



Safety Data Sheet

acc. to OSHA HCS

Printing date 02/15/2017

Reviewed on 02/15/2017

1 Identification

- Product identifier
- Trade name: **KRISTAL HS Hardener USC STD**
- Article number: 8240
- Application of the substance / the mixture Hardening agent/ Curing agent
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier:
Kristal Coatings B.V.
Platinawerf 22B
6641 TL Beuningen - Holland
Tel: 0031 24 67 526 36
Fax: 0031 24 67 533 60
- Information department: Product safety department: info@kristalcoatings.nl
- Emergency telephone number:
National Poisoning Information Centre - Bilthoven - The Netherlands
T +31 (0)30 274 88 88
Restricted to physicians for information on ingredients.

2 Hazard(s) identification

- Classification of the substance or mixture



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.
 STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
 Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.
 Skin Irrit. 2 H315 Causes skin irritation.
 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



GHS02



GHS07



GHS08

- Signal word Danger
- Hazard-determining components of labeling:
Hexamethylene diisocyanate, oligomers
xylene
4-chloro-alpha,alpha,alpha-trifluorotoluene
ethylbenzene
- Hazard statements
Highly flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.

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Causes serious eye irritation.
 May cause an allergic skin reaction.
 Suspected of causing cancer.
 May cause respiratory irritation.
 May cause damage to organs through prolonged or repeated exposure.
 May be fatal if swallowed and enters airways.

Precautionary statements

Do not breathe mist/vapours/spray.
 Wear protective gloves/protective clothing/eye protection/face protection.
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 Store in a dry place.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components %(m/m):

CAS: 98-56-6	4-chloro-alpha,alpha,alpha-trifluorotoluene	25-50%
EINECS: 202-681-1		
Reg.nr.: 01-2119857280-40		
CAS: 28182-81-2	Hexamethylene diisocyanate, oligomers	25-50%
NLP: 500-060-2		
Reg.nr.: 01-2119485796-17		
CAS: 1330-20-7	xylene	10-25%
EINECS: 215-535-7		
Reg.nr.: 01-2119488216-32		
CAS: 100-41-4	ethylbenzene	2.5-10%
EINECS: 202-849-4		
Reg.nr.: 01-2119489370-35		
CAS: 67-64-1	acetone	0.5-2.5%
EINECS: 200-662-2		
Reg.nr.: 01-2119471330-49		
CAS: 64742-95-6	Solvent naphtha (petroleum), light arom.	0.5-2.5%
EINECS: 265-199-0		
Reg.nr.: 01-2119455851-35		

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CAS: 123-86-4	n-butyl acetate	0.5-2.5%
EINECS: 204-658-1		
Reg.nr.: 01-2119485493-29		
CAS: 108-88-3	toluene	≤ 0.5%
EINECS: 203-625-9		
Reg.nr.: 01-2119471310-51		
01-2116601980-50		
17-2119453989-16		
05-211538126-46		

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.
- 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.
If skin irritation continues, consult a doctor.
- After eye contact:
Rinse opened eye for several minutes under running water. Then consult a doctor.
Remove contactlenses.
- After swallowing:
Do not induce vomiting; immediately call for medical help.
Rinse out mouth and then drink plenty of water.
- Information for doctor:
- Most important symptoms and effects, both acute and delayed Headache
- 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, sand, extinguishing powder. Do not use water.
- For safety reasons unsuitable extinguishing agents: Water with full jet
- Special hazards arising from the substance or mixture
Carbon monoxide (CO)
Hydrogen fluoride (HF)
- Advice for firefighters
- Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
- Environmental precautions: 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.

7 Handling and storage

- Handling:
- Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.

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- Prevent formation of aerosols.
- Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this preparation is used.
- Examination of lung function should be carried out on a regular basis on persons spraying this preparation.
- Information about protection against explosions and fires:
 - Keep ignition sources away - Do not smoke.
 - Protect against electrostatic charges.
- Conditions for safe storage, including any incompatibilities
- Storage:
 - Requirements to be met by storerooms and receptacles: Store in a cool location.
 - Information about storage in one common storage facility:
 - Store away from oxidizing agents.
 - Do not store together with acids.
 - Further information about storage conditions:
 - Protect from humidity and water.
 - This product is hygroscopic.
 - Caution when reopening receptacles with broken seal.
 - Keep receptacle tightly sealed.
 - Store in cool, dry conditions in well sealed receptacles.
- Storage class: 3
- 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:

1330-20-7 xylene

PEL Long-term value: 435 mg/m³, 100 ppm
 REL Short-term value: 655 mg/m³, 150 ppm
 Long-term value: 435 mg/m³, 100 ppm
 TLV Short-term value: 651 mg/m³, 150 ppm
 Long-term value: 434 mg/m³, 100 ppm
 BEI

100-41-4 ethylbenzene

PEL Long-term value: 435 mg/m³, 100 ppm
 REL Short-term value: 545 mg/m³, 125 ppm
 Long-term value: 435 mg/m³, 100 ppm
 TLV Long-term value: 87 mg/m³, 20 ppm
 BEI

67-64-1 acetone

PEL Long-term value: 2400 mg/m³, 1000 ppm
 REL Long-term value: 590 mg/m³, 250 ppm
 TLV Short-term value: (1782) NIC-1187 mg/m³, (750) NIC-500 ppm
 Long-term value: (1188) NIC-594 mg/m³, (500) NIC-250 ppm
 BEI

123-86-4 n-butyl acetate

PEL Long-term value: 710 mg/m³, 150 ppm
 REL Short-term value: 950 mg/m³, 200 ppm
 Long-term value: 710 mg/m³, 150 ppm
 TLV Short-term value: 950 mg/m³, 200 ppm
 Long-term value: 713 mg/m³, 150 ppm

- Ingredients with biological limit values:

1330-20-7 xylene

BEI 1.5 g/g creatinine
 Medium: urine
 Time: end of shift
 Parameter: Methylhippuric acids

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100-41-4 ethylbenzene

BEI 0.7 g/g creatinine

Medium: urine

Time: end of shift at end of workweek

Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific, semi-quantitative)

-

Medium: end-exhaled air

Time: not critical

Parameter: Ethyl benzene (semi-quantitative)

67-64-1 acetone

BEI 50 mg/L

Medium: urine

Time: end of shift

Parameter: Acetone (nonspecific)

· **Additional information:**

The lists that were valid during the creation were used as basis.

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this preparation is used.

Examination of lung function should be carried out on a regular basis on persons spraying this preparation.

· **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:**

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.

Filter AX

· **Protection of hands:**

Protective gloves

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

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **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.

Fluorocarbon rubber (Viton)

· **Penetration time of glove material**Thickness of the gloves ≥ 0.7 mm (xylenes)Value for the permeation ≥ 480 min (xylenes)

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

· **Eye protection:**

Tightly sealed goggles

· **Body protection:** Solvent resistant protective clothing* **9 Physical and chemical properties**· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

Form: Fluid

Color: Clear

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· Odor:	Characteristic
· Change in condition	
Boiling point/Boiling range:	56 °C (133 °F)
· Flash point:	17 °C (63 °F)
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	430 °C (806 °F)
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.1 Vol %
Upper:	13.0 Vol %
· Vapor pressure at 20 °C (68 °F):	233 hPa (175 mm Hg)
· Density at 20 °C (68 °F):	1.0 g/cm ³ (8.345 lbs/gal)
· Solubility in / Miscibility with	
Water:	Slightly soluble.
· Viscosity:	
Dynamic:	Not determined.
Kinematic at 20 °C (68 °F):	± 13 s (DIN 53211/4)
· Solvent content:	
Organic solvents:	61.0 %
VOC content:	27.5 %
	275.0 g/l / 2.29 lb/gl
Solids content:	39 %
· Other information	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:
 - Oxidizing agents.
 - Acids.
- Hazardous decomposition products:
 - Hydrogen fluoride
 - Carbon monoxide

* 11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
- LD/LC50 values that are relevant for classification:

98-56-6 4-chloro-alpha,alpha,alpha-trifluorotoluene

Oral LD50 11500 mg/kg (mouse)
 13000 mg/kg (rat)
 Inhalative LC50/4h >32.03 mg/l (rat)

1330-20-7 xylene

Oral LD50 3523 mg/kg (rat)
 Dermal LD50 12126 mg/kg (rabbit)
 Inhalative LC50/4h 11.58 mg/l (mouse)

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100-41-4 ethylbenzene

Oral LD50 3500 mg/kg (rat)
 Dermal LD50 17800 mg/kg (rabbit)
 Inhalative LC50/4h 17.8 mg/l (rat)

67-64-1 acetone

Oral LD50 5800 mg/kg (rat)
 Dermal LD50 7400 mg/kg (rabbit)
 Inhalative LC50/4h 76 mg/l (rat)

123-86-4 n-butyl acetate

Oral LD50 10760 mg/kg (rat) (OECD 423)
 Dermal LD50 >14112 mg/kg (rabbit) (OECD 402)
 Inhalative LC50/4h 23.4 mg/l (rat) (OECD 403 in vivo, aerosol)

· **Primary irritant effect:**

· on the skin: Irritant to skin and mucous membranes.

· on the eye: Irritating effect.

· **Sensitization:** Sensitization possible through skin contact.· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

· **Carcinogenic categories**· **IARC (International Agency for Research on Cancer)**

1330-20-7 xylene: 3

100-41-4 ethylbenzene: 2B

71-43-2 benzene: 1

· **NTP (National Toxicology Program)**

71-43-2 benzene: K

· **OSHA-Ca (Occupational Safety & Health Administration)**

71-43-2 benzene

* **12 Ecological information**· **Toxicity**· **Aquatic toxicity:****98-56-6 4-chloro-alpha,alpha,alpha-trifluorotoluene**

IC50/72h 8 mg/l (algae)

LC50/96h 40-60 mg/l (fish)

1330-20-7 xylene

IC50/72h 2.2 mg/l (algae)

NOEC/72h 0.44 mg/l (algae)

EC50/48h 1 mg/l (daphnia magna)

LC50/96h 2.6 mg/l (oncorhynchus mykiss)

100-41-4 ethylbenzene

EC50/24h >100 mg/l (daphnia magna)

67-64-1 acetone

EC50 8800 mg/l (daphnia magna)

EC50/96h 8300 mg/l (lepomis macrochirus)

IC50 >100 mg/l (algae)

>100 mg/l (fish)

123-86-4 n-butyl acetate

EC50/48h 44 mg/l (daphnia magna)

EC50/72h 647.7 mg/l (desmodesmus supspicatus)

IC50 356 mg/l (tetrahymena pyriformis) (40 h)

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- NOAEL/72h 200 mg/l (desmodemus supspicatus)
- LC50/96h 18 mg/l (pimphales promelas) (OECD 203)
- Persistence and degradability No further relevant information available.
- Degree of elimination:

123-86-4 n-butyl acetate

- OECD 301D 83 % (l) (28 d)
- Behavior in environmental systems:
- Bioaccumulative potential

1330-20-7 xylene

- BCF 25.9 (l)
- LogPow 3.15 (l)
- Mobility in soil No further relevant information available.
- Additional ecological information:
- General notes:
- Water hazard class 2 (Self-assessment): hazardous for water
- Do not allow product to reach ground water, water course or sewage system.
- Danger to drinking water if even small quantities leak into the ground.
- 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

- UN-Number
- DOT, ADR,ADN, IMDG, IATA UN1263
- UN proper shipping name
- DOT Paint related material
- ADR/ADN 1263 Paint related material
- IMDG, IATA PAINT RELATED MATERIAL
- Transport hazard class(es)
- DOT



- Class 3 Flammable liquids
- Label 3

· ADR,ADN, IMDG, IATA



- Class 3 Flammable liquids
- Label 3
- Packing group
- DOT, ADR,ADN, IMDG, IATA III
- Environmental hazards:
- Marine pollutant: No
- Special precautions for user Warning: Flammable liquids

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- Danger code (Kemler): 33
- EMS Number: F-E,S-E
- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.
- UN "Model Regulation": UN1263, Paint related material, 3, III

15 Regulatory information

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

- Sara

- Section 355 (extremely hazardous substances):

None of the ingredients is listed.

- Section 313 (Specific toxic chemical listings):

1330-20-7 xylene

100-41-4 ethylbenzene

822-06-0 hexamethylene-di-isocyanate

71-43-2 benzene

- TSCA (Toxic Substances Control Act):

All ingredients are listed.

- Proposition 65

- Chemicals known to cause cancer:

100-41-4 ethylbenzene

71-43-2 benzene

- Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

- Chemicals known to cause reproductive toxicity for males:

71-43-2 benzene

- Chemicals known to cause developmental toxicity:

71-43-2 benzene

- Cancerogenity categories

- EPA (Environmental Protection Agency)

1330-20-7 xylene: I

67-64-1 acetone: I

100-41-4 ethylbenzene: D

71-43-2 benzene: A

- TLV (Threshold Limit Value established by ACGIH)

1330-20-7 xylene: A4

67-64-1 acetone: A4

100-41-4 ethylbenzene: A3

71-43-2 benzene: A1

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

71-43-2 benzene

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

- Hazard pictograms



GHS02

GHS07

GHS08

- Signal word Danger

- Hazard-determining components of labeling:

Hexamethylene diisocyanate, oligomers

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xylene

4-chloro-alpha,alpha,alpha-trifluorotoluene

ethylbenzene

- **Hazard statements**

Highly flammable liquid and vapor.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

Suspected of causing cancer.

May cause respiratory irritation.

May cause damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

- **Precautionary statements**

Do not breathe mist/vapours/spray.

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

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Store in a dry place.

- **National regulations:**

- **Other regulations, limitations and prohibitive regulations**

The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation.

- **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:** Product safety department.

- **Contact:** Dhr. B. Peters

- **Date of preparation / last revision** 02/15/2017 / 3

- **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)

VOC: Volatile Organic Compounds (USA, EU)

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

BEI: Biological Exposure Limit

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Skin Sens. 1: Skin sensitisation – Category 1

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

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