361-2007 Sb
	NATIONAL	DENMARK	Long Term: 0.05 mg/m ³ - 0.005 ppm K Source: BEK nr 2203 af 29/11/2021
	NATIONAL	ESTONIA	Long Term: 0.05 mg/m ³ - 0.005 ppm; Short Term: 0.1 mg/m ³ - 0.01 ppm S, * Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	FRANCE	Long Term: 0.1 mg/m ³ - 0.01 ppm; Short Term: 0.2 mg/m ³ - 0.02 ppm Risques d'allergie respiratoire, Cancérogène de catégorie 2. La VLEP CT est définie sur une période de référence de 5 minute. Source: INRS outil65, arrêté du 30-06-2004 modifié
	NATIONAL	GREECE	Long Term: 0.2 mg/m ³ - 0.02 ppm; Short Term: 0.2 mg/m ³ - 0.02 ppm Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	HUNGARY	Long Term: 0.05 mg/m ³ ; Short Term: 0.05 mg/m ³ i, sz, BEM, T Source: 5/2020. (II. 6.) ITM rendelet
	NATIONAL	LITHUANIA	Long Term: 0.05 mg/m ³ - 0.005 ppm; Short Term: Ceiling - 0.1 mg/m ³ - 0.01 ppm J, Nustatytas 5 min. poveikio trukmės NRD. Tas pats RD, išreikštas ppm, taikomas izocianatams, kurių RD nenustatytas. Ši nuostata taikoma ir dulkių ar lašelių (aerozolių) pavidalo izocianatams, įskaitant prepolimerizuotus izocianatus (aduktus). Skirtingų medžiagų RD, išreikšti mg/m ³ , yra skirtingi. Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATIONAL	NORWAY	Long Term: 0.05 mg/m ³ - 0.005 ppm A 4 Source: FOR-2021-06-28-2248
	NATIONAL	POLAND	Long Term: 0.03 mg/m ³ ; Short Term: 0.09 mg/m ³ Source: Dz.U. 2018 poz. 1286
	NATIONAL	SLOVAKIA	Long Term: 0.03 mg/m ³ - 0.002 ppm S Source: 355 NARIADENIE VLÁDY z 10. mája 2006
	NATIONAL	SWEDEN	Long Term: 0.03 mg/m ³ - 0.002 ppm; Short Term: 0.05 mg/m ³ - 0.005 ppm M, S, 2 Source: AFS 2021:3
	NATIONAL	BELGIUM	Long Term: 0.052 mg/m ³ - 0.005 ppm

		Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
4,4'-diphenylmethanediisocyanate, isomere, homologe and mixtures CAS: 9016-87-9	NATIONAL GERMANY	Long Term: 0.05 mg/m3 DFG, 11, 12, H, Sah, Y, E, 1;=2=(I) Source: TRGS 900
	NATIONAL IRELAND	Long Term: 0.005 ppm Sens. Source: 2021 Code of Practice
	NATIONAL ROMANIA	Short Term: 0.15 mg/m3 C2 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
	NATIONAL SLOVENIA	Long Term: 0.05 mg/m3 - 0.005 ppm; Short Term: 0.05 mg/m3 - 0.005 ppm K, Y, mg/m3: (I), R2 Source: UL št. 72, 11. 5. 2021
	NATIONAL SPAIN	Long Term: 0.052 mg/m3 - 0.005 ppm Sen, r Source: LEP 2022
	NATIONAL GERMANY	Long Term: 0.05 mg/m3 DFG, H, Sah, Y, 12, E, 1;=2=(I) Source: TRGS 900
	NATIONAL SLOVENIA	Long Term: 0.05 mg/m3; Short Term: 0.05 mg/m3 K, Y, (I), R2 Source: UL št. 72, 11. 5. 2021
	ACGIH	Long Term: 20 ppm (8h) A4, BEI - URT and eye irr; hematologic eff; CNS impair
	EU	Long Term: 221 mg/m3 - 50 ppm (8h); Short Term: 442 mg/m3 - 100 ppm Skin
	NATIONAL AUSTRIA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm 15(Miw), 4x, MAK Source: BGBl. II Nr. 156/2021
xylene CAS: 95-47-6	NATIONAL BULGARIA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Кожа Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL DENMARK	Long Term: 109 mg/m3 - 25 ppm EH Source: BEK nr 2203 af 29/11/2021
	NATIONAL ESTONIA	Long Term: 200 mg/m3 - 50 ppm; Short Term: 450 mg/m3 - 100 ppm A Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL FINLAND	Long Term: 220 mg/m3 - 50 ppm; Short Term: 440 mg/m3 - 100 ppm iho Source: HTP-ARVOT 2020
	NATIONAL FRANCE	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Risque de pénétration percutanée Source: INRS outil65, article R. 4412-149 du Code du travail
	NATIONAL GREECE	Long Term: 435 mg/m3 - 100 ppm; Short Term: 650 mg/m3 - 150 ppm Δ Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL HUNGARY	Long Term: 221 mg/m3; Short Term: 442 mg/m3 b, BEM, EU1, R Source: 5/2020. (II. 6.) ITM rendelet
	NATIONAL LITHUANIA	Long Term: 200 mg/m3 - 50 ppm; Short Term: 450 mg/m3 - 100 ppm O Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATIONAL NORWAY	Long Term: 108 mg/m3 - 25 ppm H E Source: FOR-2021-06-28-2248
	NATIONAL POLAND	Long Term: 100 mg/m3; Short Term: 200 mg/m3 skóra

Source: Dz.U. 2018 poz. 1286

NATIONAL	SLOVAKIA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm K Source: 355 NARIADENIE VLÁDY z 10. mája 2006
NATIONAL	SWEDEN	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm H Source: AFS 2021:3
NATIONAL	BELGIUM	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm D Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Source: 2000/39/EZ
NATIONAL	CYPRUS	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm δέρμα Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
NATIONAL	GERMANY	Long Term: 220 mg/m3 - 50 ppm DFG, EU, H, 2(II) Source: TRGS 900
NATIONAL	IRELAND	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Sk, IOELV Source: 2021 Code of Practice
NATIONAL	ITALY	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Cute Source: D.lgs. 81/2008, Allegato XXXVIII
NATIONAL	LATVIA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Āda Source: KN325P1
NATIONAL	LUXEMBOUR G	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Peau Source: Mémorial A n.226 du 22 mars 2021
NATIONAL	MALTA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm skin Source: S.L.424.24
NATIONAL	PORTUGAL	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Cutânea Source: Decreto-Lei n.º 1/2021
NATIONAL	ROMANIA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm P, Dir. 2000/39 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SLOVENIA	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm K, BAT, EU1 Source: UL št. 72, 11. 5. 2021
NATIONAL	SPAIN	Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm vía dérmica, VLB®, VLI Source: LEP 2022
NATIONAL	AUSTRIA	Long Term: 0.05 mg/m3 - 0.005 ppm; Short Term: Ceiling - 0.1 mg/m3 - 0.01 ppm 5(Mow), 8x, MAK, III B, Sah Source: GKV, BGBl. II Nr. 156/2021
NATIONAL	POLAND	Long Term: 0.03 mg/m3; Short Term: 0.09 mg/m3 Source: Dz.U. 2018 poz. 1286
NATIONAL	SLOVENIA	Long Term: 0.05 mg/m3; Short Term: 0.05 mg/m3 R2 Source: UL št. 72, 11. 5. 2021
ACGIH		Long Term: 3 mg/m3 (8h) I, A3 - Bronchitis
NATIONAL	AUSTRALIA	Long Term: 3 mg/m3
NATIONAL	SWEDEN	Long Term: 3 mg/m3 Source: AFS 2021:3

NATIONAL	BELGIUM	Long Term: 3 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL	CROATIA	Long Term: 3.5 mg/m3; Short Term: 7 mg/m3 Source: NN 1/2021
NATIONAL	IRELAND	Long Term: 3 mg/m3 I Source: 2021 Code of Practice
NATIONAL	SPAIN	Long Term: 3.5 mg/m3 Source: LEP 2022
NATIONAL	DENMARK	Long Term: 3.5 mg/m3 K Source: BEK nr 2203 af 29/11/2021
NATIONAL	FINLAND	Long Term: 3.5 mg/m3; Short Term: 7 mg/m3 Source: HTP-ARVOT 2020
NATIONAL	FRANCE	Long Term: 3.5 mg/m3 Source: INRS outil65
NATIONAL	GREECE	Long Term: 3.5 mg/m3; Short Term: 7 mg/m3 Source: ΦΕΚ 94/Α` 13.5.1999
NATIONAL	HUNGARY	Long Term: 3 mg/m3 belélegezhető koncentráció Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	NORWAY	Long Term: 3.5 mg/m3 Source: FOR-2021-06-28-2248
NATIONAL	POLAND	Long Term: 4 mg/m3 4) Source: Dz.U. 2018 poz. 1286

WEL-EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 3.5 mg/m3; Short Term: 7 mg/m3 Source: EH40/2005 Workplace exposure limits (Fourth Edition 2020)
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2,2'-methylenediphenyl diisocyanate
CAS: 2536-05-2

NATIONAL	AUSTRIA	Long Term: 0.05 mg/m3 - 0.005 ppm; Short Term: Ceiling - 0.1 mg/m3 - 0.01 ppm 5(Mow), 8x, MAK, III B, Sah Source: GKV, BGBl. II Nr. 156/2021
NATIONAL	POLAND	Long Term: 0.03 mg/m3; Short Term: 0.09 mg/m3 Source: Dz.U. 2018 poz. 1286
NATIONAL	GERMANY	Long Term: 0.05 mg/m3 AGS, 11, 12, 1;=2=(I) Source: TRGS 900
NATIONAL	SLOVENIA	Long Term: 0.05 mg/m3; Short Term: 0.05 mg/m3 R2 Source: UL št. 72, 11. 5. 2021

benzoyl chloride
CAS: 98-88-4

ACGIH		Short Term: Ceiling - 0.5 ppm A4 - URT and eye irr
NATIONAL	AUSTRIA	Long Term: 2.8 mg/m3 - 0.5 ppm; Short Term: Ceiling - 2.8 mg/m3 - 0.5 ppm Mow, MAK, siehe auch α-Chlortoluole Source: GKV, BGBl. II Nr. 156/2021
NATIONAL	BULGARIA	Long Term: 5 mg/m3 Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
NATIONAL	DENMARK	Short Term: Ceiling - 2.8 mg/m3 - 0.5 ppm L Source: BEK nr 2203 af 29/11/2021
NATIONAL	HUNGARY	Long Term: 2.8 mg/m3 i, N Source: 5/2020. (II. 6.) ITM rendelet
NATIONAL	LATVIA	Long Term: 5 mg/m3 Source: KN325P1

NATIONAL LITHUANIA	Long Term: 5 mg/m ³ U J Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
NATIONAL POLAND	Short Term: Ceiling - 2.8 mg/m ³ Source: Dz.U. 2018 poz. 1286
NATIONAL BELGIUM	Short Term: 2.8 mg/m ³ - 0.5 ppm M Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
NATIONAL IRELAND	Short Term: 0.5 ppm Source: 2021 Code of Practice
NATIONAL ROMANIA	Long Term: 5 mg/m ³ - 0.9 ppm; Short Term: 10 mg/m ³ - 1.8 ppm Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL SPAIN	Short Term: 2.9 mg/m ³ - 0.5 ppm Sen Source: LEP 2022
Dibutyltin dilaurate CAS: 77-58-7	NATIONAL AUSTRIA F, D Source: GKV, BGBl. II Nr. 156/2021

Predicted No Effect Concentration (PNEC) values

Calcium oxide CAS: 1305-78-8	Exposure Route: Fresh Water; PNEC Limit: 370 µg/l Exposure Route: Intermittent releases (fresh water); PNEC Limit: 370 µg/l Exposure Route: Marine water; PNEC Limit: 240 µg/l Exposure Route: Intermittent releases (marine water); PNEC Limit: 240 µg/l Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 2.27 mg/l Exposure Route: Soil; PNEC Limit: 817 mg/kg
4,4'-methylenediphenyl diisocyanate CAS: 101-68-8	Exposure Route: Fresh Water; PNEC Limit: 1 mg/l Exposure Route: Intermittent releases (fresh water); PNEC Limit: 10 mg/l Exposure Route: Marine water; PNEC Limit: 100 µg/l Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1 mg/l Exposure Route: Soil; PNEC Limit: 1 mg/kg
xylene CAS: 95-47-6	Exposure Route: Fresh Water; PNEC Limit: 129.4 µg/l Exposure Route: Intermittent releases (fresh water); PNEC Limit: 125.5 µg/l Exposure Route: Marine water; PNEC Limit: 125440 ng/L Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 3.3 mg/l Exposure Route: Freshwater sediments; PNEC Limit: 7.41 µg/kg Exposure Route: Marine water sediments; PNEC Limit: 7.19 µg/kg Exposure Route: Soil; PNEC Limit: 1252 µg/kg
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate CAS: 1065336-91-5	Exposure Route: Fresh Water; PNEC Limit: 2.2 µg/l Exposure Route: Intermittent releases (fresh water); PNEC Limit: 9 µg/l Exposure Route: Marine water; PNEC Limit: 220 ng/L Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1 mg/l Exposure Route: Freshwater sediments; PNEC Limit: 1.05 mg/kg Exposure Route: Marine water sediments; PNEC Limit: 110 µg/kg Exposure Route: Soil; PNEC Limit: 210 µg/kg
o-(p-isocyanatobenzyl)phenyl isocyanate CAS: 5873-54-1	Exposure Route: Fresh Water; PNEC Limit: 1 mg/l

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 10 mg/l
 Exposure Route: Marine water; PNEC Limit: 100 µg/l
 Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1 mg/l
 Exposure Route: Soil; PNEC Limit: 1 mg/kg

Derived No Effect Level (DNEL) values

Calcium oxide CAS: 1305-78-8	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Professional: 1 mg/m ³ ; Consumer: 1 mg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Professional: 1 mg/m ³ ; Consumer: 1 mg/m ³
4,4'-methylenediphenyl diisocyanate CAS: 101-68-8	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Professional: 50 µg/m ³ ; Consumer: 25 µg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Professional: 100 µg/m ³ ; Consumer: 50 µg/m ³
xylene CAS: 95-47-6	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Professional: 221 mg/m ³ ; Consumer: 65.3 mg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects Worker Professional: 442 mg/m ³ ; Consumer: 260 mg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Professional: 221 mg/m ³ ; Consumer: 65.3 mg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Professional: 442 mg/m ³ ; Consumer: 260 mg/m ³
	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Professional: 212 mg/kg; Consumer: 125 mg/kg
	Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects Consumer: 5 mg/kg
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate CAS: 1065336-91-5	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Professional: 680 µg/m ³ ; Consumer: 170 µg/m ³
	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Professional: 500 µg/kg; Consumer: 250 µg/kg
	Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects Consumer: 50 µg/kg
o-(p-isocyanatobenzyl)phenyl isocyanate CAS: 5873-54-1	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Professional: 50 µg/m ³ ; Consumer: 25 µg/m ³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Professional: 100 µg/m ³ ; Consumer: 50 µg/m ³

8.2. Exposure controls

Eye protection:

Eye glasses with side protection.(EN166)

Protection for skin:

Chemical protection clothing. Safety shoes.

Protection for hands:

When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent of the specific composition of the material a glove is fabricated from. The thickness of the glove must depending on model and type of material, generally be more than 0,35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0,35 mm. Other glove materials with a thickness of less than 0,35 mm may offer sufficient protection when only brief contact is expected. Suitable materials for safety gloves; EN 374:

Polychloroprene - CR: thickness ≥0,5mm; breakthrough time ≥480min.

Nitrile rubber - NBR: thickness ≥0,35mm; breakthrough time ≥480min.

Butyl rubber - IIR: thickness $\geq 0,5\text{mm}$; breakthrough time $\geq 480\text{min}$.

Fluorinated rubber - FKM: thickness $\geq 0,4\text{mm}$; breakthrough time $\geq 480\text{min}$.

Respiratory protection:

Gas filter and particle filter P2 . Gas filter type A

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Colour: In compliance with the product description

Odour: Characteristic

Odour threshold: N.A.

pH: N.A.

Kinematic viscosity: N.A.

Melting point/freezing point: N.A.

Boiling point or initial boiling point and boiling range: N.A.

Flash point: $> 60^{\circ}\text{C} / 93^{\circ}\text{C}$

Lower and upper explosion limit: N.A.

Relative vapour density: N.A.

Vapour pressure: N.A.

Density and/or relative density: 1.33 g/cm^3

Solubility in water: N.A.

Solubility in oil: N.A.

Partition coefficient n-octanol/water (log value): N.A.

Auto-ignition temperature: N.A.

Decomposition temperature: N.A.

Flammability: N.A.

Volatile Organic compounds - VOCs = 6.16% ; 82.10 g/l

Particle characteristics:

Particle size: N.A.

9.2. Other information

No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Data not available.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological Information of the Preparation

a) acute toxicity	Not classified Based on available data, the classification criteria are not met
b) skin corrosion/irritation	Not classified Based on available data, the classification criteria are not met
c) serious eye damage/irritation	Not classified Based on available data, the classification criteria are not met
d) respiratory or skin sensitisation	The product is classified: Resp. Sens. 1(H334), Skin Sens. 1A(H317)

e) germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg	
		LC50 Inhalation Vapour Rat > 5000 mg/m ³ 8h	
		LD50 Skin Rat > 2000 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive 24h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No 24-72 h	
	d) respiratory or skin sensitisation	Skin Sensitization Guinea pig Negative	
	f) carcinogenicity	Genotoxicity Rat Negative	Inhalation route
Calcium oxide	g) reproductive toxicity	No Observed Adverse Effect Level Inhalation Rat >= 400 ppm	
	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg	
		LC50 Inhalation Dust Rat > 6.04 mg/l 4h	
		LD50 Skin Rabbit > 2500 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive	
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes	
	d) respiratory or skin sensitisation	Skin Sensitization Negative	Mouse
	f) carcinogenicity	Carcinogenicity	
4,4'-methylenediphenyl diisocyanate	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg	
		LC50 Inhalation Rat = 0.49 mg/l 4h	
		LD50 Skin Rabbit > 9400 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive 4h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No 24h	
	d) respiratory or skin sensitisation	Skin Sensitization Guinea pig Negative	
	f) carcinogenicity	Genotoxicity Rat Negative 6h	Inhalation of aerosol
4,4'-diphenylmethanediisocyanate, isomere, homologues and mixtures	a) acute toxicity	LC50 Inhalation Mist Rat = 1.5 mg/l 4h	
		ATE Aerosol inhalation = 11 mg/kg	
		LC50 Inhalation Vapour Rat = 15 mg/l	

xylene	a) acute toxicity	LD50 Oral Rat = 3523 ml/Kg LC50 Inhalation Vapour Rat = 27124 mg/m3 4h LD50 Skin Rabbit = 12126 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive 4h	
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes 1h	
	f) carcinogenicity	Genotoxicity Negative	Mouse subcutaneous route
	g) reproductive toxicity	No Observed Adverse Effect Level Inhalation Rat = 500 mg/kg	ppm
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	a) acute toxicity	LD50 Oral Rat = 3230 mg/kg	
		LD50 Skin Rat > 3170 mg/kg	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative 24h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No	
	d) respiratory or skin sensitisation	Skin Sensitization Guinea pig Positive	
o-(p-isocyanatobenzyl)phenyl isocyanate	f) carcinogenicity	Genotoxicity Negative	Mouse oral route
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 30 mg/kg	
	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg	
		LC50 Inhalation Rat = 0.49 mg/l 4h LD50 Skin Rabbit > 9400 mg/kg	
	b) skin corrosion/irritation	Skin Irritant Rabbit Positive 4h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No 24h	
	d) respiratory or skin sensitisation	Skin Sensitization Guinea pig Negative	
		Respiratory Sensitization Rat Positive	
	f) carcinogenicity	Genotoxicity Rat Negative Carcinogenicity Positive	Inhalation route
	g) reproductive toxicity	No Observed Adverse Effect Level Inhalation Rat = 4 mg/m3	

11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration $\geq 0.1\%$

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

List of Eco-Toxicological properties of the product

Not classified for environmental hazards.

No data available for the product

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
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Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	EINECS: 918-481-9	a) Aquatic acute toxicity : LL50 Fish <i>Oncorhynchus mykiss</i> > 1000 mg/L 96h „OECD Guideline 203 (Fish, Acute Toxicity Test) b) Aquatic chronic toxicity : LOELR Fish = 0.1 mg/L - 28days a) Aquatic acute toxicity : LL50 <i>Daphnia magna</i> > 1000 mg/L 48h b) Aquatic chronic toxicity : NOELR freshwater invertebrate = 0.17 mg/L - 21days a) Aquatic acute toxicity : NOELR Algae 72h a) Aquatic acute toxicity : EL50 <i>Tetrahymena pyriformis</i> > 1000 mg/L 48h
Calcium oxide	CAS: 1305-78-8 - EINECS: 215-138-9	a) Aquatic acute toxicity : LC50 Fish rainbow trout = 50.6 mg/L 96h OECD 203 a) Aquatic acute toxicity : LC50 <i>Daphnia magna</i> <= 49.1 mg/L 48h OECD 202 a) Aquatic acute toxicity : EC50 Algae <i>Pseudokirchneriella subcapitata</i> = 1848.57 mg/L 72h „OECD Guideline 201 (Alga, Growth Inhibition Test) a) Aquatic acute toxicity : EC50 Sludge activated sludge = 300.4 mg/L 3h „OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test) d) Terrestrial toxicity : NOEC Worm <i>Eisenia fetida</i> = 2000 mg/kg OECD test guideline 207 e) Plant toxicity : NOEC = 1080 mg/kg OECD Guideline 208 (Terrestrial Plants Test: Seedling Emergence and Seedling Growth Test) - 21days
4,4'-methylenediphenyl diisocyanate	CAS: 101-68-8 - EINECS: 202-966-0 - INDEX: 615-005-00-9	a) Aquatic acute toxicity : LC50 Fish <i>Danio rerio</i> = 1000 mg/L 96h OECD 203 a) Aquatic acute toxicity : LC50 <i>Daphnia magna</i> = 1000 mg/L 24h OECD 202 b) Aquatic chronic toxicity : NOEC <i>Daphnia magna</i> = 10 mg/L OECD 211 - 21days a) Aquatic acute toxicity : EC50 Algae <i>Scenedesmus subspicatus</i> = 1640 mg/L 72h OECD Guideline 201 a) Aquatic acute toxicity : EC5 Sludge activated sludge = 100 mg/L 3h OECD 209 d) Terrestrial toxicity : LC50 Worm <i>Eisenia fetida</i> = 1000 mg/kg OECD 207 - 14days e) Plant toxicity : LC50 terrestrial plants = 1000 mg/kg OECD 208 - 14days
xylene	CAS: 95-47-6 - EINECS: 202-422-2 - INDEX: 601-022-00-9	a) Aquatic acute toxicity : LC50 Fish freshwater fish = 2.6 mg/L 96h OECD 203 b) Aquatic chronic toxicity : NOEC Fish <i>Danio rerio</i> = 0.71 mg/L OECD Guideline 210 a) Aquatic acute toxicity : LC50 <i>Daphnia magna</i> = 1 mg/L 24h OECD 202 b) Aquatic chronic toxicity : NOEC <i>Daphnia Ceriodaphnia dubia</i> = 1.17 mg/L - 21days a) Aquatic acute toxicity : EC50 Algae freshwater algae = 2.2 mg/L 72h OECD 201 a) Aquatic acute toxicity : EC50 microorganisms = 16 mg/L OECD 301F d) Terrestrial toxicity : NOEC soil macroorganisms = 88.8 mg/kg - 14days
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	CAS: 1065336-91-5 - EINECS: 915-687-0	a) Aquatic acute toxicity : LC50 Fish <i>Danio rerio</i> = 0.9 mg/L 96h OECD Guideline 203 b) Aquatic chronic toxicity : NOEC <i>Daphnia magna</i> = 1 mg/L OECD

guideline 211

a) Aquatic acute toxicity : EC50 Algae *Desmodesmus subspicatus* = 1.68 mg/L 72h OECD Guideline 201

a) Aquatic acute toxicity : EC20 Sludge activated sludge $\geq$ 100 mg/L 3h OECD guideline 209

o-(p-isocyanatobenzyl)phenyl isocyanate

CAS: 5873-54-1
- EINECS: 227-534-9 - INDEX: 615-005-00-9

a) Aquatic acute toxicity : LC50 Fish *Oryzias latipes* = 1000 mg/L 96h OECD 203

a) Aquatic acute toxicity : LC50 *Daphnia magna* = 1000 mg/L OECD 202

b) Aquatic chronic toxicity : NOEC *Daphnia magna* = 10 mg/L OECD 211 - 21days

a) Aquatic acute toxicity : EC50 Algae *Scenedesmus subspicatus* = 1640 mg/L 72h OECD Guideline 201

a) Aquatic acute toxicity : EC50 Sludge Activated Sludge = 100 mg/L 3h OECD 209

d) Terrestrial toxicity : LC50 Worm *Eisenia fetida* = 1000 mg/kg OECD 207 - 14days

e) Plant toxicity : EC50 *Avena sativa* > 1000 mg/kg OECD 208 - 14days

12.2. Persistence and degradability

Component	Persistence/Degradability:	Test	Value	Notes:
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	Readily biodegradable			
4,4'-methylenediphenyl diisocyanate	Non-readily biodegradable	Oxygen consumption	0.000	OECD Guideline 302C
xylene	Readily biodegradable	Biochemical oxygen demand	90.000	28days
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	Non-readily biodegradable		38.000	28days
o-(p-isocyanatobenzyl)phenyl isocyanate	Non-readily biodegradable		0.000	OECD Guideline 302C

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value	Notes:
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	Bioaccumulative	BCF - Bioconcentration factor	962.000 L/kg	
4,4'-methylenediphenyl diisocyanate	Bioaccumulative	BCF - Bioconcentration factor	200.000	OECD 305E
xylene	Bioaccumulative	BCF - Bioconcentration factor	25.900	
1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate	Not bioaccumulative			
o-(p-isocyanatobenzyl)phenyl isocyanate	Bioaccumulative	BCF - Bioconcentration factor	200.000 dimensionless	

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

No PBT or vPvB substances present in concentration $\geq$ 0.1%

12.6. Endocrine disrupting properties

No endocrine disruptor substances present in concentration $\geq 0.1\%$

12.7. Other adverse effects

N.A.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover if possible. In so doing, comply with the local and national regulations currently in force. Disposal through discharge into wastewater is not permitted

A waste code according to the European List of Wastes (LoW) cannot be specified, due to dependence on the usage. Contact an authorized waste disposal service.

The product disposed of as such, pursuant to Regulation (EU) 1357/2014, must be classified as hazardous waste

SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number or ID number

N/A

14.2. UN proper shipping name

ADR-Shipping Name: N/A

IATA-Technical name: N/A

IMDG-Technical name: N/A

14.3. Transport hazard class(es)

ADR-Class: N/A

IATA-Class: N/A

IMDG-Class: N/A

14.4. Packing group

ADR-Packing Group: N/A

IATA-Packing group: N/A

IMDG-Packing group: N/A

14.5. Environmental hazards

Marine pollutant: No

Environmental Pollutant: No

IMDG-EMS: N/A

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: N/A

ADR - Hazard identification number: N/A

ADR-Special Provisions: N/A

ADR-Transport category (Tunnel restriction code): N/A

ADR Limited Quantities: N/A

ADR Excepted Quantities: N/A

Air (IATA):

IATA-Passenger Aircraft: N/A

IATA-Cargo Aircraft: N/A

IATA-Label: N/A

IATA-Subsidiary hazards: N/A

IATA-Erg: N/A

IATA-Special Provisions: N/A

Sea (IMDG):

IMDG-Stowage Code: N/A

IMDG-Stowage Note: N/A

IMDG-Subsidiary hazards: N/A

IMDG-Special Provisions: N/A

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Regulation (EU) n. 2021/849 (ATP 17 CLP)
Regulation (EU) n. 2022/692 (ATP 18 CLP)
Regulation (EU) n. 2020/878
Regulation (EC) nr 648/2004 (Detergents).

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: 3

Restrictions related to the substances contained: 30, 40, 52, 56, 74, 75

Provisions related to directive EU 2012/18 (Seveso III):

None

Explosives precursors – Regulation 2019/1148

No substances listed

Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

German Water Hazard Class.

NWG: Not hazardous for water

German Lagerklasse according to TRGS 510:

LGK 10

SVHC Substances:

No SVHC substances present in concentration $\geq 0.1\%$

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

Substances for which a Chemical Safety Assessment has been carried out:

Calcium oxide

4,4'-methylenediphenyl diisocyanate

1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate

SECTION 16: Other information

Code	Description
EUH066	Repeated exposure may cause skin dryness or cracking.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.6/3	Flam. Liq. 3	Flammable liquid, Category 3
3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), Category 4
3.10/1	Asp. Tox. 1	Aspiration hazard, Category 1
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/1	Eye Dam. 1	Serious eye damage, Category 1
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.4.1/1	Resp. Sens. 1	Respiratory Sensitisation, Category 1
3.4.1/1B	Resp. Sens. 1B	Respiratory Sensitisation, Category 1B
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.4.2/1A	Skin Sens. 1A	Skin Sensitisation, Category 1A
3.6/2	Carc. 2	Carcinogenicity, Category 2
3.7/2	Repr. 2	Reproductive toxicity, Category 2
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
3.9/2	STOT RE 2	Specific target organ toxicity — repeated exposure, Category 2
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008 Classification procedure

Resp. Sens. 1, H334	Calculation method
Skin Sens. 1A, H317	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ATE: Acute Toxicity Estimate
ATEmix: Acute toxicity Estimate (Mixtures)
BCF: Biological Concentration Factor
BEI: Biological Exposure Index
BOD: Biochemical Oxygen Demand
CAS: Chemical Abstracts Service (division of the American Chemical Society).
CAV: Poison Center
CE: European Community
CLP: Classification, Labeling, Packaging.
CMR: Carcinogenic, Mutagenic and Reprotoxic
COD: Chemical Oxygen Demand
COV: Volatile Organic Compound
CSA: Chemical Safety Assessment

CSR: Chemical Safety Report
 DMEL: Derived Minimal Effect Level
 DNEL: Derived No Effect Level.
 DPD: Dangerous Preparations Directive
 DSD: Dangerous Substances Directive
 EC50: Half Maximal Effective Concentration
 ECHA: European Chemicals Agency
 EINECS: European Inventory of Existing Commercial Chemical Substances.
 ES: Exposure Scenario
 GefStoffVO: Ordinance on Hazardous Substances, Germany.
 GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
 IARC: International Agency for Research on Cancer
 IATA: International Air Transport Association.
 IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
 IC50: half maximal inhibitory concentration
 ICAO: International Civil Aviation Organization.
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).
 IMDG: International Maritime Code for Dangerous Goods.
 INCI: International Nomenclature of Cosmetic Ingredients.
 IRCCS: Scientific Institute for Research, Hospitalization and Health Care
 KAFH: Keep Away From Heat
 KSt: Explosion coefficient.
 LC50: Lethal concentration, for 50 percent of test population.
 LD50: Lethal dose, for 50 percent of test population.
 LDLo: Leathal Dose Low
 N.A.: Not Applicable
 N/A: Not Applicable
 N/D: Not defined/ Not available
 NA: Not available
 NIOSH: National Institute for Occupational Safety and Health
 NOAEL: No Observed Adverse Effect Level
 OSHA: Occupational Safety and Health Administration
 PBT: Persistent, Bioaccumulative and Toxic
 PGK: Packaging Instruction
 PNEC: Predicted No Effect Concentration.
 PSG: Passengers
 RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
 STEL: Short Term Exposure limit.
 STOT: Specific Target Organ Toxicity.
 TLV: Threshold Limiting Value.
 TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
 vPvB: Very Persistent, Very Bioaccumulative.
 WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- SECTION 4: First aid measures
- SECTION 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- SECTION 13: Disposal considerations
- SECTION 14: Transport information
- SECTION 15: Regulatory information
- SECTION 16: Other information

Exposure Scenario

4,4'-methylenediphenyl diisocyanate

Exposure Scenario, 14/07/2021

Substance identity	
	4,4'-methylenediphenyl diisocyanate
CAS No.	101-68-8
INDEX No.	615-005-00-9
EINECS No.	202-966-0
Registration number	01-2119457014-47

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1. **ES 1** Widespread use by professional workers; Various products (PC9a, PC1)

1. ES 1

Widespread use by professional workers; Various products (PC9a, PC1)

1.1 TITLE SECTION

Exposure Scenario name	Professional application of coatings and inks - Use in rigid foams, coatings, adhesives and sealants
Date - Version	14/07/2021 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	Coatings and paints, thinners, paint removers (PC9a) - Adhesives, sealants (PC1)

Environment Contributing Scenario

CS1	ERC8c - ERC8f
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Worker Contributing Scenario

CS2 Bulk transfers	PROC8a
CS3 Rolling, Brushing	PROC10
CS4 Roller, spreader, flow application	PROC11

1.2 Conditions of use affecting exposure**1.2. CS1: Environment Contributing Scenario (ERC8c, ERC8f)**

Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8c, ERC8f)
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Product (article) characteristics**Physical form of product:**

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use (or from service life)**Amounts used:**

Daily amount per site = 329 tonnes/day

Release type: Continuous release**Emission days:** 365 days per year***Technical and organisational conditions and measures*****Control measures to prevent releases**

	Air - minimum efficiency of: = 0.15 % Soil - minimum efficiency of: = 0.005 %
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Conditions and measures related to sewage treatment plant**STP type:**

No specific measures identified.

Other conditions affecting environmental exposure**Local marine water dilution factor:** 100**Local freshwater dilution factor:** 10

1.2. CS2: Worker Contributing Scenario: Bulk transfers (PROC8a)

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
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Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency = 365 days per year

Technical and organisational conditions and measures

Technical and organisational measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection

Wear a respirator conforming to EN140.

Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training.

Use suitable eye protection.

Wear suitable coveralls to prevent exposure to the skin.

Other conditions affecting worker exposure

Covers indoor and outdoor use

Professional use

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.2. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Process Categories	Roller application or brushing (PROC10)
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Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency = 365 days per year

Technical and organisational conditions and measures

Technical and organisational measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection

Wear a respirator conforming to EN140.

Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training.

Use suitable eye protection.

Wear suitable coveralls to prevent exposure to the skin.

Other conditions affecting worker exposure

Covers indoor and outdoor use

Professional use

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.2. CS4: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Process Categories Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Exposure duration < 4 h/day

Technical and organisational conditions and measures

Technical and organisational measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Provide extract ventilation to points where emissions occur.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection

Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training.

Use suitable eye protection.

Wear suitable coveralls to prevent exposure to the skin.

Wear a full face respirator conforming to EN136.

Other conditions affecting worker exposure

Indoor use

Professional use

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario (ERC8c, ERC8f)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	= 0.00694 mg/L	EUSES	< 0.00694
marine water	= 0.000545 mg/L	EUSES	< 0.000545
soil	= 0.271 mg/kg dry weight	EUSES	< 0.271

1.3. CS2: Worker Contributing Scenario: Bulk transfers (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, short-term	= 0.058 mg/m ³	N/A	= 0.582
inhalative, long-term	= 0.029 mg/m ³	N/A	= 0.582

1.3. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, short-term	= 0.034 mg/m ³	N/A	= 0.328

inhalative, long-term	= 0.017 mg/m ³	N/A	= 0.328
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1.3. CS4: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, short-term	= 0.08 mg/m ³	N/A	= 0.8

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to check compliance with the exposure scenario:

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Exposure Scenario

1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate
bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate

Exposure Scenario, 20/04/2022

Substance identity	
	1-Methyl 1,2,2,6,6-pentamethylpiperidin-4-yl decanedioate bis(1,2,2,6,6-pentamethylpiperidin-4-yl) decanedioate
CAS No.	1065336-91-5
EINECS No.	915-687-0

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1. **ES 1** Widespread use by professional workers; Various products (PC9a, PC9b)

1. ES 1		Widespread use by professional workers; Various products (PC9a, PC9b)	
1.1 TITLE SECTION			
Exposure Scenario name	Professional application of coatings and inks - Use in rigid foams, coatings, adhesives and sealants		
Date - Version	20/04/2022 - 1.0		
Life Cycle Stage	Widespread use by professional workers		
Main user group	Professional uses		
Sector(s) of use	Professional uses (SU22)		
Product Categories	Coatings and paints, thinners, paint removers (PC9a) - Fillers, putties, plasters, modelling clay (PC9b)		
Environment Contributing Scenario			
CS1	ERC8c		
Worker Contributing Scenario			
CS2 Material transfers	PROC8a		
CS3 Rolling, Brushing	PROC10		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario (ERC8c)			
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) (ERC8c)		
<i>Product (article) characteristics</i>			
Physical form of product: Liquid			
Vapour pressure: Vapour pressure < 0.01 Pa at standard temperature and pressure 0.0001 Pa			
<i>Amount used, frequency and duration of use (or from service life)</i>			
Emission days: 365 days per year			
<i>Technical and organisational conditions and measures</i>			
Control measures to prevent releases			
		Air - minimum efficiency of: 15 % Water - minimum efficiency of: 1 %	
<i>Conditions and measures related to sewage treatment plant</i>			
STP type: Municipal Sewage Treatment Plant Water - minimum efficiency of: = 88.9 %			
STP effluent (m³/day): 2000			
<i>Other conditions affecting environmental exposure</i>			
Local marine water dilution factor: 100 Local freshwater dilution factor: 10 Receiving surface water flow: 18000 m³/day Indoor use			
1.2. CS2: Worker Contributing Scenario: Material transfers (PROC8a)			

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)	
<i>Product (article) characteristics</i>		
Physical form of product: Liquid		
Vapour pressure: Vapour pressure < 0.01 Pa at standard temperature and pressure 0.0001 Pa		
Concentration of substance in product: Covers percentage substance in the product up to 5 %.		
<i>Amount used, frequency and duration of use/exposure</i>		
Duration: Covers use up to 480 min		
Frequency: Covers use up to 5 days per week		
<i>Technical and organisational conditions and measures</i>		
Technical and organisational measures Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Ensure operatives are trained to minimise exposures.		
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>		
Personal protection		
Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training.		Dermal - minimum efficiency of: = 90 %
Wear suitable face shield. Wear suitable coveralls to prevent exposure to the skin.		
<i>Other conditions affecting worker exposure</i>		
Indoor use Professional use		
<i>Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.</i>		
Additional Good Practice Advice: Ensure no splashing occurs during transfer.		
1.2. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)		
Process Categories	Roller application or brushing (PROC10)	
<i>Product (article) characteristics</i>		
Physical form of product: Liquid		
Vapour pressure: Vapour pressure < 0.01 Pa at standard temperature and pressure 0.0001 Pa		
Concentration of substance in product: Covers percentage substance in the product up to 5 %.		
<i>Amount used, frequency and duration of use/exposure</i>		
Duration: Covers use up to 480 min		
Frequency: Covers use up to 5 days per week		
<i>Technical and organisational conditions and measures</i>		
Technical and organisational measures		

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.
Ensure operatives are trained to minimise exposures.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection

Wear chemically resistant gloves (tested to EN374) in combination with "basic" employee training.	Dermal - minimum efficiency of: = 90 %
Wear suitable face shield. Wear suitable coveralls to prevent exposure to the skin.	

Other conditions affecting worker exposure

Indoor use
Professional use

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.

Additional Good Practice Advice:

Ensure no splashing occurs during transfer.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario (ERC8c)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
soil	N/A	ECETOC TRA environment v2.0	0.0579

Additional information on exposure estimation:

Risk from environmental exposure is driven by soil.

1.3. CS2: Worker Contributing Scenario: Material transfers (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	= 0.2743 mg/kg bw/day	ECETOC TRA worker v3	= 0.137143
inhalative, systemic, long-term	= 0.4233 mg/m ³	ECETOC TRA worker v3	= 0.119924

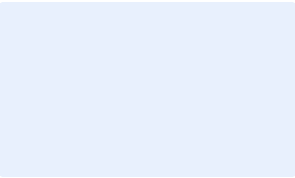
1.3. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	= 0.5486 mg/kg bw/day	ECETOC TRA worker v3	= 0.274286
inhalative, systemic, long-term	= 0.274286 mg/m ³	ECETOC TRA worker v3	= 0.097

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to check compliance with the exposure scenario:

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure Scenario

Calcium oxide

Exposure Scenario, 22/06/2021

Substance identity	
	Calcium oxide
CAS No.	1305-78-8
EINECS No.	215-138-9
Registration number	01-2119475325-36

Table of contents

1. **ES 1** Widespread use by professional workers; Various products (PC9b, PC9a)

1. ES 1		Widespread use by professional workers; Various products (PC9b, PC9a)	
1.1 TITLE SECTION			
Exposure Scenario name	Insulators - Professional application of coatings and inks - Use in rigid foams, coatings, adhesives and sealants - Waterproofing agent		
Date - Version	22/06/2021 - 1.0		
Life Cycle Stage	Widespread use by professional workers		
Main user group	Professional uses		
Sector(s) of use	Professional uses (SU22)		
Product Categories	Fillers, putties, plasters, modelling clay (PC9b) - Coatings and paints, thinners, paint removers (PC9a)		
Environment Contributing Scenario			
CS1 Low environmental release	ERC8c - ERC8f		
Worker Contributing Scenario			
CS2 Rolling, Brushing - Material transfers	PROC8a - PROC10		
CS3 Mixing operations	PROC19		
1.2 Conditions of use affecting exposure			
1.2. CS1: Environment Contributing Scenario: Low environmental release (ERC8c, ERC8f)			
Environmental release categories	Widespread use leading to inclusion into/onto article (indoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8c, ERC8f)		
<i>Product (article) characteristics</i>			
Physical form of product: Solid, medium dustiness			
<i>Amount used, frequency and duration of use (or from service life)</i>			
Amounts used: Application rate = 18000 kg/ha			
<i>Technical and organisational conditions and measures</i>			
Control measures to prevent releases Prevent discharge of undissolved substance to or recover from onsite wastewater.			
1.2. CS2: Worker Contributing Scenario: Rolling, Brushing - Material transfers (PROC8a, PROC10)			
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Roller application or brushing (PROC8a, PROC10)		
<i>Product (article) characteristics</i>			
Physical form of product: Solid, medium dustiness			
<i>Amount used, frequency and duration of use/exposure</i>			
Duration: Exposure duration = 480 h/day			
<i>Technical and organisational conditions and measures</i>			
Technical and organisational measures Ensure operatives are trained to minimise exposures. Avoid direct eye contact with product, also via contamination on hands. Do not ingest.			
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>			
Personal protection Use suitable eye protection. Wear suitable respiratory protection.			

Wear suitable gloves tested to EN374.
Wear suitable face shield.

Other conditions affecting worker exposure

Covers indoor and outdoor use
Professional use

Temperature: Covers use at ambient temperatures.

1.2. CS3: Worker Contributing Scenario: Mixing operations (PROC19)

Process Categories	Manual activities involving hand contact (PROC19)
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Product (article) characteristics

Physical form of product:

Solid, medium dustiness

Amount used, frequency and duration of use/exposure

Duration:

Exposure duration = 480 h/day

Technical and organisational conditions and measures

Technical and organisational measures

Ensure operatives are trained to minimise exposures.

Avoid direct eye contact with product, also via contamination on hands.

Do not ingest.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection

Use suitable eye protection.

Wear suitable respiratory protection.

Wear suitable gloves tested to EN374.

Wear suitable face shield.

Other conditions affecting worker exposure

Covers indoor and outdoor use
Professional use

Temperature: Covers use at ambient temperatures.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario: Low environmental release (ERC8c, ERC8f)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
soil	N/A	N/A	= 0.65

1.3. CS2: Worker Contributing Scenario: Rolling, Brushing - Material transfers (PROC8a, PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative	< 1 mg/m ³	MEASE	N/A

Additional information on exposure estimation:

Dermal exposure is considered to be not relevant.

1.3. CS3: Worker Contributing Scenario: Mixing operations (PROC19)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative	< 1 mg/m ³	MEASE	N/A

Additional information on exposure estimation:

Dermal exposure is considered to be not relevant.

1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to check compliance with the exposure scenario:

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.