Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 27.04.2023 Version number 3 (replaces version 2) Revision: 27.04.2023

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

· **1.1 Product identifier**

· **Trade name: 4CR 0409-350 AC Hardener R+B**

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **Sector of Use**
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

· **Product category** PC9a Coatings and paints, thinners, paint removers

· **Application of the substance / the mixture** Hardening agent/ Curing agent

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**
4CR International GmbH & Co. KG
Donnerstrasse 10b
22763 Hamburg
Tel.: +49 (0) 40 69 60 99 30
E-Mail: Info@4CR.com
www.4CR.com

· **1.4 Emergency telephone number:** +49(0)700 24112112 (CRM)

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SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

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

flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

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.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the GB CLP regulation.

· **Hazard pictograms**

GHS02 GHS07

· **Signal word** Warning

· **Hazard-determining components of labelling:**
Hexamethylene diisocyanate, oligomers
2-Butoxyethyl acetate
hexamethylene-di-isocyanate

· **Hazard statements**
H226 Flammable liquid and vapour.
H332 Harmful if inhaled.
H317 May cause an allergic skin reaction.

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H335 May cause respiratory irritation.

· ***Precautionary statements***

P210	*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*
P261	*Avoid breathing dust/fume/gas/mist/vapours/spray.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.*
P303+P361+P353	*IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
P312	*Call a POISON CENTER/doctor if you feel unwell.*

· ***Additional information:***
EUH204 Contains isocyanates. May produce an allergic reaction.
Restricted to professional users.

· ***2.3 Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*

*
SECTION 3: Composition/information on ingredients

· ***3.2 Mixtures***
· ***Description:*** *Mixture of substances listed below with nonhazardous additions.*

· ***Dangerous components:***

CAS: 28182-81-2 *NLP: 500-060-2* *Reg.nr.: 01-2119485796-17*	*Hexamethylene diisocyanate, oligomers* *Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335, EUH204*	*50-100%*
CAS: 112-07-2 *EINECS: 203-933-3* *Reg.nr.: 01-2119475112-47*	*2-Butoxyethyl acetate* *Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332*	*≤20%*
CAS: 123-86-4 *EINECS: 204-658-1* *Reg.nr.: 01-2119485493-29*	*n-Butyl acetate* *Flam. Liq. 3, H226; STOT SE 3, H336, EUH066*	*5-<10%*
CAS: 822-06-0 *EINECS: 212-485-8* *Reg.nr.: 01-2119457571-37*	*hexamethylene-di-isocyanate* *Acute Tox. 2, H330; Resp. Sens. 1, H334; Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335, EUH204* *Specific concentration limits: Resp. Sens. 1; H334: C ≥ 0.5 %* *Skin Sens. 1; H317: C ≥ 0.5 %*	*<0.1%*

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

*
SECTION 4: First aid measures

· ***4.1 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.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· ***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 rinse with water.*

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· ***After eye contact:*** *Rinse opened eye for several minutes under running water.*
· ***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.
· ***For safety reasons unsuitable extinguishing agents:*** *Water with full jet*
· ***5.2 Special hazards arising from the substance or mixture***
In case of fire, the following can be released:
Nitrogen oxides (NOx)
Carbon monoxide (CO)
Hydrogen cyanide (HCN)
· ***5.3 Advice for firefighters***
· ***Protective equipment:*** *Mouth respiratory protective device.*

*
SECTION 6: Accidental release measures

· ***6.1 Personal precautions, protective equipment and emergency procedures***
Wear protective equipment. Keep unprotected persons away.
· ***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 section 13.
Ensure adequate ventilation.
Contain and collect spillages with non-combustible absorbent materials (e.g. sand, earth, diatomaceous earth) and place in a suitable container.
Decontaminate immediately with suitable mixture (flammable):
- as such usable (inflammatory!):

water	*45 Vol.%*
ethanol or isopropanol	*50 Vol.%*
ammonia solution (Density= 0.88)	*5 Vol.%*

- alternatively (non-flammable):

sodium carbonate	*5 Vol.%*
water	*95 Vol.%*

Add the same decontaminant to any residues and allow to stand for several days in an non-sealed container until no further reaction occurs. Once this stage is reached, close the container and dispose of in accordance with the waste regulations (see Section 13).
· ***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***
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Persons with a history of asthma, allergies or chronic or recurrent respiratory diseases should only be employed in processes in which this product is used under appropriate medical supervision.

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· ***Information about fire - and explosion protection:***
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· ***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:***
Do not store together with reducing agents, heavy-metal compounds, acids and alkalis.
Store away from foodstuffs.
· ***Further information about storage conditions:***
Keep container tightly sealed.
Store separately from oxidising agents, strongly alkaline and strongly acidic materials, amines, alcohol and water.
· ***Storage class:*** *3*
· ***7.3 Specific end use(s)*** *No further relevant information available.*

*

SECTION 8: Exposure controls/personal protection

· ***8.1 Control parameters***

· **Ingredients with limit values that require monitoring at the workplace:**	
28182-81-2 Hexamethylene diisocyanate, oligomers	
EBW	Short-term value: 0.5 mg/m³ exposition evaluation valu TRGS 430 (EBW)
112-07-2 2-Butoxyethyl acetate	
WEL	Short-term value: 332 mg/m³, 50 ppm Long-term value: 133 mg/m³, 20 ppm Sk
123-86-4 n-Butyl acetate	
WEL	Short-term value: 966 mg/m³, 200 ppm Long-term value: 724 mg/m³, 150 ppm
822-06-0 hexamethylene-di-isocyanate	
WEL	Short-term value: 0.07 mg/m³ Long-term value: 0.02 mg/m³ Sen; as -NCO

· **Ingredients with biological limit values:**	
822-06-0 hexamethylene-di-isocyanate	
BMGV	1 µmol creatinine/mol Medium: urine Sampling time: At the end of the period od exposure Parameter: isocyanate-derived diamine

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

· ***8.2 Exposure controls***
· ***Appropriate engineering controls*** *No further data; see section 7.*
· ***Individual protection measures, such as personal protective equipment***
All personal protective equipment, including respiratory protecitve equipment, used to control exposure to hazardous substances must be selected to meet the requirements of the COSHH Regulations.
· ***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:***
Filter A/P2 (EN 141, EN 143)

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· ***Hand protection***

Protective gloves (EN 374)

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
· ***Material of gloves***
Recommended thickness of the material: ≥ 0.4 mm
Nitrile rubber, NBR
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.
· ***Breakthrough time of glove material*** *Value for the permeation: Level ≤ 2*
· ***Eye/face protection***

Tightly sealed goggles

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SECTION 9: Physical and chemical properties

· ***9.1 Information on basic physical and chemical properties***	
· ***General Information***	
· ***Physical state***	*Fluid*
· ***Colour:***	*According to product specification*
· ***Odour:***	*Characteristic*
· ***Odour threshold:***	*Not determined.*
· ***Melting point/freezing point:***	*Undetermined.*
· ***Boiling point or initial boiling point and boiling range***	*124-128 °C (123-86-4 n-Butyl acetate)*
· ***Flammability***	*Flammable.*
· ***Lower and upper explosion limit***	
· ***Lower:***	*1.7 Vol %*
· ***Upper:***	*8.4 Vol %*
· ***Flash point:***	*27 °C (DIN 53213)*
· ***Auto-ignition temperature:***	*280 °C (DIN 51794)*
· ***Decomposition temperature:***	*Not determined.*
· ***pH***	*Not determined.*
· ***Viscosity:***	
· ***Kinematic viscosity at 20 °C***	*33 s (DIN 53211/4)*
· ***Dynamic:***	*Not determined.*
· ***Solubility***	
· ***water:***	*Not miscible or difficult to mix.*
· ***Partition coefficient n-octanol/water (log value)***	*Not determined.*
· ***Vapour pressure at 20 °C:***	*10.7 hPa*

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· ***Density and/or relative density***	
· ***Density at 20 °C:***	*1.095 g/cm³ (DIN 53217)*
· ***Relative density***	*Not determined.*
· ***Vapour density***	*Not determined.*

· ***9.2 Other information***	
· ***Appearance:***	
· ***Form:***	*Fluid*
· ***Important information on protection of health and environment, and on safety.***	
· ***Ignition temperature:***	*Product is not selfigniting.*
· ***Explosive properties:***	*Product is not explosive. However, formation of explosive air/vapour mixtures are possible.*
· ***Solvent content:***	
· ***VOC (EC)***	*23.65 %*
· ***Solids content (weight-%):***	*76.4 %*
· ***Change in condition***	
· ***Evaporation rate***	*Not determined.*

· ***Information with regard to physical hazard classes***	
· ***Explosives***	*Void*
· ***Flammable gases***	*Void*
· ***Aerosols***	*Void*
· ***Oxidising gases***	*Void*
· ***Gases under pressure***	*Void*
· ***Flammable liquids***	*Flammable liquid and vapour.*
· ***Flammable solids***	*Void*
· ***Self-reactive substances and mixtures***	*Void*
· ***Pyrophoric liquids***	*Void*
· ***Pyrophoric solids***	*Void*
· ***Self-heating substances and mixtures***	*Void*
· ***Substances and mixtures, which emit flammable gases in contact with water***	*Void*
· ***Oxidising liquids***	*Void*
· ***Oxidising solids***	*Void*
· ***Organic peroxides***	*Void*
· ***Corrosive to metals***	*Void*
· ***Desensitised explosives***	*Void*

SECTION 10: Stability and reactivity

· ***10.1 Reactivity*** *No further relevant information available.*
· ***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:***
Possible in traces.
Nitrogen oxides
Hydrogen chloride (HCl)
Hydrogen cyanide (prussic acid)
Carbon monoxide

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Nitrogen oxides (NOx)

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SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
· **Acute toxicity** Harmful if inhaled.
· **Respiratory or skin sensitisation** May cause an allergic skin reaction.
· **STOT-single exposure** May cause respiratory irritation.
· **11.2 Information on other hazards**

· **Endocrine disrupting properties**
None of the ingredients is listed.

*
SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **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.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German Regulation) : slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

*
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.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

*
SECTION 14: Transport information

· **14.1 UN number or ID number**	
· **ADR, IMDG, IATA**	UN1263
· **14.2 UN proper shipping name**	
· **ADR**	UN1263 PAINT RELATED MATERIAL
· **IMDG, IATA**	PAINT RELATED MATERIAL

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· ***14.3 Transport hazard class(es)***

· ***ADR***

· ***Class***	*3 (F1) Flammable liquids.*
· ***Label***	*3*

· ***IMDG, IATA***

· ***Class***	*3 Flammable liquids.*
· ***Label***	*3*
· ***14.4 Packing group***	
· ***ADR, IMDG, IATA***	*III*
· ***14.5 Environmental hazards:***	
· ***Marine pollutant:***	*No*
· ***14.6 Special precautions for user***	*Warning: Flammable liquids.*
· ***Hazard identification number (Kemler code):***	*30*
· ***EMS Number:***	*F-E,S-E*
· ***Stowage Category***	*A*
· ***14.7 Maritime transport in bulk according to IMO instruments***	*Not applicable.*
· ***Transport/Additional information:***	
· ***ADR***	
· ***Limited quantities (LQ)***	*5L*
· ***Transport category***	*3*
· ***Tunnel restriction code***	*D/E*
· ***IMDG***	
· ***Limited quantities (LQ)***	*5L*
· ***UN "Model Regulation":***	*UN 1263 PAINT RELATED MATERIAL, 3, III*

*

SECTION 15: Regulatory information

· ***15.1 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*** *P5c FLAMMABLE LIQUIDS*
· ***Qualifying quantity (tonnes) for the application of lower-tier requirements*** *5,000 t*
· ***Qualifying quantity (tonnes) for the application of upper-tier requirements*** *50,000 t*

· ***National regulations:***
· ***Additional classification according to Decree on Hazardous Materials, Annex II:***

Class	***Share in %***
NK	*10-25*

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· ***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***
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
EUH066 Repeated exposure may cause skin dryness or cracking.
EUH204 Contains isocyanates. May produce an allergic reaction.

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

· ***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 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
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)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
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

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