Safety Data Sheet

Material: 60037095 **Hardener B2**

Version: 1.4 (INTL-GHS) Date of print: 03.03.2021 Date of last alteration: 11.05.2020

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

1.1 Product identifier

Commercial product name: **Hardener B2**

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

Use of substance / preparation:
Industrial.
Catalyst

1.3 Details of the supplier of the safety data sheet

Manufacturer/distributor:	Nedform BV
Street/POB-No.:	Hofdwarsweg 20
State/postal code/city:	6161DD Geleen
Telephone:	+31 46 410 6260
Telefax:	

Information about the Safety Data Sheet:	Telephone	+31 46 410 6260
	Telefax	+
	eMail	info@nedform.com

1.4 Emergency telephone number

Emergency Information:	**Europe**	**+44 1235 239670**
Emergency Information:	**Africa and the Middle East**	**+44 1235 239671**
Emergency Information:	**Caribbean, Central America and South America except Chile and Colombia**	**+1 646 844 7309**
Emergency Information:	**Chile**	**+56 2 2582 9336**
Emergency Information:	**Colombia**	**+57 1 508 7337**
Emergency Information:	**East Asia and Southeast Asia except Sri Lanka, Bangladesh and Pakistan**	**+65 3158 1074**
Emergency Information:	**Sri Lanka**	**+65 3158 1195**
Emergency Information:	**Bangladesh**	**+65 3158 1200**
Emergency Information:	**Pakistan**	**+65 3158 1329**

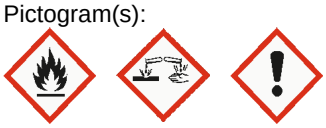
SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Hazard class	Hazard category	Route of exposure	H-Code
Serious eye damage/eye irritation	Category 1		H318
Flammable liquids	Category 2		H225
Skin corrosion/irritation	Category 2		H315
Specific target organ toxicity - single exposure	Category 3		H336
Specific target organ toxicity - single exposure	Category 3		H335

2.2 Label elements

Pictogram(s):



Signal Word: Danger

H-Code	Hazard Statements
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

P-Code	Precautionary Statements
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P280	Wear protective gloves/protective clothing/eye protection.
P243	Take action to prevent static discharges.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P370 + P378	In case of fire: Use water spray, extinguishing powder or carbon dioxide to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container to waste disposal.

Hazard ingredients (labelling):
Bis(ethylacetoacetato) diisobutoxytitanium

2.3 Other hazards

Inhalation of aerosol spray may damage health.
The product hydrolyses under formation of methanol (CAS-Nr. 67-56-1). Methanol is classified concerning both physical and health hazards. The hydrolysis rate and consequently the relevance for the hazard profile of the product is strongly dependent on the specific conditions.

SECTION 3: Composition/information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

3.2.1 Chemical characteristics

titanium compound + Alkoxy silanes

3.2.2 Hazardous ingredients

Type	CAS No.	Substance	Content %
INHA	83877-91-2	Bis(ethylacetoacetato) diisobutoxytitanium	>70 – <=100
VERU	67-56-1	Methanol	<2

Type: INHA: ingredient, VERU: impurity

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57) in amounts above ≥ 0.1%.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:
Take persons to a safe place. Observe self-protection for first aid. Seek medical advice in the event of contact with this substance.

After contact with the eyes:
Rinse immediately with plenty of water for 10-15 minutes. Keep eyelids well open to rinse the whole eye surface and eyelids with water. Continue to bathe eyes during transport to medical practitioner. Seek medical advice immediately and clearly identify substance.

After contact with the skin:
Remove contaminated or soaked clothing. Wash off with plenty of water or water and soap immediately for 10-15 minutes. In serious cases, use emergency shower immediately. Seek medical advice and clearly identify substance.

After inhalation:
Keep the patient calm. Protect against loss of body heat. Seek medical advice and clearly identify substance.

After swallowing:
If conscious, give several small portions of water to drink. Do not induce vomiting. Seek medical advice and clearly identify substance.

4.2 Most important symptoms and effects, both acute and delayed

Any relevant information can be found in other parts of this section.

4.3 Indication of any immediate medical attention and special treatment needed

Further toxicology information in section 11 must be observed.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
alcohol-resistant foam , carbon dioxide , water mist , sprinkler system , sand , extinguishing powder .

Extinguishing media which must not be used for safety reasons:
water jet .

5.2 Special hazards arising from the substance or mixture

Risk of hazardous gasses or fumes in the event of fire. Exposure to combustion products may be a health hazard! Hazardous combustion products: toxic and very toxic fumes .

5.3 Advice for firefighters

Special protective equipment for fire fighting:
Use respiratory protection independent of recirculated air. Keep unprotected persons away.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Secure the area. Wear personal protection equipment (see section 8). Keep unprotected persons away. Avoid contact with eyes and skin. Do not inhale gases/vapours/aerosols. If material is released indicate risk of slipping. Do not walk through spilled material.

6.2 Environmental precautions

Prevent material from entering surface waters, drains or sewers and soil. Close leak if possible without risk. Contain any fluid that runs out using suitable material (e.g. earth). Retain contaminated water/extinguishing water. Dispose of in prescribed marked containers. Inform authorities if substance leaks into surface waters, sewerage or ground.

6.3 Methods and material for containment and cleaning up

Take up mechanically and dispose of according to local/state/federal regulations. Do not flush away with water. For small amounts: Absorb with a neutral (non-acidic / non-basic) liquid binding material such as diatomaceous earth and dispose of according to government regulations. For large amounts: Liquids may be recovered using suction devices or pumps. If flammable, only air driven or properly rated electrical equipment should be used. Clean any slippery coating that remains using a detergent / soap solution or another biodegradable cleaner. Silicone fluids are slippery; spills are a safety hazard. Apply sand or other inert granular material to improve traction.

Further information:
Exhaust vapours. Eliminate all sources of ignition. Consider explosion protection. Observe notes under section 7.

6.4 Reference to other sections

Relevant information in other sections has to be considered. This applies in particular for information given on personal protective equipment (section 8) and on disposal (section 13).

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling:
Ensure adequate ventilation. Must be syphoned off in situ. Spilled substance increases risk of slipping. Avoid formation of aerosols. In case of aerosol formation special protective measures are required (exhausting by suction, respiratory protection). Observe information in section 8. Keep away from incompatible substances in accordance with section 10.

Precautions against fire and explosion:
Product can separate methanol. Flammable vapors may accumulate and form explosive mixtures with air in containers, process vessels, including partial, empty and uncleaned containers and vessels, or other enclosed spaces. Keep away from sources of ignition and do not smoke. Take precautionary measures against electrostatic charging. Cool endangered containers with water.

7.2 Conditions for safe storage, including any incompatibilities

Conditions for storage rooms and vessels:
Observe local/state/federal regulations.

Advice for storage of incompatible materials:
Observe local/state/federal regulations.

Further information for storage:
Store in a dry and cool place. Protect against moisture. Store container in a well ventilated place.

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Maximum airborne concentrations at the workplace:

CAS No.	Substance	Type	mg/m³	ppm	Dust fract.	Fibre/m³
	Aerosol - inhalable fraction		10,0			

-
The aerosol limit specified is a recommendation should aerosol be formed during processing.

8.2 Exposure controls

8.2.1 Exposure in the work place limited and controlled

General protection and hygiene measures:
Observe standard industrial hygiene practices for the handling of chemical substances. Do not inhale gases/vapours/aerosols. Use with adequate ventilation. Avoid contact with eyes and skin. Preventive skin protection recommended. Remove contaminated, soaked clothing immediately. Clean work areas regularly. Provide emergency shower and eye-bath. Do not eat, drink or smoke when handling. Keep away from foodstuff, drink and feedingstuff.

Personal protection equipment:

Respiratory protection

If inhalative exposure above the occupational exposure limit cannot be excluded, adequate respiratory protection equipment must be used. Suitable respiratory equipment: Respirator with a full face mask, according to acknowledged standards such as EN 136.
Recommended Filter type: Gas filter type ABEK (certain inorganic, organic and acidic gases and vapors; ammonia/amines), according to acknowledged standards such as EN 14387

In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit. Suitable respiratory equipment: Respirator with a full face mask, according to acknowledged standards such as EN 136.
Recommended Filter type: Combined filter type ABEK-P2 (certain inorganic, organic and acidic gases and vapors; ammonia/amines; particles), according to acknowledged standards such as EN 14387

Observe the equipment manufacturer's information and wear time limits for respirators.

Eye protection

tight fitting protective goggles .

Hand protection

Protective gloves are required at all times when handling the material, according to recognized standards such as EN374.

Recommended glove types: Protective gloves made of butyl rubber
thickness of the material: > 0,5 mm
Breakthrough time: > 480 min

Recommended glove types: Protective gloves made of nitrile rubber
thickness of the material: > 0,4 mm
Breakthrough time: 10 - 30 min

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Note that, due to the numerous external influences (such as temperature), a chemically resistant protective glove in daily use may have a service life that is considerably shorter than the measured break through time.

Skin protection

If handled uncovered: Chemical protective clothing, full-body liquid-tight protection if necessary. Please observe the instructions regarding permeability time which are provided by the supplier.

8.2.2 Exposure to the environment limited and controlled

Prevent material from entering surface waters, drains or sewers and soil.

8.3 Further information for system design and engineering measures

Observe information in section 7. Observe national regulatory requirements.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property:		Value:	Method:
Appearance			
Physical state	:	liquid	
Colour	:	yellowish to reddish iridescent	
Odour			
Odour	:	characteristic	
Odour limit			
Odour limit	:	no data available	
pH-Value			
pH-Value	:	not applicable	
Melting point/freezing point			
Melting point / melting range	:	no data available	
Initial boiling point and boiling range			
Boiling point / boiling range	:	> 102 °C at 1013 hPa	(DIN 51751)
Flash point			
Flash point	:	ca. 10 °C	(DIN 51755)
Evaporation rate			
Evaporation rate	:	no data available	
Upper/lower flammability or explosive limits			
Lower explosion limit (LEL)	:	not determined	
Upper explosion limit (UEL)	:	not determined	
Vapour pressure			
Vapour pressure	:	not determined	
Solubility(ies)			
Water solubility / miscibility	:	not applicable	
Vapour density			
Relative gas/vapour density	:	No data known.	
Relative Density			
Relative Density	:	0,98 (20 °C) (Water / 4 °C = 1,00)	(DIN 51757)
Density	:	0,98 g/cm³ (20 °C)	(DIN 51757)
Partition coefficient: n-octanol/water			
Partition coefficient: n-octanol/water	:	No data known.	
Auto-ignition temperature			
Ignition temperature	:	260 °C	(DIN 51794)
Viscosity			
Viscosity (dynamic)	:	2 - 5 mPa.s at 20 °C	(DIN 53015)
Molecular mass			
Molecular mass	:	not applicable	

9.2 Other information

Solubility in water: Hydrolytic decomposition occurs. Explosion limits for released methanol: 5.5 - 44%(V). pH Value: Product displays neutral reaction.

SECTION 10: Stability and reactivity

10.1 – 10.3 Reactivity; Chemical stability; Possibility of hazardous reactions

If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

Relevant information can possibly be found in other parts of this section.

10.4 Conditions to avoid

Moisture, heat, open flames, and other sources of ignition.

10.5 Incompatible materials

Reacts with water, basic substances and acids. The reaction takes place with the formation of methanol.

10.6 Hazardous decomposition products

Methanol by hydrolysis. Measurements have shown the formation of small amounts of formaldehyde at temperatures above about 150 °C (302 °F) through oxidation.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

11.1.1 General information

Data derived for the product as a whole are of higher priority than data for single ingredients.

11.1.2 Acute toxicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Acute toxicity estimate (ATE):
ATE_{mix} (Oral): > 2000 mg/kg

11.1.3 Skin corrosion/irritation

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.4 Serious eye damage / eye irritation

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.5 Respiratory or skin sensitization

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.6 Germ cell mutagenicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.7 Carcinogenicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.8 Reproductive toxicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.9 Specific target organ toxicity (single exposure)

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.10 Specific target organ toxicity (repeated exposure)

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.11 Aspiration hazard

Assessment:

In case an aspiration hazard is based on ingredients, this can be seen from the classification and labeling of the whole product.

11.1.12 Further toxicological information

Data on substances:

Product of hydrolysis (Methanol):

Methanol (CAS 67-56-1) is readily and rapidly absorbed at all exposure routes and is toxic by all routes. Methanol may cause irritation of the mucosa, as well as nausea, vomiting, headaches, vertigo and visual disorders, including blindness (irreversible damage to the optic nerve), acidosis, spasms, narcosis and coma. There may be a delay in the onset of these effects after exposure.

SECTION 12: Ecological information

12.1 Toxicity

Assessment:

No data known.

12.2 Persistence and degradability

Assessment:

Contact with water liberates methanol and silanol- and/or siloxanol-compounds. The product of hydrolysis (methanol) is readily biodegradable.

Data on substances:

Product of hydrolysis (Methanol):

Methanol is readily biodegradable.

12.3 Bioaccumulative potential

Assessment:

Bioaccumulation is not expected to occur.

12.4 Mobility in soil

Assessment:

No data known.

12.5 Results of PBT and vPvB assessment

No data available.

12.6 Other adverse effects

none known

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Material

Recommendation:
Material that cannot be used, reprocessed or recycled should be disposed of in accordance with Federal, State, and local regulations at an approved facility. Depending on the regulations, waste treatment methods may include, e.g., landfill or incineration.

13.1.2 Uncleaned packaging

Recommendation:
Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local/state/federal regulations. Uncleaned packaging should be treated with the same precautions as the material.

SECTION 14: Transport information

14.1 – 14.4 UN number; UN proper shipping name; Transport hazard class(es); Packing group

Road ADR:

Valuation	:	Dangerous Goods
14.1 UN no.	:	1993
14.2 Proper Shipping Name	:	Entzündbarer flüssiger Stoff, n.a.g. (enthält Trimethoxymethylsilan)
14.3 Class	:	3
14.4 Packaging Group	:	II

Railway RID:

Valuation	:	Dangerous Goods
14.1 UN no.	:	1993
14.2 Proper Shipping Name	:	Entzündbarer flüssiger Stoff, n.a.g. (enthält Trimethoxymethylsilan)
14.3 Class	:	3
14.4 Packaging Group	:	II

Transport by sea IMDG-Code:

Valuation	:	Dangerous Goods
14.1 UN no.	:	1993
14.2 Proper Shipping Name	:	Flammable liquid, n.o.s. (contains trimethoxymethylsilane)
14.3 Class	:	3
14.4 Packaging Group	:	II

Air transport ICAO-TI/IATA-DGR:

Valuation	:	Dangerous Goods
14.1 UN no.	:	1993
14.2 Proper Shipping Name	:	Flammable liquid, n.o.s. (contains trimethoxymethylsilane)
14.3 Class	:	3
14.4 Packaging Group	:	II

14.5 Environmental hazards

Hazardous to the environment: no
Marine Pollutant (IMDG): no

14.6 Special precautions for user

Relevant information in other sections has to be considered.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Bulk transport in tankers is not intended.

SECTION 15: Regulatory information

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

National and local regulations must be observed.

For information on labelling please refer to section 2 of this document.

15.2 Details of international registration status

Relevant information about individual substance inventories, where available, is given below.

Australia ..... :	**AICS** (Australian Inventory of Chemical Substances): This product is listed in, or complies with, the substance inventory.
China..... :	**IECSC** (Inventory of Existing Chemical Substances in China): This product is listed in, or complies with, the substance inventory.
Philippines..... :	**PICCS** (Philippine Inventory of Chemicals and Chemical Substances): This product is not listed or in compliance with the substance inventory.
United States of America (USA)..... :	**TSCA** (Toxic Substance Control Act Chemical Substance Inventory): All components of this product are listed as active or are in compliance with the substance inventory.
Taiwan ..... :	**TCSI** (Taiwan Chemical Substance Inventory): This product is listed in, or complies with, the substance inventory. General note: The Taiwanese chemicals regulation requires a phase 1 registration for TCSI-listed or TCSI-compliant substances if imports to Taiwan or manufacturing in Taiwan exceed the trigger quantity of 100 kg/a (for mixtures to be calculated per each ingredient). It is the duty of the importing/manufacturing legal entity to take care of this obligation.
European Economic Area (EEA)..... :	**REACH** (Regulation (EC) No 1907/2006): General note: the registration obligations for substances imported into the EEA or manufactured within the EEA by the supplier mentioned in section 1 are fulfilled by the said supplier. The registration obligations for substances imported into the EEA by customers or other downstream users must be fulfilled by the latter.
South Korea (Republic of Korea) ..... :	**AREC** (Act on Registration and Evaluation of Chemicals; “K-REACH”): General note: in case of registration obligations for substances or polymers imported into Korea or manufactured within Korea these are fulfilled by the supplier mentioned in section 1. The registration obligations for substances or polymers imported into Korea by customers or other downstream users must be fulfilled by the latter.

SECTION 16: Other information

16.1 Material

The details in this document are based on the state of our knowledge at the time of revision. They do not constitute an assurance of the described product properties in terms of statutory warranty requirements.

The providing of this document to a recipient does not relieve the recipient of his or her responsibility toward compliance with all laws and stipulations applicable to the product. This applies in particular to the further sale or distribution of the product or substances or items containing the product, in other jurisdictions and with regard to the protection of third-party intellectual property rights. If the described product is processed or mixed with other substances or materials, the details stated in this document cannot be conferred to the resultant new product unless this has been expressly mentioned. If the product is repackaged, the recipient is obligated to additionally provide the required safety-related information.

Nedform restricts the use of its products inside the human body or in contact with bodily fluids and mucosa.

16.2 Further information:

Commas appearing in numerical data denote a decimal point. Vertical lines in the left-hand margin indicate changes compared with the previous version. This version supersedes all previous versions.

- End of Safety Data Sheet -