SAFETY DATA SHEET

GrassMac Part B

This Safety Data Sheet contains information concerning the potential risks to those involved in handling, transporting and working with the material, as well as describing potential risks to the consumer and the environment. This information must be made available to those who may come into contact with the material or are responsible for the use of the material. This Safety Data Sheet is prepared in accordance with formatting described in the REACH Regulation (EC) No 1907/2006, and the UK REACH Regulations SI 2019/758.

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

1.1 Product identifier
Product Name: **GrassMac Part B**

1.2 Relevant identified uses of the substance or mixture and uses advised against
Building and construction work.
No uses advised against. Use only as instructed.

1.3 Details of the supplier of the safety data sheet
Vuba Building Products Limited
Units B2, B3 and B4 Grovehill Industrial Estate,
Beverley, HU17 0LF.

Tel: 01482 778897
E mail: sales@vubaresin.com
Web: www.vubaresinproducts.com

1.4 Emergency telephone number

In case of emergency Tel. 01482 778897 **(08:00-17:30 Mon-Fri)**

SECTION 2: Hazards Identification

2.1 Classification of the substance or mixture

Classification according to the CLP Regulation (EC) No 1272/2008 and the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain:

Acute Tox. 4 (Inhalation – mist), **Eye Dam./Irrit. 2A**, **Skin Corr./Irrit 2**, **STOT SE 3** (irritating to respiratory system), **Skin Sens. 1**, **Resp. Sens. 1**, **Carc. 2**, **STOT RE 2** (Respiratory system)

For the full classification not written out in full in this section the full text can be found in section 16

2.2 Label elements

Hazard pictograms



Signal word

DANGER

Names of dangerous components placed on label:

Contains: Isocyanic acid, polymethylenepolyphenylene ester (P-MDI) (Content (W/W): (100%)
CAS Number: 9016-87-9

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 (Respiratory system) through prolonged or repeated exposure (Inhalation).

Precautionary statements:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breath spray.
P261	Avoid breathing mist/vapours/spray.
P264	Wash with polyethylene glycol, followed by plenty of water thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves, protective clothing and eye protection or face protection.
P284	In case of inadequate ventilation wear respiratory protection.

Precautionary Statements (Response):

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P341	IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical attention.
P312	Call a POISON CENTER or physician if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment (see on this label).
P332 + P313	If skin irritation occurs: Get medical attention.
P333 + P313	If skin irritation or rash occurs: Get medical attention.
P337 + P313	If eye irritation persists: Get medical attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and containers to hazardous or special waste collection point.

Additional information:

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

Labelling of special preparations (GHS):
Contains isocyanates. May produce an allergic reaction.

According to UN GHS criteria:
Hazard determining component(s) for labelling: Isocyanic acid, polymethylenepolyphenylene ester (P-MDI).

2.3 Other hazards

See section 12 – Results of PBT and vPvB assessment.

Avoid any contact with the substance in case of known allergy to isocyanates, skin complaints, hypersensitivity reactions, chronic respiratory disease, asthmatic attacks or bronchial attacks.

SECTION 3: Composition

3.1 Substances

Isocyanic acid, polymethylenepolyphenylene ester (P-MDI) (Content (W/W): 100 %)
CAS Number: 9016-87-9

For the classifications not written out in full in this section the full text can be found in section 16.

3.2 Mixtures

Not applicable

SECTION 4: First Aid Measures

4.1 Description of first aid measures

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable position (recovery position). Immediately remove contaminated clothing.

EYE CONTACT: Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.
INHALATION: Keep patient calm, remove to fresh air, seek medical attention.
SKIN CONTACT: Immediately wash thoroughly with soap and water, seek medical attention.
INGESTION: Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labelling phrases available and in Section 2 and in the Toxicological assessments available in Section 11.

Hazards: Symptoms can appear later.

Information on: *4,4'-Methylenediphenyl diisocyanate*

Hazards: Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent. Substances eliciting lower respiratory tract irritation may worsen the asthma-like reactions that may be produced by product exposures.

4.3 Indication of any immediate medical attention and special treatments needed

Physician makes a decision regarding further medical treatment after thoroughly examination of the injured. Persons exposed to the product to leave under medical supervision for 48 hours (possibility of delayed onset of symptoms).

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote, administer corticosteroid dose aerosol to prevent pulmonary odema.

SECTION 5: Firefighting Measures

5.1 Extinguishing media
Suitable extinguishing media: foam, powders, carbon dioxide, water spray
Unsuitable extinguishing media: water jet.

5.2 Special hazards arising from the substance or mixture
During combustion irritant and harmful vapours and gases: carbon oxides, nitrogen oxides, hydrogen cyanide may be released. Do not inhale combustion products – it can be dangerous for health. Above temperature 45 °C product may polymerize. In case of an uncontrolled polymerization in a closed container, there is a risk of explosion

5.3 Advice for fire fighters
Personal protection typical in case of fire. Do not stay in the fire zone without self-contained breathing apparatus and protective clothing resistant to chemicals. Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Limit the access for the outsiders into the breakdown area, until the suitable cleaning operations are completed. Ensure that only the trained personnel removes the effects of the accident. In case of release of large amounts of the product, isolate the exposed area. Use personal protective equipment. Avoid skin and eyes contamination. Ensure adequate ventilation. Do not breathe vapours. Warning! Risk of slipping on spilled product.

6.2 Environmental precautions
In case of release of large amounts of the product, isolate the exposed area. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and clearing up
Absorb liquid onto sand, earth or other suitable absorbent material. Collect into a suitable labelled container for disposal. Wash spill area thoroughly with water and detergent to remove residues. Prevent washings from entering water courses. Neutralise with a solution of 5 - 10% Sodium carbonate, 0.2 - 2% detergents and 90 – 95% water.

6.4 References to other sections
See section 8 and 13 for further advice.

SECTION 7: Handling and Storage

7.1 Precautions for safe handling
Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. When handling heated product, vapours of the product should be ventilated, and respiratory protection used. Wear respiratory protection when spraying. Danger of bursting when sealed gastight. Protect against moisture. Clean up contamination as soon as they occur. Provide basic employee training to prevent/minimize exposures. Products freshly manufactured from isocyanates can contain incompletely reacted isocyanates and other dangerous substances, e.g. primary aromatic amines. Industrial cleaning with aprotic polar solvents (meeting the IUPAC definition) may lead to formation of hazardous primary aromatic amine (>0,1%).
See Section 11.

Protection against fire and explosion:
No special precautions necessary.

7.2 Conditions for safe storage, including any incompatibilities

Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases. Suitable materials for containers: Carbon steel (Iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), tinned carbon steel (Tinplate), Stainless steel 1.4301 (V2) Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place. Formation of CO2 and build up of pressure possible. Danger of bursting when sealed gastight. Storage stability: Protect against moisture. If moisture enters isocyanate containers, CO2 forms and pressure builds up.

7.3 Specific end uses(s)

Consult most current local Product Data Sheet prior to any use.

SECTION 8. Exposure Controls/Personal Protection

8.1 Control parameters

101-68-8: 4,4'-Methylenediphenyl diisocyanate
5873-54-1: o-(p-Isocyanatobenzyl)phenyl isocyanate
9016-87-9: Diphenylmethanediisocyanate, isomeres and homologues

DNEL for Isocyanic acid, polymethylenepolyphenylene ester (P-MDI) [CAS: 9016-87-9]

Route of exposure	Exposure scheme	DNEL (workers)
inhalation	Acute, local	0.1 mg/ m^3
	Acute, systematic	0.1 mg/m^3
	Long-term, local	0.05 mg/m^3
	Long-term, systematic	0.05 mg/m^3
Dermal	Short-term, local	28.7 mg/cm^2
	Short-term, systematic	50 mg/kg bw/day

8.2 Exposure controls

Engineering controls
Use the product in accordance with good occupational hygiene and safety practices. Avoid contact with eyes and skin. Immediately remove contaminated clothing. In the workplace, general and / or local ventilation should be provided in order to keep the harmful factor in the air below the permissible concentration limits.

Respiratory protection
Respiratory protection in case of vapour/aerosol release. (Combination filter EN 14387 A-P2).

Hand Protection
Chemical resistant protective gloves (EN ISO 374-1)
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):

butyl rubber (butyl) - 0.7 mm coating thickness nitrile rubber (NBR) - 0.4 mm coating thickness chloroprene rubber (CR) - 0.5 mm coating thickness Unsuitable materials polyvinylchloride (PVC) - 0.7 mm coating thickness Polyethylene-Laminate (PE laminate) - ca. 0.1 mm coating thickness Suitable materials that provide sufficient protection for industrial cleaning with aprotic polar solvents (meeting the IUPAC definition): butyl rubber (butyl) - 0.7 mm coating thickness nitrile rubber (NBR) - 0.4 mm coating thickness chloroprene rubber (CR) - 0.5 mm coating thickness.

Eye protection
Wear tightly fitting glasses (EN 166).

Skin protection
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures
Do not breathe vapour/spray. With products freshly manufactured from isocyanates body protection and chemical resistant protective gloves is recommended. Wearing of closed work clothing is required additionally to the stated personal protection equipment. No eating, drinking, smoking or tobacco use at the place of work. Take off immediately all contaminated clothing. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

a) Physical state:	Liquid
b) Colour:	Brown
c) Odour:	Earthy, musty
d) Melting point:	> 10 °C
e) Boiling point:	330 °C
f) Flammability:	Non-flammable product
g) Upper/lower flammability limits:	Not determined
h) Flashpoint:	> 204 °C
i) Autoignition temperature:	> 600 °C
j) Decomposition temperature:	> 230 °C
k) pH:	Not applicable
l) Viscosity, dynamic:	190-250 mPa.s (25 °C), 50 mPa.s (35 °C)
m) Solubility:	Soluble in aromatic hydrocarbons, ethers, esters, ketones.
n) Partition coefficient (log Kow):	No components classified accumulative
o) Vapour pressure:	< 0.01 Pa (25 °C)
p) Density and/or relative density:	1.24 g/cm^3 (15 °C)
q) Relative vapour density:	8.5 (20 °C)
r) Particle characteristics	Not applicable

9.2 Other information
No data available

SECTION 10: Stability and Reactivity

10.1 Reactivity
Product is reactive. It can polymerize with the increase of temperature. See also subsections 10.3-10.5.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Exothermic reaction with amines and alcohols; in contact with water, it reacts with the release of carbon dioxide; pressure increase in closed containers; risk of bursting of the containers.

10.4 Conditions to avoid
Avoid sources of heat and direct sunlight. Protect from moisture.

10.5 Incompatible materials
Avoid contact with water, strong oxidants, acids, bases, copper, amines, alcohols

10.6 Hazardous decomposition products

Under proper use and storage of the product there are no hazardous decomposition products.

SECTION 11: Toxicological Information

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

Toxicity of components

Isocyanic acid, polymethylenepolyphenylene ester [CAS 9016-87-9]

LD_{50} (oral, rat)	≥ 10,000 mg/kg (OECD 423)
LC_{50} (rat, inhalation)	approx. 0.493 mg/l 4 h
LD_{50} (rabbit, dermal)	> 10,000 mg/kg

Toxicity of mixture

(a) acute toxicity	ATE_{mix} (oral) estimated > 10,000 mg/kg ATE_{mix} (inhalation, vapours)* estimated > 0.493 mg/l
(b) skin corrosion/irritation	Skin contact causes irritation.
(c) serious eye damage/irritation	Eye contact causes irritation.
(d) respiratory/skin sensitisation	The substance may cause sensitization of the respiratory tract. Sensitization after skin contact possible.
(e) germ cell mutagenicity	The substance was mutagenic in various test systems with microorganisms and cell cultures; however, these results could not be confirmed in tests with mammals.
(f) carcinogenicity	A carcinogenic effect cannot be ruled out.
(g) reproductive toxicity	No data available
(h) STOT-single exposure	May cause respiratory irritation.
(i) STOT-repeated exposure	The substance may cause damage to the lung even after repeated inhalation of low doses, as shown in animal studies.
(j) aspiration hazard	No aspiration hazard expected.

11.2 Information on other hazards

Endocrine disrupting properties:
The product does not contain substances included in the list established in accordance with Article 59(1) for having endocrine disrupting properties, or substances identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 % by weight.

Other information:
No additional information.

SECTION 12: Ecological Information

12.1 Toxicity

Toxicity of components

Isocyanic acid, polymethylenepolyphenylene ester [CAS 9016-87-9]:

toxicity for fish LC_0	> 1,000 mg/l/96h/Danio rerio (C.1)
Acute toxicity for invertebrates EC_{50}	> 500 mg/l/24h/Daphnia magna (C.2)
Acute toxicity for algae ErC_{50}	1,640 mg/l/72h/Scenedesmus subspicatus (C.3)

12.2 Persistence and degradability

Data for components

Assessment biodegradation and elimination (H2O): Hydrolyzes to form water-insoluble compounds. Experience shows this product to be inert and nondegradable. Elimination information: < 10 % BOD of

the ThOD (28 d) (OECD Guideline 302 C) (aerobic, activated sludge) Poorly biodegradable. Assessment of stability in water: In contact with water the substance will hydrolyse rapidly.

12.3 Bioaccumulative potential
Does not significantly accumulate in organisms

12.4 Mobility in soil
Adsorption to solid soil phase is not expected.

12.5 Results of PBT and vPvB assessment
According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

12.6 Endocrine disrupting properties
Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects
Additional ecological information : This product has no influence on the global warming or the ozone layer depletion.

SECTION 13: Disposal Considerations

13.1 Waste treatment methods
The waste codes are manufacturer's recommendations based on the designated use of the product. Other use and special waste disposal treatment on customer's location may require different wastecode assignments. Incinerate in suitable incineration plant, observing local authority regulations. Dispose of isocyanate waste in dry containers and never mix together with other wastes (reaction, dangerous pressure build up). Waste key: 08 05 01¤ waste isocyanates.

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

SECTION 14: Transport Information

Not applicable, product is not hazardous during transport

	ADR	IMDG	ICAO
14.1 UN Number	Not applicable	Not applicable	Not applicable
14.2 UN Proper shipping name	Not applicable		
14.3 Transport hazard class(es)	Not applicable	Not applicable	Not applicable
14.4 Packing group	Not applicable	Not applicable	Not applicable
14.5 Environmental hazards	Not applicable	Not applicable	Not applicable
14.6 Special precautions for user	Not applicable	Not applicable	Not applicable
14.7 Maritime transport in bulk according to IMO instruments	Not applicable	Not applicable	Not applicable

SECTION 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH),

establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC as amended.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance) as amended.
Commission Regulation (EU) No 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.
European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste as amended.
Regulation (EU) No 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC.
Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.
Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC.
Commission Directive 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.
Commission Directive 2017/164/EU of 31 January 2017 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU.
Commission Directive 2019/1831/EU of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.
Control of Major Accident Hazards Regulations 2015 (COMAH) E2 ENVIRONMENTAL HAZARDS Volatile organic compounds
Law on the incentive tax for volatile organic compounds (VOCV) Volatile organic compounds (VOC) content: < 0% w/w no VOC duties Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: < 0% w/w

If other regulatory information applies that is not already provided elsewhere in the Safety Data Sheet, then it is described in this subsection.

Health, safety and environmental regulation/legislation specific for the substance or mixture
Environmental Protection Act 1990 & Subsidiary Regulations Health and Safety at Work Act 1974 & Subsidiary Regulations Control of Substances Hazardous to Health Regulations (COSHH) May be subject to the Control of Major Accident Hazards Regulations (COMAH), and amendments.

Annex XVII of REACH:
Isocyanic acid, polymethylenepolyphenylene ester [CAS 9016-87-9]

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has not been carried out for this product.
Contains no substances of very high concern (SVHC) which are included in the Candidate List (EU/UK)

SECTION 16: Other Information

Revision information:
New SDS

List of key Abbreviations used in this SDS:
CAS Chemical Abstracts Service

CLP	Classification, Labelling and Packaging Regulation (EC) no 1272/2008
EC	European Community/Commission
PBT	Persistent, Bioaccumulative and Toxic
PMT	Persistent, Mobile, Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) no 1907/2006
vPvB	very Persistent, very Bioaccumulative
vPvM	very Persistent, very Toxic
DNEL	Derived no-effect level
GHS	Globally Harmonized System
LD_{50}	Median lethal doses (the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals)

References:
Source: European Chemicals Agency, http://echa.europa.eu/ February 2025

Method used for classification of mixtures:
Ingredient based approach

H Statements used in Section 3

Acute Tox.	Acute toxicity
Eye Dam./Irrit.	Serious eye damage/eye irritation
Skin Corr./Irrit.	Skin corrosion/irritation
STOT SE	Specific target organ toxicity — single exposure
Skin Sens.	Skin sensitization
Resp. Sens.	Respiratory sensitization
Carc.	Carcinogenicity
STOT RE	Specific target organ toxicity — repeated exposure
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 (Respiratory system) through prolonged or repeated exposure (inhalation).

Training requirements for workers
Before commencing working with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo proper workplace training.