

This safety data sheet was created pursuant to the requirements of: REACH Regulation (EC) No 1907/2006, as retained in UK law by (SI 2019/758 as amended)

MAROCOL HARDENER 4600B Supercedes Date: 07-Mar-2022 Revision date 15-Jan-2024 Revision Number 1.05

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

1.1. Product identifier

Product Name MAROCOL HARDENER 4600B

Pure substance/mixture Substance

EC No (EU Index No) 618-498-9

CAS No. 9016-87-9

Synonyms P-MDI

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

Recommended use Adhesives

Uses advised against Professional cleaning activities with Aprotic Polar Solvents are not supported

Reason why uses advised against Use advised against in Chemical Safety Assessment per REACH Annex I point 7 2.3

1.3. Details of the supplier of the safety data sheet

Company Name

Bostik Limited Common Rd ST16 3EH Stafford UK

Tel: +44 (1785) 27 26 25 Fax: +44 (1785) 25 72 36

E-mail address SDS.box-EU@bostik.com

1.4. Emergency telephone number

United Kingdom Bostik: +44 (1785) 272650 (9am to 5pm Mon-Fri)

NHS: 111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP (SI 2020/1567 as amended)

Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 2 - (H319)
Respiratory sensitisation	Category 1 - (H334)
Skin sensitisation	Category 1 - (H317)
Carcinogenicity	Category 2 - (H351)
Specific target organ toxicity — single exposure	Category 3 - (H335)
Category 3 Respiratory irritation	
Specific target organ toxicity — repeated exposure	Category 2 - (H373)

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2.2. Label elements

618-498-9

Contains Diphenylmethane-diisocyanate, isomers and homologues



Signal word

Danger

Hazard statements

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

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.

H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements - EU (§28, 1272/2008)

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P312 - Call a POISON CENTER or doctor if you feel unwell

P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor

P501 - Dispose of contents/ container to an approved waste disposal plant

Special provisions concerning the labelling of certain mixtures

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

Additional information

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

2.3. Other hazards

No information available.

PBT & vPvB

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	EC No (EU Index No)	CAS No.	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	REACH registration number
Diphenylmethane-diisoc yanate, isomers and homologues	618-498-9	9016-87-9	80 - 100	STOT SE 3 (H335) STOT RE 2	STOT SE 3 :: C>=5% Skin Irrit. 2 :: C>=5% Eye Irrit. 2 :: C>=5%	[7]

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	Re S Ca	(H373) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) esp. Sens. 1 (H334) kin Sens. 1 (H317) arc. 2 (H351) cute Tox. 4 (H332)	Resp. Sens. 1 :: C>=0.1%	
		(H332)		

NOTE [7] - No registration number is given for this substance because it is a polymer exempted from registration according to the provisions of Article 2(9) of REACH. All monomers or other substances within the polymer are registered or exempt from registration

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

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get

medical advice/attention.

Inhalation May cause allergic respiratory reaction. If breathing has stopped, give artificial

respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical

attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and

persists.

Skin contact May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see

a doctor. Wash off immediately with soap and plenty of water for at least 15 minutes.

Ingestion May produce an allergic reaction. Do NOT induce vomiting. Rinse mouth. Never give

anything by mouth to an unconscious person. Get immediate medical attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information.

Avoid breathing vapours or mists.

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

Symptoms May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/

or wheezing. Itching. Rashes. Hives. May cause redness and tearing of the eyes.

Burning sensation. Difficulty in breathing.

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Effects of Exposure May cause damage to organs through prolonged or repeated exposure.

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

Note to doctors May cause sensitisation in susceptible persons. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the

surrounding environment.

Unsuitable extinguishing media No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the P

chemical

Product is or contains a sensitiser. May cause sensitisation by inhalation. May cause

sensitisation by skin contact.

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO2). Nitrogen oxides (NOx). Hydrogen cyanide.

Isocyanates.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout

gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal

protective equipment as required. Evacuate personnel to safe areas. Keep people away

from and upwind of spill/leak. Avoid breathing vapours or mists.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

Methods for containment Keep from any possible contact with water.

Methods for cleaning upTake up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact

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with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. Avoid breathing vapours or

General hygiene considerations

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. **Storage Conditions**

Keep out of the reach of children. Keep from freezing. Keep away from water or moist air.

Recommended storage temperature

Keep at temperatures between 10 and 35 °C.

7.3. Specific end use(s)

Specific use(s) Adhesives.

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

Other information Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	United Kingdom
Diphenylmethane-diisocyanate, isomers and	-	TWA: 0.02 mg/m ³
homologues		STEL: 0.07 mg/m ³ SEN; as -NCO
9016-87-9		-
4,4'-Methylenediphenyl diisocyanate	-	TWA: 0.02 mg/m ³
101-68-8		STEL: 0.07 mg/m ³
		Sen+

Chemical name	European Union	Ireland	United Kingdom
4,4'-Methylenediphenyl	-	1 µmol/mol Creatinine (urine -	-
diisocyanate		urinary Diamine post task)	
101-68-8			

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration No information available. (PNEC)

8.2. Exposure controls

Ensure adequate ventilation, especially in confined areas. Vapours/aerosols must be **Engineering controls**

exhausted directly at the point of origin.

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Eye protection must conform to

Nitrile rubber. Butyl rubber. Glove thickness > 0.4 mm. The breakthrough time of the Hand protection

gloves depends on the material and the thickness as well as the temperature. The

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breakthrough time for the mentioned glove material is in general greater than 60 min.

Gloves must conform to standard EN 374

Skin and body protection Suitable protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Recommended filter type: Wear a respirator conforming to EN 140 with Type A/P2 filter or better. Organic gases

and vapours filter conforming to EN 14387.

Environmental exposure controls No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical stateLiquidAppearanceLiquidColourBrownOdourMusty.

<u>Property</u> <u>Values</u> <u>Remarks • Method</u>

Melting point / freezing point< 10 °C</th>None knownInitial boiling point and boiling330 °CDecomposes

range

Flammability No data available

Flammability Limit in Air None known

Upper flammability or explosive No data available

limits

Lower flammability or explosive No data available

limits

Flash point > 200 °C None known Autoignition temperature No data available None known

pHNo data availableNone known.pH (as aqueous solution)No data availableNone knownKinematic viscosityNo data availableNone knownDynamic viscosity190 - 250 mPa s@ 25 °C

Water solubility Reacts with water. Insoluble.

Solubility(ies)No data availableNone knownPartition coefficientNo data availableNone knownVapour pressure< 0.01</th>Pa @ 25 °C

Relative density 1.22

Bulk Density

No data available
Density

1.23 g/cm³

Relative vapour density 8,5 @ 20 °C

Particle characteristics

Particle Size No information available Particle Size Distribution No information available

9.2. Other information

Solid content (%) No information available

VOC content No data available

9.2.1. Information with regards to physical hazard classes Not applicable

9.2.2. Other safety characteristics

No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

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Reactivity No information available.

10.2. Chemical stability

Stability Reacts with water.

Explosion data

Sensitivity to mechanical

al None.

impact

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Excessive heat. Do not freeze. Exposure to water.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition

products

None under normal use conditions. Stable under recommended storage conditions.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause sensitisation in

susceptible persons. (based on components). May cause irritation of respiratory tract.

Harmful by inhalation.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye

irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. Repeated or prolonged

skin contact may cause allergic reactions with susceptible persons. (based on components). May cause sensitisation by skin contact. Causes skin irritation.

Ingestion Specific test data for the substance or mixture is not available. May cause additional

affects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation,

nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing,

tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives. Redness. May cause

redness and tearing of the eyes.

Acute toxicity

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Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Diphenylmethane-diisocyanate,	LD50 > 10000 mg/kg (Rattus)	LD 50 > 9400 mg/kg	1.5 mg/L (Rattus) 4 h
isomers and homologues		(Oryctolagus cuniculus)	

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

Skin corrosion/irritation

Classification based on data available for ingredients. Causes skin irritation.

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404:	Rabbit				Mild skin irritant
Acute Dermal					
Irritation/Corrosion					

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Respiratory or skin sensitisation May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an

allergic skin reaction.

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

Method	Species	Exposure route	Results
OECD Test No. 429: Skin	Mouse		sensitising
Sensitisation: Local Lymph Node			
Assay			

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

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for

ingredients. Suspected of causing cancer.

Component Information

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

Method	Species	Results
OECD Test No. 453: Combined Chronic	Rat	Carcinogenic
Toxicity/Carcinogenicity Studies		

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

STOT - single exposure May cause respiratory irritation.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

H373 - May cause damage to the following organs through prolonged or repeated exposure if inhaled: lungs;inhalation.

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

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11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea	M-Factor	M-Factor (long-term)
Diphenylmethane-diiso cyanate, isomers and homologues 9016-87-9	ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)	CL50 (96h) >1000 mg/L Danio rerio	-	EC50 (24H) >1000 mg/L Daphnia magna		

12.2. Persistence and degradability

Persistence and degradability No information available.

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

Method	Exposure time	Value	Results
OECD Test No. 302C: Inherent	28 days	0% biodegradation	Not readily biodegradable
Biodegradability: Modified MITI Test		-	-
(II)			

12.3. Bioaccumulative potential

Bioaccumulation There is no data for this product.

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the

threshold of declaration.

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

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13.1. Waste treatment methods

Waste from residues/unused

products

Dispose of in accordance with local regulations. Dispose of waste in accordance with

environmental legislation.

Contaminated packaging Do not reuse empty containers.

European Waste Catalogue 08 04 09* waste adhesives and sealants containing organic solvents or other dangerous

substances

15 01 10*: Packaging containing residues of or contaminated by dangerous substances

Other information Waste codes should be assigned by the user based on the application for which the

product was used.

SECTION 14: Transport information

Note: Keep from freezing.

Land transport (ADR/RID)

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

14.6 Special precautions for user

Special Provisions None

IMDG

14.1 UN number or ID number
14.2 UN proper shipping name
14.3 Transport hazard class(es)
14.4 Packing group

Not regulated
Not regulated
Not regulated
Not regulated

14.5 Marine pollutant NP14.6 Special precautions for user

Special Provisions None

14.7 Maritime transport in bulk according to IMO instruments

Transport in bulk according to Annex II of MARPOL and the IBC Code Not applicable

Air transport (ICAO-TI / IATA-DGR)

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

14.6 Special precautions for user

Special Provisions None

Section 15: REGULATORY INFORMATION

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Check whether measures in accordance with Directive 94/33/EC for the protection of young people at work must be taken.

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Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACh) Regulation (EC 1907/2006)

SVHC: Substances of Very High Concern for Authorisation:

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

EU-REACH (1907/2006) - Annex XVII - Substances subject to Restriction

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

Chemical name	CAS No.	Restricted substance per REACH
		Annex XVII
Diphenylmethane-diisocyanate, isomers and homologues	9016-87-9	56
		74.
Diisocyantes		74
, i		

56 . If product supplied to the general public with substance ≥0.1%, then gloves must be provided with the product. **74** If product supplied to the industrial or professional users with total monomeric diisocyanates ≥ 0.1%, then its packaging must mention "As from 24 August 2023 adequate training is required before industrial or professional use".

Substance subject to authorisation per REACH Annex XIV

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Persistent Organic Pollutants

Not applicable

National regulations

15.2. Chemical safety assessment

A Chemical Safety Assessment is not required for this substance Polymer

SECTION 16: Other information

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

Full text of H-Statements referred to under section 3

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

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

H373 - May cause damage to organs through prolonged or repeated exposure

Legend

TWA TWA (time-weighted average)
STEL STEL (Short Term Exposure Limit)

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Ceiling Ceiling Limit Value Sk* Skin designation

SVHC Substance(s) of Very High Concern

PBT Persistent, Bioaccumulative, and Toxic (PBT) Chemicals vPvB Very Persistent and very Bioaccumulative (vPvB) Chemicals

STOT RE Specific target organ toxicity - Repeated exposure STOT SE Specific target organ toxicity - Single exposure

EWC European Waste Catalogue

ADR European Agreement concerning the International Carriage of Dangerous Goods by

Road

IMDG International Maritime Dangerous Goods (IMDG)
IATA International Air Transport Association (IATA)

RID Regulations concerning the International Transport of Dangerous Goods by Rail

Key literature references and sources for data

No information available

Prepared By Product Safety & Regulatory Affairs

Revision date 15-Jan-2024

Indication of changes

Revision note Not applicable.

Training Advice AS FROM 24 AUGUST 2023 ADEQUATE TRAINING IS REQUIRED BEFORE

INDUSTRIAL OR PROFESSIONAL USE For further information, please contact:

https://www.safeusediisocyanates.eu/

Further information No information available

This SDS complies with the requirements of UK REACH Regulations SI 2019/758 (as amended)

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

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