SAFETY DATA SHEET

ARBOTHANE® 1245

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

1.1 Product identifier

Product name : ARBOTHANE® 1245

Product description : Sealants Adhesive.

Other means of identification : Not available.

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

Identified uses
Sealants Adhesive.

Uses advised against	Reason
For professional users only.	-

1.3 Details of the supplier of the safety data sheet

Adshead Ratcliffe & Co. Ltd.
Derby Road, Belper
Derbyshire.
DE56 1WJ
+44 (0)1773 826661

e-mail address of person responsible for this SDS : SDSQueries@carlisleccm.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : National Poisons Information Service (NPIS)
Tel: 0344 892 0111 (for healthcare professionals only)
Website: http://www.npis.org/
Members of Public in England, Scotland and Wales can contact NHS 111/NHS 24 by dialling 111. In Northern Ireland contact your local GP.

Supplier

Telephone number : +44 (0)1773 826661
(Office hours: 8.30 - 17.00)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to UK CLP/GHS

Resp. Sens. 1, H334

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



SECTION 2: Hazards identification

Signal word : Danger

Hazard statements : H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

Prevention : P261 - Avoid breathing vapour.

Response : P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor.

Storage : Not applicable.

Disposal : Not applicable

Supplemental label elements : Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : As from 24 August 2023 adequate training is required before industrial or professional use.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : Persons already sensitised to diisocyanates may develop allergic reactions when using this product.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
Ethene, chloro-, homopolymer reaction mass of ethylbenzene and xylene	CAS: 9002-86-2 REACH #: 01-2119488216-32 EC: 905-588-0	≥20 - ≤50 ≥3 - ≤7	Not classified. Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304	[2] [1]
titanium dioxide	REACH #: 01-2119489379-17 EC: 236-675-5 CAS: 13463-67-7 Index: 022-006-00-2	<5	Carc. 2, H351 (inhalation)	[1] [2] [*]
diiron trioxide	EC: 215-168-2 CAS: 1309-37-1	<5	Not classified.	[2]
hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	REACH #: 01-2119456620-43 EC: 926-141-6	<5	Asp. Tox. 1, H304 EUH066	[1]
iron hydroxide oxide yellow	REACH #: 01-2119457554-33 EC: 257-098-5	<2	Not classified.	[2]

SECTION 3: Composition/information on ingredients

carbon black, non respirable	CAS: 51274-00-1 REACH #: 01-2119384822-32 EC: 215-609-9 CAS: 1333-86-4	<1	Not classified.	[2]
4,4'-methylenediphenyl diisocyanate	REACH #: 01-2119457014-47 EC: 202-966-0 CAS: 101-68-8 Index: 615-005-00-9	<1	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373	[1] [2]
calcium oxide	REACH #: 01-2119475325-36 EC: 215-138-9 CAS: 1305-78-8	<2	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335	[1] [2]
chromium (III) oxide	REACH #: 01-2119433951-39 EC: 215-160-9 CAS: 1308-38-9	<1	Not classified.	[2]
Reaction mass of bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	REACH #: 01-2119491304-40 CAS: 1065336-91-5	<0.1	Skin Sens. 1A, H317 Repr. 2, H361f Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) **See Section 16 for the full text of the H statements declared above.**	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[*] The classification as a carcinogen by inhalation applies only to mixtures placed on the market in powder form containing 1% or more of titanium dioxide particles with aerodynamic diameter ≤ 10 µm not bound within a matrix.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

SECTION 4: First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : Slightly irritating to the eyes.

Inhalation : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma

Skin contact : May cause skin sensitisation.

Ingestion : nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : No specific fire or explosion hazard.

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides
hydrogen cyanide
isocyanates
nitrogen oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations : Not available.

SECTION 7: Handling and storage

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Ethene, chloro-, homopolymer	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** TWA: 4 mg/m³ 8 hours. Form: respirable dust TWA: 10 mg/m³ 8 hours. Form: inhalable dust
titanium dioxide	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** TWA: 4 mg/m³ 8 hours. Form: respirable TWA: 10 mg/m³ 8 hours. Form: total inhalable
diiron trioxide	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [Iron oxide fume, as Fe]** STEL: 10 mg/m³, (as Fe) 15 minutes. Form: Fume TWA: 5 mg/m³, (as Fe) 8 hours. Form: Fume **EH40/2005 WELs (United Kingdom (UK), 1/2020). [rouge total inhalable/respirable]** TWA: 4 mg/m³ 8 hours. Form: respirable TWA: 10 mg/m³ 8 hours. Form: total inhalable
iron hydroxide oxide yellow	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [Iron oxide fume, as Fe]** STEL: 10 mg/m³, (as Fe) 15 minutes. Form: Fume TWA: 5 mg/m³, (as Fe) 8 hours. Form: Fume
carbon black, non respirable	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** STEL: 7 mg/m³ 15 minutes. TWA: 3.5 mg/m³ 8 hours.
4,4'-methylenediphenyl diisocyanate	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [isocyanates, all, except methyl isocyanate as –NCO] Inhalation sensitiser.** STEL: 0.07 mg/m³, (as -NCO) 15 minutes. TWA: 0.02 mg/m³, (as -NCO) 8 hours.
calcium oxide	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** TWA: 1 mg/m³ 8 hours. Form: Respirable fraction STEL: 4 mg/m³ 15 minutes. Form: Respirable fraction TWA: 2 mg/m³ 8 hours.
chromium (III) oxide	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [chromium (III) compounds as Cr]** TWA: 0.5 mg/m³, (as Cr) 8 hours.
ethylbenzene	**EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.** STEL: 552 mg/m³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 100 ppm 8 hours. TWA: 441 mg/m³ 8 hours.
xylene	**EH40/2005 WELs (United Kingdom (UK), 1/2020). [xylene, o-,m-, p- or mixed isomers] Absorbed through skin.** STEL: 441 mg/m³ 15 minutes. TWA: 50 ppm 8 hours. TWA: 220 mg/m³ 8 hours. STEL: 100 ppm 15 minutes.

Biological exposure indices

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Exposure indices
xylene	**EH40/2005 BMGVs (United Kingdom (UK), 8/2018) [Xylene, o-, m-, p- or mixed isomers]** BGV: 650 mmol/mol creatinine, methyl hippuric acid [in urine]. Sampling time: post shift.
4,4'-methylenediphenyl diisocyanate	**EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Isocyanates]** BMGV: 1 µmol/mol creatinine, diamine [in urine]. Sampling time: post task.

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
reaction mass of ethylbenzene and xylene	DNEL	Long term Inhalation	221 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	442 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	221 mg/m³	Workers	Local
	DNEL	Short term Inhalation	442 mg/m³	Workers	Local
	DNEL	Long term Dermal	212 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	65.3 mg/m³	General population	Systemic
	DNEL	Short term Inhalation	260 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	65.3 mg/m³	General population	Local
	DNEL	Short term Inhalation	260 mg/m³	General population	Local
	DNEL	Long term Dermal	125 ng/kg bw/day	General population	Systemic
	DNEL	Long term Oral	12.5 mg/kg bw/day	General population	Systemic
carbon black, non respirable	DNEL	Long term Inhalation	0.06 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	1 mg/m³	Workers	Systemic
4,4'-methylenediphenyl diisocyanate	DNEL	Long term Inhalation	0.025 mg/m³	General population	Local
	DNEL	Short term Inhalation	0.05 mg/m³	General population	Local
	DNEL	Long term Inhalation	0.05 mg/m³	Workers	Local
	DNEL	Short term Inhalation	0.1 mg/m³	Workers	Local
calcium oxide	DNEL	Long term Inhalation	1 mg/m³	General population	Local
	DNEL	Long term Inhalation	1 mg/m³	Workers	Local
	DNEL	Short term Inhalation	4 mg/m³	General population	Local
	DNEL	Short term Inhalation	4 mg/m³	Workers	Local
Reaction mass of bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	DNEL	Long term Oral	0.18 mg/kg bw/day	General population	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Long term Inhalation	0.31 mg/m³	General population	Systemic
	DNEL	Long term Dermal	0.9 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	1.27 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	1.8 mg/kg bw/day	Workers	Systemic

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
reaction mass of ethylbenzene and xylene	Fresh water	0.327 mg/l	-
	Fresh water	0.327 mg/l	-
	Marine water	0.327 mg/l	-
	Sewage Treatment Plant	6.58 mg/l	-
	Fresh water sediment	12.46 mg/kg	-
	Marine water sediment	12.46 mg/kg	-
	Soil	2.31 mg/kg	-
calcium oxide	Fresh water	0.37 mg/l	-
	Marine water	0.24 mg/l	-
	Fresh water	0.37 mg/l	-
	Sewage Treatment Plant	2.27 mg/l	-
	Soil	817.4 mg/l	-
Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Fresh water	0.002 mg/l	-
	Fresh water	0.009 mg/l	Sensitivity Distribution
	Marine water	0.0002 mg/l	-
	Sewage Treatment Plant	1 mg/l	-
	Fresh water sediment	1.05 mg/kg	-
	Marine water sediment	0.11 mg/kg	-
	Soil	0.21 mg/kg	-

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

SECTION 8: Exposure controls/personal protection

> 8 hours (breakthrough time):
polymer laminate
thickness > 0.3 mm
Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
full-face mask
half-face mask
organic vapour (Type A) and particulate filter

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Solid. [Paste.]

Colour : Grey.

Odour : Mild.

Odour threshold : Not available.

Melting point/freezing point : Not available.

Initial boiling point and boiling range : 137°C (278.6°F)

Flammability (solid, gas) : Not available.

Upper/lower flammability or explosive limits : Lower: 0.6%
Upper: 8%

Flash point : Closed cup: >70°C (>158°F)

Auto-ignition temperature : >200°C (>392°F)

Decomposition temperature : Not available.

pH : Not applicable.

Viscosity : Not applicable.

Solubility in water : Product reacts with water.

Partition coefficient: n-octanol/water : Not applicable.

Vapour pressure : Not available.

Relative density : 1.16

Vapour density : Not applicable.

Explosive properties : Not available.

Oxidising properties : Not available.

Particle characteristics

Median particle size : Not available.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : alcohols
amines
Alkali metals
Alkaline earth metals
strong acids
Product reacts with water.
Reaction with water, alcohols, and amines is not hazardous if container can vent to the atmosphere to prevent pressure build up

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Decomposition products may include the following materials:
nitrogen oxides
hydrogen cyanide
Isocyanates

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction mass of ethylbenzene and xylene	LC50 Inhalation Vapour	Rat	27124 mg/m³	4 hours
	LD50 Dermal	Rabbit	12126 mg/kg	-
	LD50 Oral	Rat	3523 mg/kg	-
hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	LD50 Dermal	Rat	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
iron hydroxide oxide yellow	LD50 Oral	Rat	>10000 mg/kg	-
carbon black, non respirable	LD50 Oral	Rat	>15400 mg/kg	-
4,4'-methylenediphenyl diisocyanate	LD50 Oral	Rat	9200 mg/kg	-
calcium oxide	LC50 Inhalation Dusts and mists	Rat	>6.04 mg/l	4 hours
	LD50 Dermal	Rabbit	>2500 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
chromium (III) oxide	LC50 Inhalation Dusts and mists	Rat	>5.41 mg/l	4 hours
	LD50 Oral	Rat	>5000 mg/kg	-
Reaction mass of bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	LD50 Dermal	Rat	>3170 mg/kg	-
	LD50 Oral	Rat	3230 mg/kg	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Acute toxicity estimates

SECTION 11: Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
ARBOTHANE® 1245	N/A	22000.0	N/A	220.0	N/A
reaction mass of ethylbenzene and xylene	3523	1100	N/A	11	N/A
4,4'-methylenediphenyl diisocyanate	9200	N/A	N/A	11	N/A
Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	3230	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
reaction mass of ethylbenzene and xylene	Eyes - Irritant	Rabbit	-	-	-
	Skin - Irritant	Rabbit	-	-	-
titanium dioxide	Skin - Mild irritant	Human	-	72 hours 300 ug l	-
4,4'-methylenediphenyl diisocyanate	Eyes - Moderate irritant	Rabbit	-	100 mg	-

Conclusion/Summary

Skin : Based on available data, the classification criteria are not met.

Eyes : Based on available data, the classification criteria are not met.

Respiratory : Based on available data, the classification criteria are not met.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result
Reaction mass of bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	skin	Guinea pig	Sensitising

Conclusion/Summary

Skin : Based on available data, the classification criteria are not met.

Respiratory : Resp. Sens. 1

Mutagenicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Carcinogenicity

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

Conclusion/Summary : Based on available data, the classification criteria are not met.

Reproductive toxicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Teratogenicity

Conclusion/Summary : Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
reaction mass of ethylbenzene and xylene	Category 3	-	Respiratory tract irritation
4,4'-methylenediphenyl diisocyanate	Category 3	-	Respiratory tract irritation
calcium oxide	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
reaction mass of ethylbenzene and xylene	Category 2	-	-
4,4'-methylenediphenyl diisocyanate	Category 2	-	-

Aspiration hazard

Product/ingredient name	Result
reaction mass of ethylbenzene and xylene	ASPIRATION HAZARD - Category 1
hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	ASPIRATION HAZARD - Category 1

Information on likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Slightly irritating to the eyes.

Inhalation : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma

Skin contact : May cause skin sensitisation.

Ingestion : nausea or vomiting

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

Short term exposure

Potential immediate effects : respiratory tract irritation
coughing
sneezing
chest tightness or wheezing

Potential delayed effects : respiratory tract irritation
coughing
sneezing
chest tightness or wheezing

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Based on available data, the classification criteria are not met.

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
reaction mass of ethylbenzene and xylene	Acute LC50 2.6 mg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours
titanium dioxide	Acute LC50 3 mg/l Fresh water	Crustaceans - Water flea - *Ceriodaphnia dubia* - Neonate	48 hours
	Acute LC50 6.5 mg/l Fresh water	Daphnia - Water flea - *Daphnia pulex* - Neonate	48 hours
	Acute LC50 >1000000 µg/l Marine water	Fish - Mummichog - *Fundulus heteroclitus*	96 hours
hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	Acute EC50 >1000 mg/l Fresh water	Algae	72 hours
	Acute EC50 >1000 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 >1000 mg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours
iron hydroxide oxide yellow	Acute EC50 >100 mg/l Fresh water	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 >100000 mg/l Fresh water	Fish - *Brachydanio rerio*	96 hours
carbon black, non respirable	Acute EC50 37.563 mg/l Fresh water	Daphnia - Water flea - *Daphnia magna* - Neonate	48 hours
calcium oxide	Acute EC50 184.57 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	72 hours
	Acute LC50 457 mg/l Fresh water	Fish - *Gasterosteus aculeatus*	96 hours
	Chronic NOEC 48 mg/l Fresh water	Algae - *Pseudokirchneriella subcapitata*	72 hours
	Chronic NOEC 100 mg/l Fresh water	Fish - Nile tilapia - *Oreochromis niloticus* - Juvenile (Fledgling, Hatchling, Weanling)	46 days
Reaction mass of bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Acute EC50 1.68 mg/l Fresh water	Algae	72 hours
	Acute LC50 0.9 mg/l Fresh water	Fish - *Danio rerio*	96 hours
	Chronic NOEC 1 mg/l Fresh water	Daphnia - *Daphnia magna*	21 days

Conclusion/Summary : Based on available data, the classification criteria are not met.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	-	71 % - Readily - 28 days	-	-

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
reaction mass of ethylbenzene and xylene	-	-	Readily
hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	-	-	Readily
Reaction mass of bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	-	-	Not readily

12.3 Bioaccumulative potential

SECTION 12: Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
4,4'-methylenediphenyl diisocyanate	4.51	200	Low
calcium oxide	-	2.34	Low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

Waste catalogue

Waste code	Waste designation
08 04 09*	waste adhesives and sealants containing organic solvents or other hazardous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-

SECTION 14: Transport information

14.5 Environmental hazards	No.	No.	No.	No.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

UK (GB)/REACH

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product/ingredient name	%	Designation [Usage]
4,4'-methylenediphenyl diisocyanate	<1	56 [Consumer products] 74

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

Seveso Directive

This product is not controlled under the Seveso Directive.

EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Not listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

SECTION 15: Regulatory information

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	:	Not determined.
Canada	:	Not determined.
China	:	Not determined.
Eurasian Economic Union	:	**Russian Federation inventory**: Not determined.
Japan	:	**Japan inventory (CSCL)**: Not determined. **Japan inventory (ISHL)**: Not determined.
New Zealand	:	Not determined.
Philippines	:	Not determined.
Republic of Korea	:	Not determined.
Taiwan	:	Not determined.
Thailand	:	Not determined.
Turkey	:	Not determined.
United States	:	Not determined.
Viet Nam	:	Not determined.
15.2 Chemical safety assessment	:	This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = GB CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification

Classification	Justification
Resp. Sens. 1, H334	Calculation method

Full text of abbreviated H statements

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.
H361f	Suspected of damaging fertility.

SECTION 16: Other information

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.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 2	CARCINOGENICITY - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Repr. 2	REPRODUCTIVE TOXICITY - Category 2
Resp. Sens. 1	RESPIRATORY SENSITISATION - Category 1
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITISATION - Category 1
Skin Sens. 1A	SKIN SENSITISATION - Category 1A
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

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