

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/18/2019

Reviewed on 07/18/2019

## 1 Identification

- **Product identifier**
- Trade name: **Hyperclear, Komponente B**
- Article number: 11451 (11449)
- Application of the substance / the mixture Hardening agent/ Curing agent
- **Details of the supplier of the safety data sheet**
- Manufacturer/Supplier: AKEMI chemisch technische Spezialfabrik GmbH      Tel. +49(0)911-642960  
Lechstrasse 28      Fax. +49(0)911-644456  
D 90451 Nürnberg      e-mail info@akemi.de
- Information department: Laboratory
- Emergency telephone number: Product Safety Department AKEMI chemisch technische Spezialfabrik GmbH  
Tel. +49(0)911-64296-59  
Reachable during the following office hours:  
Monday – Thursday from 07:30 a.m. to 16:30 p.m.  
Friday from 07:30 a.m. to 13:30 p.m.

## 2 Hazard(s) identification

### · Classification of the substance or mixture



GHS07

- Acute Tox. 4 H332 Harmful if inhaled.  
 Eye Irrit. 2A H319 Causes serious eye irritation.  
 Skin Sens. 1 H317 May cause an allergic skin reaction.  
 STOT SE 3 H335 May cause respiratory irritation.

### · Label elements

- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

GHS07
- Signal word Warning
- Hazard-determining components of labeling: aliphatic polyisocyanate  
4-isocyanatosulphonyltoluene  
H332 Harmful if inhaled.  
H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H335 May cause respiratory irritation.
- Hazard statements
- Precautionary statements

P261	Avoid breathing vapours.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	If on skin: Wash with plenty of water.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a poison center/doctor if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

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- **Classification system:**
- NFPA ratings (scale 0 - 4)



Health = 2  
Fire = 0  
Reactivity = 0

- HMIS-ratings (scale 0 - 4)

Health = \*3  
Fire = 0  
Reactivity = 0

- **Other hazards**

- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

### \* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- Description: Mixture: consisting of the following components.

- Dangerous components:

CAS: 28182-81-2 EC number: 931-274-8	aliphatic polyisocyanate ⚠ Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	50-100%
CAS: 82985-35-1 EINECS: 280-084-5	Bis(trimethoxysilylpropyl)amin ⚠ Eye Dam. 1, H318	1-5%
CAS: 4083-64-1 EINECS: 223-810-8 Index number: 615-012-00-7	4-isocyanatosulphonyltoluene ⚠ Resp. Sens. 1, H334 ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	<1%

- Additional information: For the wording of the listed hazard phrases refer to section 16.

### 4 First-aid measures

- **Description of first aid measures**

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

### 5 Fire-fighting measures

- **Extinguishing media**

- Suitable extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- For safety reasons unsuitable extinguishing agents: Water with full jet
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Carbon monoxide (CO)

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- Nitrogen oxides (NOx)  
Hydrogen cyanide (HCN)
- **Advice for firefighters**
  - **Protective equipment:** Wear self-contained respiratory protective device.
  - **Additional information** Collect contaminated fire fighting water separately. It must not enter the sewage system.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**
  - Ensure adequate ventilation
  - Wear protective equipment. Keep unprotected persons away.
  - Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Environmental precautions:**
  - Do not allow product to reach sewage system or any water course.
  - Inform respective authorities in case of seepage into water course or sewage system.
  - Do not allow to enter sewers/ surface or ground water.
- **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.
- **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.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

28182-81-2	aliphatic polyisocyanate	7.8 mg/m <sup>3</sup>
67762-90-7	Siloxane und Silicone, di-Me, Reaktionsprodukt mit Silica	120 mg/m <sup>3</sup>
822-06-0	hexamethylene-di-isocyanate	0.018 ppm
67-56-1	methanol	530 ppm
98-59-9	tosyl chloride	0.45 mg/m <sup>3</sup>
108-90-7	chlorobenzene	10 ppm

· **PAC-2:**

28182-81-2	aliphatic polyisocyanate	86 mg/m <sup>3</sup>
67762-90-7	Siloxane und Silicone, di-Me, Reaktionsprodukt mit Silica	1,300 mg/m <sup>3</sup>
822-06-0	hexamethylene-di-isocyanate	0.2 ppm
67-56-1	methanol	2,100 ppm
98-59-9	tosyl chloride	5 mg/m <sup>3</sup>
108-90-7	chlorobenzene	150 ppm

· **PAC-3:**

28182-81-2	aliphatic polyisocyanate	510 mg/m <sup>3</sup>
67762-90-7	Siloxane und Silicone, di-Me, Reaktionsprodukt mit Silica	7,900 mg/m <sup>3</sup>
822-06-0	hexamethylene-di-isocyanate	3 ppm
67-56-1	methanol	7200* ppm
98-59-9	tosyl chloride	30 mg/m <sup>3</sup>
108-90-7	chlorobenzene	400 ppm

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### 7 Handling and storage

- **Handling:**
- Precautions for safe handling                      Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- Information about protection against explosions and fires:                      No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- Storage:
- Requirements to be met by storerooms and receptacles:                      Provide floor trough without outlet.
- Information about storage in one common storage facility:                      Store away from foodstuffs.
- Further information about storage conditions:                      Store receptacle in a well ventilated area.  
Protect from frost.  
Keep receptacle tightly sealed.
- Storage class:                      12
- **Specific end use(s)**                      No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:**                      No further data; see item 7.
- **Control parameters**
- Components 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.
- Additional information:                      The lists that were valid during the creation 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.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes and skin.
- Breathing equipment:                      Short term filter device:  
Filter A/P2  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- Protection of hands:                      The protection gloves to be used have to comply with the specifications of the directive 89/686/EC and the directive derived decree EN374, respectively, e.g. the above listed protection glove type. The mentioned permeation times' data were generated and verified with material samples of the recommended protection glove type in the scope of laboratory analyses of the company KCL GmbH in compliance with EN374.  
This recommendation refers exclusively to the material safety data sheet referenced product delivered by Akemi and the indicated field of application. In case of product dilution or in case of mixture with different substances or chemicals, and in condition of EN374 deviation the producer of CE-approved protection gloves must be contacted for detailed information (e.g., KCL GmbH, Germany, 36124 Eichenzell, internet: <http://www.kcl.de>).

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### Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
 Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- Material of gloves Butyl rubber, BR  
 Fluorocarbon rubber (Viton)  
 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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- For the permanent contact gloves made of the following materials are suitable: Butyl rubber, BR
- As protection from splashes gloves made of the following materials are suitable: Butoject (KCL, Art\_No. 897, 898)  
 Butyl rubber, BR
- Not suitable are gloves made of the following materials: Leather gloves  
 Strong gloves
- Eye protection: Goggles recommended during refilling.
- Body protection: Protective work clothing

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information

#### · Appearance:

- Form: Viscous
- Color: Colorless
- Odor: Odorless
- Odor threshold: Not determined.

· pH-value: Not determined.

#### · Change in condition

- Melting point/Melting range: Undetermined.
- Boiling point/Boiling range: Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not applicable.

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

#### · Explosion limits:

· Lower: Not determined.

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Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density at 20 °C (68 °F):	1.16 g/cm <sup>3</sup> (9.68 lbs/gal)
· Specific gravity:	Not determined.
· Relative density	Not determined.
· Vapor 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 %
· <b>Other information</b>	No further relevant information available.

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- **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:

· LD/LC50 values that are relevant for classification:

**ATE (Acute Toxicity Estimate)**

Oral	LD50	>2,613 mg/kg (rat)
Dermal	LD50	>2,058 mg/kg
Inhalative	LC50/4 h	0.414 mg/l (rat)

**28182-81-2 aliphatic polyisocyanate**

Oral	LD50	>2,500 mg/kg (rat)
	NOAEL-Werte	3 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
		>2,000 mg/kg (rat)
Inhalative	LC50/4 h	0.39 mg/l (rat) (OECD TG 403)

**82985-35-1 Bis(trimethoxysilylpropyl)amin**

Oral	LD50	3,780 mg/kg (rat) (OECD 401)
	NOEL	200 mg/kg (rat) (OECD 408)

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Dermal	LD50	11,865 mg/kg (rabbit) (OECD 402)
	NOEL	>84 mg/kg (rat) (OECD 410)
<b>4083-64-1 4-isocyanatosulphonyltoluene</b>		
Oral	LD50	2,600 mg/kg (rat)
<ul style="list-style-type: none"> <li>· <u>Primary irritant effect:</u> Do not get in eyes, on skin, or on clothing.</li> <li>· <u>on the eye:</u> Irritating effect.</li> <li>· <u>Sensitization:</u> Sensitization possible through skin contact.</li> <li>· <u>Additional toxicological information:</u> The product shows the following dangers according to internally approved calculation methods for preparations: Harmful Irritant</li> </ul>		
· <u>Carcinogenic categories</u>		
· <u>IARC (International Agency for Research on Cancer)</u>		
None of the ingredients is listed.		
· <u>NTP (National Toxicology Program)</u>		
None of the ingredients is listed.		
· <u>OSHA-Ca (Occupational Safety &amp; Health Administration)</u>		
None of the ingredients is listed.		

**12 Ecological information**· **Toxicity**· Aquatic toxicity:**28182-81-2 aliphatic polyisocyanate**

EC50	3,828 mg/l (BES) (OECD 209)
LC 0/96h	>82.8 mg/l (Brachydanio rerio) (OECD 203)
EC50/48h	127 mg/l (daphnia magna) (RL 67/548/EWG, Anhang V, C.3.)
ErC50/72h	>1,000 mg/l (Desmodesmus subspicatus)
EC0	>100 mg/l (daphnia magna) (OECD 202)
EL50/48h	127 mg/l (daphnia magna)
LL50/96h	8.9 mg/l (Brachydanio rerio)
EC10	370 mg/l (Desmodesmus subspicatus)
EC50/72h	>1,000 mg/l (Scenedesmus subspicatus) (OECD 201)
LC50/96h	>100 mg/l (Danio rerio.) (RL 67/548/EWG, Anhang V, C.1.)

**82985-35-1 Bis(trimethoxysilylpropyl)amin**

EC50/48h	>100 mg/l (daphnia magna)
EC50/72h	>100 mg/l (Desmodesmus subspicatus)
LC50/96h	130 mg/l (Salmo gairdneri)

**4083-64-1 4-isocyanatosulphonyltoluene**

EC50/72h	23 mg/l (green alge)
	150 mg/l (daphnia magna)
LC50/96h	435 mg/l (piscis)

- **Persistence and degradability** No further relevant information available.
- Other information: The product is not easily biodegradable.
- **Behavior in environmental systems:**
- Bioaccumulative potential No further relevant information available.
- Mobility in soil No further relevant information available.

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- **Additional ecological information:**
- **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

<b>UN-Number</b>	Void
· DOT, ADR, ADN, IMDG, IATA	
<b>UN proper shipping name</b>	Void
· DOT, ADR, ADN, IMDG, IATA	
<b>Transport hazard class(es)</b>	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Void
<b>Packing group</b>	Void
· DOT, ADR, IMDG, IATA	
<b>Environmental hazards:</b>	
· Marine pollutant:	No
<b>Special precautions for user</b>	Not applicable.
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>Transport/Additional information:</b>	Not dangerous according to the above specifications. to handle similar to packing group II
· DOT	
· Remarks:	to handle similar to packing group II
· ADR	
· Remarks:	to handle similar to packing group II
· IMDG	
· Remarks:	to handle similar to packing group II
· IATA	
· Remarks:	to handle similar to packing group II
<b>UN "Model Regulation":</b>	Void

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**15 Regulatory information**

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

· Sara

· Section 355 (extremely hazardous substances):

None of the ingredient is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Hazardous Air Pollutants

822-06-0 hexamethylene-di-isocyanate

67-56-1 methanol

108-90-7 chlorobenzene

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenicity categories

· EPA (Environmental Protection Agency)

108-90-7 chlorobenzene

D

· TLV (Threshold Limit Value established by ACGIH)

108-90-7 chlorobenzene

A3

· MAK (German Maximum Workplace Concentration)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS07

· Signal word

Warning

· Hazard-determining components of labeling:

aliphatic polyisocyanate  
4-isocyanatosulphonyltoluene

· Hazard statements

H332 Harmful if inhaled.  
H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H335 May cause respiratory irritation.  
P261 Avoid breathing vapours.

· Precautionary statements

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P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	If on skin: Wash with plenty of water.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a poison center/doctor if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

- National regulations:
- Information about limitation of use: Employment restrictions concerning young persons must be observed.
- Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- VOC USA 0.1 g/l / 0.00 lb/gal
- **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.

- **Department issuing SDS:** Laboratory
- **Contact:** Dieter Zimmermann  
Elke Hake  
Fon ++49 (0)911 64296-59  
@mail E.Hake@akemi.de
- Date of preparation / last revision 07/18/2019 / -
- 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
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - 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)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - Acute Tox. 4: Acute toxicity – Category 4
  - Skin Irrit. 2: Skin corrosion/irritation – Category 2
  - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
  - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  - Resp. Sens. 1: Respiratory sensitisation – Category 1
  - Skin Sens. 1: Skin sensitisation – Category 1
  - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3