

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

· 1.1 Product identifier

· Trade name: **HERCULAN RB-S**

· Article number: 223329 1/16

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

· Sector of Use

· Product category

· Process category

· Environmental release category

· Article category

· Application of the substance / the mixture

· 1.3 Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

HERCULAN B.V.
Energieweg 6
4231 DJ Meerkerk
The Netherlands
Phone +31 183 354700
Fax: +31 183 354740
e-mail: info@herculan.com

· Further information obtainable from:

Environmental department

· 1.4 Emergency telephone number:

+49 (0) 6131 19240 [24 h - 365 d] - Giftinformationszentrale Mainz
or
+31 (0) 183 354 700 [Mo - Fr. 8 - 17 o'clock] - HERCULAN

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture

· Classification according to Regulation (EC) No 1272/2008



GHS08 health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carc. 2 H351 Suspected of causing cancer.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

· 2.2 Label elements

· Labelling according to Regulation (EC) No 1272/2008

· Hazard pictograms

· Signal word

The product is classified and labelled according to the CLP regulation.

GHS07, GHS08

Danger

· Hazard-determining components of labelling:

Poly[oxy(methyl-1,2-ethanediy)]], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]
diphenylmethane-4,4'-di-isocyanate
diphenylmethane-2,4'-diisocyanate

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· Hazard statements

H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P284 [In case of inadequate ventilation] wear respiratory protection.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Additional information:

Contains isocyanates. May produce an allergic reaction.

· 2.3 Other hazards

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· Results of PBT and vPvB assessment

· PBT:

Not applicable.

· vPvB:

Not applicable.

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SECTION 3: Composition/information on ingredients

· 3.2 Chemical characterisation: Mixtures

· Description:

There are no additional ingredients present which are classified as hazardous to health or the environment and on this basis need to be mentioned in this section.

· Dangerous components:

CAS: 39420-98-9	Poly[oxy(methyl-1,2-ethanediy)]], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]	50 - 100%
	⚠ Resp. Sens. 1, H334; ⚠ Skin Sens. 1, H317	
CAS: 101-68-8	diphenylmethane-4,4'-di-isocyanate	10 - 25%
EINECS: 202-966-0	⚠ Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; ⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	
CAS: 5873-54-1	diphenylmethane-2,4'-diisocyanate	10 - 25%
EINECS: 227-534-9	⚠ Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; ⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	

· Additional information:

For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· After inhalation:

Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.

· After skin contact:

Immediately wash with water and soap and rinse thoroughly.

· After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· After swallowing:

If symptoms persist consult doctor.

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

No further relevant information available.

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

No further relevant information available.

SECTION 5: Firefighting measures

· 5.1 Extinguishing media

· Suitable extinguishing agents:



CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use fire extinguishing methods suitable to surrounding conditions.

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- **5.2 Special hazards arising from the substance or mixture** Formation of toxic gases is possible during heating or in case of fire.
- **5.3 Advice for firefighters**
- **Protective equipment:** Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13. Ensure adequate ventilation.
- **6.4 Reference to other sections** See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special measures required. Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Protect from frost. Keep container tightly sealed. Store in dry conditions. Store in a cool place.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

8.1 Control parameters

- **Ingredients with limit values that require monitoring at the workplace:**

101-68-8 diphenylmethane-4,4'-di-isocyanate

WEL Short-term value: 0.07 mg/m³
 Long-term value: 0.02 mg/m³
 Sen; as -NCO

5873-54-1 diphenylmethane-2,4'-diisocyanate

WEL Short-term value: 0.07 mg/m³
 Long-term value: 0.02 mg/m³
 Sen; as -NCO

- **Additional information:** The lists valid during the making were used as basis.

8.2 Exposure controls

- **Personal protective equipment:**
- **General protective and hygienic measures:** Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work.

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- **Respiratory protection:** Store protective clothing separately. Avoid contact with the eyes and skin. Do not eat, drink, smoke or sniff while working.  Only during spraying without adequate removal by suction. Use suitable respiratory protective device in case of insufficient ventilation. Use suitable respiratory protective device when high concentrations are present.

Protection of hands:


Protective gloves

Material of gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Penetration time of glove material

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

As protection from splashes gloves made of the following materials are suitable:

Nitrile rubber, NBR
 Natural rubber, NR

Eye protection:


Tightly sealed goggles

Body protection:


Protective work clothing

SECTION 9: Physical and chemical properties
9.1 Information on basic physical and chemical properties
General Information
Appearance:

- **Form:** Fluid
- **Colour:** According to product specification
- **Odour:** Characteristic
- **Odour threshold:** Not determined.

pH-value:

Not determined.

Change in condition

- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** 208 °C

Flash point:

201 °C

Flammability (solid, gaseous):

Not applicable.

Ignition temperature:

520 °C

Decomposition temperature:

Not determined.

Self-igniting:

Product is not selfigniting.

Danger of explosion:

Product does not present an explosion hazard.

Explosion limits:

- **Lower:** 0.4 Vol %
- **Upper:** Not determined.

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- **Vapour pressure:** Not determined.
- **Density at 20 °C:** 1.13 g/cm³
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.

- **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**
- **Dynamic:** Not determined.
- **Kinematic:** Not determined.

- **Solvent content:**
- **Organic solvents:** 0,0 %
- **Water:** 0,0 %

- **Solids content:** 13,2 %
- **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values relevant for classification:

101-68-8 diphenylmethane-4,4'-di-isocyanate

Inhalative	LC50/4 h	0.31 mg/l (rat)
	OECD 453 without guidelines	positive (rat) (2 years - 5 days per week) Sensitising (Guinea pig)
Irritation of skin	OECD 406	Not sensitising (Guinea pig)
	OECD 474	- (Mammalian Erythrocyte Micronucleus Test)

5873-54-1 diphenylmethane-2,4'-diisocyanate

Inhalative	LC50/4 h	0.31 mg/l (rat)
	OECD 453 without guidelines	positive (rat) (2 years - 5 days per week) Sensitising (Guinea pig)
Irritation of skin	OECD 406	not sensitising (Guinea pig)
	OECD 474	- (Mammalian Erythrocyte Micronucleus Test)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitisation:** Sensitisation possible through inhalation.
Sensitisation possible through skin contact.

- **Additional toxicological information:** The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

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Harmful
Irritant

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

101-68-8 diphenylmethane-4,4'-di-isocyanate

OECD 414 12 mg/m³ (rat) (NOAEL)

5873-54-1 diphenylmethane-2,4'-diisocyanate

OECD 414 4 mg/m³ (rat)

Carc. 2

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

101-68-8 diphenylmethane-4,4'-di-isocyanate

LogPow	200 BCF (-)
OECD 202	> 1000 mg/l (daphnia)
OECD 203	> 1000 mg/l (fish)
OECD 209	> 100 mg/l (Bacterie)
OECD 211	> 10 mg/l (Daphnia Magna)
OECD 302 C	0 % (-) (Modified MITI Test (II))

5873-54-1 diphenylmethane-2,4'-diisocyanate

LogPow	200 BCF (-)
OECD 202	> 1000 mg/l (Daphnia Magna)
OECD 203	> 1000 mg/l (fish)
OECD 209	> 100 mg/l (Bacterie)
OECD 211	> 10 mg/l (Daphnia Magna)
OECD 302 C	0 % (-) (Modified MITI Test (II))
OECD 471	- (Bacterial Reserve Mutation Test)

- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.

· Additional ecological information:

- **General notes:** Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· 12.5 Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

- **Recommendation** Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· European waste catalogue

08 04 09* waste adhesives and sealants containing organic solvents or other dangerous substances

08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09

· Uncleaned packaging:

- **Recommendation:** Disposal must be made according to official regulations.

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SECTION 14: Transport information

· 14.1 UN-Number · ADR, ADN, IMDG, IATA	Void
· 14.2 UN proper shipping name · ADR, ADN, IMDG, IATA	Void
· 14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA · Class	Void
· 14.4 Packing group · ADR, IMDG, IATA	Void
· 14.5 Environmental hazards: · Marine pollutant:	No
· 14.6 Special precautions for user	Not applicable.
· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	-

SECTION 15: Regulatory information

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture					
· Labelling according to Regulation (EC) No 1272/2008	The product is classified and labelled according to the CLP regulation.				
· Hazard pictograms	GHS07, GHS08				
· Signal word	Danger				
· Hazard-determining components of labelling:	Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene] diphenylmethane-4,4'-di-isocyanate diphenylmethane-2,4'-diisocyanate H332 Harmful if inhaled. H315 Causes skin irritation. H319 Causes serious eye irritation. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H317 May cause an allergic skin reaction. H351 Suspected of causing cancer. H335 May cause respiratory irritation. H373 May cause damage to organs through prolonged or repeated exposure.				
· Hazard statements					
· Precautionary statements	P260 Do not breathe dust/fume/gas/mist/vapours/spray. P284 [In case of inadequate ventilation] wear respiratory protection. P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P405 Store locked up. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.				
· National regulations:					
· Technical instructions (air):	<table border="1"> <thead> <tr> <th>Class</th> <th>Share in %</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>20.5</td> </tr> </tbody> </table>	Class	Share in %	I	20.5
Class	Share in %				
I	20.5				
· Waterhazard class:	Water hazard class 1 (Self-assessment): slightly hazardous for water.				
· Other regulations, limitations and prohibitive regulations	No sales to private				
· VOC					
· VOC EU [%]	0.00 %				

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· VOC CH	0.00 %
· 15.2 Chemical safety assessment:	A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases	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.
· Department issuing MSDS:	Environmental Department
· Contact:	Dr. Michael Kissel
· Abbreviations and acronyms:	RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: International Civil Aviation Organisation ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods IATA: International Air Transport Association GHS: Globally Harmonised System of Classification and Labelling of Chemicals EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent Acute Tox. 4: Acute toxicity, Hazard Category 4 Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2 Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2 Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1 Skin Sens. 1: Sensitisation - Skin, Hazard Category 1 Carc. 2: Carcinogenicity, Hazard Category 2 STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3 STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
· * Data compared to the previous version altered.	

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