

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Trade name:****Herculan XF { C }****Article number:**

HE_503300/5

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

No further relevant information available.

Application of the substance / the mixture

Component or ready-mix for in-situ creation of flooring / roofing / adhesives / resins - materials.
The final product is created only upon curing - Chemical properties of the starting materials in section 3.

Details of the supplier of the safety data sheet**Manufacturer/Supplier:****HERCULAN B.V.**

c/o EPUTAN Kunststofftechnik B.V.
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4231 DJ Meerkerk
The Netherlands
Phone +31 183 354700
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e-mail: info@herculan.com

Further information obtainable from:

Environmental Department

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

2 Hazards identification**Classification of the substance or mixture**

Flammable liquids 4 H227 Combustible liquid.

Acute Tox. 5 H303 May be harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

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

STOT SE 3 H335 May cause respiratory irritation.

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

Additional information:

The full text of the classification and labelling elements mentioned is given in Section 16.

Label elements**GHS label elements****Hazard pictograms**

The product is classified and labelled according to the Globally Harmonised System (GHS).



GHS07

GHS08

Signal word

Warning

Hazard-determining components of labelling:

Hexamethylene diisocyanate, oligomer (biuret type)
triphenylphosphine

Hazard statements

H227 Combustible liquid.

H303 May be harmful if swallowed.

H332 Harmful if inhaled.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

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

Precautionary statements

P210 Keep away from flames and hot surfaces. No smoking.

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

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

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

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/
international regulations.

Other hazards

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Results of PBT and vPvB assessment**PBT:**

This product contains no substances assessed as PBT at concentrations of 0.1% or higher.

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· **vPvB:**

This product contains no substances rated as vPvB at concentrations of 0.1% or higher.

3 Composition/information on ingredients· **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:**

28182-81-2	Hexamethylene diisocyanate, oligomer (biuret type)	25-100%
	⚠ Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	
603-35-0	triphenylphosphine	>2,5-<5%
	⚠ Acute Tox. 3, H301; ⚠ STOT RE 1, H372; ⚠ Skin Sens. 1, H317; STOT SE 3, H335; Aquatic Chronic 4, H413	

· **SVHC**

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· **Additional information:**

Acute toxicity estimates

	Oral	Inhalative	Dermal
CAS 822-06-0	746 mg/kg	0,124 mg/l	mg/kg
CAS 28182-81-2	mg/kg	1,5 mg/l	mg/kg

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

4 First aid measures· **Description of first aid measures**· **General information:**

Immediately remove any clothing soiled by the product.



Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Take affected persons out into the fresh air.

Do not leave affected persons unattended.

Seek medical treatment.

Medical supervision for at least 48 hours.

Show this safety data sheet to the doctor on duty.

Protection of first aiders: No action should be taken if there is a risk of personal accidents or in case of insufficient training. This can be dangerous for the person applying mouth-to-mouth resuscitation.

If the possibility of exposure exists, consult section 8 for specific personal protective equipment.

First-aiders should remember to protect themselves and wear the recommended protective clothing.

No action should be taken if there is a risk of personal accidents or in case of insufficient training.

· **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.

Seek medical treatment.

Use a respiratory bag or breathing device.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

Immediately rinse with water.

Seek medical treatment.

· **After eye contact:**

Protect unharmed eye.

As far as easy to do, remove any contact lenses.

· **After swallowing:**

Do not induce vomiting; call for medical help immediately.

A person vomiting while laying on their back should be turned onto their side.

Clean carefully or rinse mouth with water.

Keep breathing passages clear.

Never allow an unconscious person to drink (or eat).

Take patient to a hospital immediately.

· **Information for doctor:**· **Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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

No further relevant information available.

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5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**



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

- **Special hazards arising from the substance or mixture**

During heating or in case of fire poisonous gases are produced.
Formation of toxic gases is possible during heating or in case of fire.
Carbon monoxide (CO)

- **Advice for firefighters**
- **Protective equipment:**

Mount respiratory protective device.
Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.
Wear fully protective suit.
PSA 52 / PSA 55 / PSA 56 / PSA 57

- **Additional information**

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.
Remove persons from danger area.
Wear protective equipment. Keep unprotected persons away.
Keep people at a distance and stay on the windward side.
Wear protective clothing.

- **Environmental precautions:**

Inform respective authorities in case of seepage into water course or sewage system.
In case of seepage into the ground inform responsible authorities.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
Prevent further leaks and spills if safe to do so. In case of significant leaks that cannot be contained, inform the local authorities.
If the product contaminates rivers, lakes or sewers, notify the respective authorities.

- **Methods and material for containment and cleaning up:**

Let reaction take place at least 30 minuten.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
Scoop up into lidded drums and render harmless.
Store in suitable and closed containers for disposal.

- **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.

7 Handling and storage

- **Handling:**

Use according to accepted rules and practices related to industrial hygiene and safety. After working with this product, wash face, hands and exposed skin thoroughly. Remove contaminated clothing and protective equipment before going to the canteen. Do not eat, drink or smoke during use. Do not allow contaminated work clothing to leave the workplace. Wash hands before each work break and immediately after using the product. Wash hands before each work break and at the end of the working day.

- **Precautions for safe handling**

Provide eyewash facilities and safety showers close to the workplace.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

- **Information about fire - and explosion protection:**

No special measures required.

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- **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:** Store away from foodstuffs.
- **Further information about storage conditions:** Protect from frost.
Keep container tightly sealed.
Store in dry conditions.
Store in a cool place.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** Keep respiratory protective device available.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs****28182-81-2 Hexamethylene diisocyanate, oligomer (biuret type)**

Dermal	Shortterm value	mg/kg (Worker local)
		mg/kg (Worker system-related)
	Longterm value	mg/cm ² (Worker local)
		mg/cm ² (Worker system-related)
Inhalative	Shortterm value	1 mg/m ³ (Worker local)
		mg/m ³ (Worker system-related)
	Longterm value	0,5 mg/m ³ (Worker local)
		mg/m ³ (Worker system-related)

· **PNECs****28182-81-2 Hexamethylene diisocyanate, oligomer (biuret type)**

Soil	1,33 mg/kg (PNEC Freshwater Sediment)
	0,066 mg/kg (PNEC Soil)
	0,133 mg/kg (PNEC Seawater Sediment)
Water	0,005 mg/l (PNEC Seawater)
	55,6 mg/l (PNEC Wastewater treatment - STP)
	0,05 mg/l (PNEC Water)

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

· **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.
Store protective clothing separately.
Do not eat, drink, smoke or sniff while working.

· **Respiratory protection:**

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.

· **Recommended filter device for short term use:**

Air concentrations would be kept below exposure guidelines. When airborne concentrations may exceed exposure guidelines, use an approved air-purifying respirator fitted with a filter for organic vapours and particles. In circumstances where the concentration in the air may exceed the level for which an air-purifying respirator is effective, use a compressed air respirator (type: positive pressure) (air hose-fed or self-contained respirator). In emergencies or in conditions where the concentration in air is not known, use an approved compressed air breathing apparatus (type: positive pressure) or air hose-fed respirator (type: positive pressure). Use EC-approved respirator: Filter for organic vapours with a particulate pre-filter for highly toxic

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· **Protection of hands:**

substances, type AP3 (must comply with Standard EN 14387).



Protective gloves

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

· **Material of gloves**

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.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

The determined penetration times according to EN 16523-1:2015 are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

· **As protection from splashes gloves made of the following materials are suitable:**Nitrile rubber, NBR
Natural rubber, NR· **Not suitable are gloves made of the following materials:**Leather gloves
Strong material gloves· **Eye protection:**

Tightly sealed goggles

· **Body protection:**

(Protective) work clothing

- Protective work clothing (long trousers, long-sleeved shirt). Avoid exposed skin, even in hot weather.

- Depending on processing: use spray-tight trousers or spray-tight overalls Overall (preferably thick cotton) or Tyvek-Pro Tech 'C', TyvekPro Tech 'F' fully protective single-use clothing.

· **Limitation and supervision of exposure into the environment**

Storage of substances in tightly closed packaging

Emissions from ventilation or processing equipment should be monitored to ensure they meet the requirements of environmental protection legislation. In some cases, gas scrubbers, filters or technical modifications to process equipment are needed to reduce emissions to acceptable levels.

Avoid spreading spilled material and waste material and prevent it from coming into contact with soil, waterways, drains and sewers.

* **9 Physical and chemical properties**· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

Form:	Fluid
Colour:	Clear
Odour:	A little musty
Odour threshold:	Not determined

· **pH-value:** Mixture is non-polar/aprotic.· **Change in condition**

Melting point/freezing point:	No test data available
Initial boiling point and boiling range:	209 °C

· **Flash point:** 88 °C· **Flammability** No test data available· **Auto-ignition temperature:** 160 °C· **Decomposition temperature:** No test data available

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· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard. No test data available
· Explosion limits:	
Lower:	No test data available
Upper:	No test data available
· Vapour pressure at 20 °C:	0 hPa
· Density at 20 °C:	1,07 g/cm ³
· Relative density	>> density
· Vapour density	No test data available
· Evaporation rate	No test data available
· Solubility in / Miscibility with water:	Fully miscible.
· Partition coefficient: n-octanol/water:	No test data available
· Viscosity:	
Dynamic:	No test data available
Kinematic:	No test data available
· Solvent content:	
Water:	0,0 %
Solids content:	60,1 %
· Other information	No further relevant information available.

10 Stability and reactivity

· Reactivity	No further relevant information available.
· Chemical stability	Stable under recommended storage conditions. See Section 7, Storage.
· Thermal decomposition / conditions to be avoided:	Extreme temperatures and direct sunlight. Exposure to air or moisture for prolonged periods.
· Possibility of hazardous reactions	No dangerous reactions known.
· Conditions to avoid	No further relevant information available.
· Incompatible materials:	No further relevant information available.
· Hazardous decomposition products:	No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects	
· Acute toxicity	ATE values > 2000 mg/kg will have no impact on classification.
· LD/LC50 values relevant for classification:	

ATE (Acute Toxicity Estimates)

Oral	Acute orale toxiciteit	3.367 mg/kg
Inhalative	Acute inhalatief toxiciteit	16,6 mg/l

28182-81-2 Hexamethylene diisocyanate, oligomer (biuret type)

Oral	OECD 401 (LD50)	>5.000 mg / kg (rat)
Dermal	OECD 402 (LD50)	>2.000 mg/kg (rat) >2.000 mg/kg (rabbit)
Inhalative	Acute inhalatief toxiciteit	11 mg/l (ATE)
	OECD 403 (LC50)	0,402 mg/l (rat) (04 h)
Irritation of skin	OECD 404	(rabbit) (04 h)
	OECD 406	(marmot (Magnusson-Kligman test))
Irritation of eyes	OECD 405	(rabbit)

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Trade name: **Herculan XF { C }**

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603-35-0 triphenylphosphine

Oral	Acute orale toxiciteit OECD 423 (LD50)	100 mg/kg (ATE) 700 mg/kg (rat)
Dermal	OECD 402 (LD50)	>5 mg/kg (rabbit)
Inhalative	OECD 403 (LC50)	12,5 mg/l (rat) (04 h)

· **Primary irritant effect:**· **Skin corrosion/irritation**

No irritant effect.

· **Serious eye damage/irritation**

No irritating effect.

· **Respiratory or skin sensitisation**

Sensitisation possible through skin contact.

28182-81-2 Hexamethylene diisocyanate, oligomer (biuret type)

Irritation of skin | OECD 429 | (mouse)

· **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:

Harmful
Irritant

12 Ecological information· **Toxicity**· **Aquatic toxicity:****28182-81-2 Hexamethylene diisocyanate, oligomer (biuret type)**

OECD 201 (ErC50/ErL50)	>100 mg/l (Desmodesmus subspicatus) (72 h) >100 mg/l (scenedesmus subspicatus) (72 h)
OECD 202 (EC50/EL50)	>100 mg/l (Daphnia Magna) (48 h)
OECD 203 (LC50/LL50)	>100 mg/l (Danio rerio) (96 h)
OECD 209 (EC50/EL50)	645,7 mg/l (Activated sludge) (03 h)
OECD 471	(Ames Test (Salmonella/microsome test))

603-35-0 triphenylphosphine

OECD 201 (ErC50/ErL50)	>10.000 mg/l (pseudomonas putida) (01 h)
OECD 202 (EC50/EL50)	5 mg/l (Daphnia Magna) (48 h)

· **Persistence and degradability****28182-81-2 Hexamethylene diisocyanate, oligomer (biuret type)**

OECD 301 D | 0 % (28 d)

603-35-0 triphenylphosphine

OECD 301 F | <20 %

· **Behaviour in environmental systems:**· **Bioaccumulative potential****28182-81-2 Hexamethylene diisocyanate, oligomer (biuret type)**

BCF (BioConcentrationFactor) - Bioaccumulation	9,6
OECD 117 (log Pow) - Bioaccumulation	

· **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.

· **Results of PBT and vPvB assessment**

This substance/mixture does not contain any components that can be considered persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

· **PBT:**

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· **vPvB:**

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· **Other adverse effects**

No further relevant information available.

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Trade name: **Herculan XF { C }**

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13 Disposal considerations· **Waste treatment methods**· **Recommendation**

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

This product, when disposed of in its unused and uncontaminated state, must be treated as hazardous waste according to EC Directive 2008/98/EC. Disposal practices must comply with all national and provincial laws and any municipal or local bylaws regarding hazardous waste. Additional evaluations may be required for used, contaminated and residual material. Do not discharge into sewers, soil or surface water. Incineration in a licensed incinerator suitable for this hazardous waste is recommended for this material. Small amounts of waste can be neutralized with e.g. polyol in preference to landfilling. Empty drums should be cleaned first (see Section 6) and then either punctured and scrapped or given to an approved reprocessor.

· **Uncleaned packaging:**· **Recommendation:**

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

· **Recommended cleansing agents:**

Water, if necessary together with cleansing agents.

14 Transport information· **UN-Number**· **ADR, IMDG, IATA**

Void

· **UN proper shipping name**· **ADR, IMDG, IATA**

Void

· **Transport hazard class(es)**· **ADR, ADN, IMDG, IATA**· **Class**

Void

· **Packing group**· **ADR, IMDG, IATA**

Void

· **Environmental hazards:**

Not applicable

· **Special precautions for user**

Not applicable

· **Transport in bulk according to Annex II of Marpol and the IBC**· **Code**

Not applicable

· **UN "Model Regulation":**

Void

15 Regulatory information· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Directive 2012/18/EU**· **Named dangerous substances - ANNEX I**

None of the ingredients is listed.

· **Seveso category**

Specified in regulation: Not applicable

· **National regulations:**· **Waterhazard class:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **Other regulations, limitations and prohibitive regulations**

General international information on combating damage caused by fire and leakage.

www.ERICARDS.net

· **Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

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**

H301 Toxic if swallowed.

H317 May cause an allergic skin reaction.

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Trade name: **Herculan XF { C }**

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

H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H372 Causes damage to organs through prolonged or repeated exposure.
H413 May cause long lasting harmful effects to aquatic life.

The classification of the mixture is based on the calculation method using substance data according to Regulation (EC) No 1272/2008.

The safety data sheet is prepared in accordance with Regulation (EC) No. 1907/2006 (REACH) § 31, taking into account Annex II, which was amended by Commission Regulation (EU) 2020/878.

· **Department issuing SDS:**

Environmental Department

· **Contact:**

Dr. Michael Kissel

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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
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)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
TSCA: Toxic Substances Control Act
Flammable liquids 4: Flammable liquids – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 5: Acute toxicity – Category 5
Acute Tox. 4: Acute toxicity – Category 4
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

· *** Data compared to the previous version altered.**