



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.08.2021

Version number 9

Revision: 11.08.2021

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

- **1.1 Product identifier**
- **Trade name** RAKOLL®GXL 3 HÄRTER
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Product category** PC1 Adhesives, sealants
- **Application of the substance / the mixture** Adhesives
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
H.B. Fuller, Isar-Rakoll, S.A.
Estrada Nacional 13
PT-4486-851 Mindelo - Vila do Conde
+351 229 288 200
EU-MSDS@hbfuller.com
- **Informing department:** Regulatory department
- **1.4 Emergency telephone number:** +44 (0) 1235 239 670 (24 hours)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**

Acute Tox. 4	H332 Harmful if inhaled.
Skin Irrit. 2	H315 Causes skin irritation.
Eye Dam. 1	H318 Causes serious eye damage.
Skin Sens. 1	H317 May cause an allergic skin reaction.
STOT SE 3	H335 May cause respiratory irritation.
Aquatic Chronic 3	H412 Harmful to aquatic life with long lasting effects.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard-determining components of labelling:**
Polyisocyanate, aliphatic poly(oxy-1,2-ethanediyl), α -tridecyl- ω -hydroxy-, phosphate cyclohexyldimethylamine hexamethylene diisocyanate
- **Hazard statements**
H332 Harmful if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

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- **Precautionary statements**

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER/doctor.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Chemical characterisation: Mixtures**

- **Description:** Polyfunctional, aliphatic isocyanate

- **Dangerous components:**

CAS: 28182-81-2 Reg.nr.: 01-2119485796-17-0000 01-2119488177-26-0000	Polyisocyanate, aliphatic Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	50-100%
CAS: 9046-01-9	poly(oxy-1,2-ethanediyl), α -tridecyl- ω -hydroxy-, phosphate Eye Dam. 1, H318; Aquatic Chronic 2, H411; Skin Irrit. 2, H315	<5%
CAS: 98-94-2 EINECS: 202-715-5 Reg.nr.: 01-2119533030-60	cyclohexyldimethylamine Flam. Liq. 3, H226; Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; Skin Corr. 1B, H314; Aquatic Chronic 2, H411	0.5-1%
CAS: 822-06-0 EINECS: 212-485-8 Reg.nr.: 01-2119457571-37-0000	hexamethylene diisocyanate Acute Tox. 3, H331; Resp. Sens. 1, H334; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	<0.5%

- **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**

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

- **After inhalation** In case of unconsciousness bring patient into stable side position for transport.

- **After skin contact** If skin irritation continues, consult a doctor.

- **After eye contact**

Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.

- **After swallowing**

Do not induce vomiting; instantly call for medical help.

In case of persistent symptoms consult doctor.

- **4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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- **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**
Use fire fighting measures that suit the environment.
Water haze
Foam
Fire-extinguishing powder
Carbon dioxide
- **5.2 Special hazards arising from the substance or mixture**
In case of fire CO, NO_x, isocyanates and traces of HCN can be formed.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Put on breathing apparatus.
Do not inhale explosion gases or combustion gases.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
- **6.2 Environmental precautions:**
Inform respective authorities in case product reaches water or sewage system.
Do not allow to enter drainage system, 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).
Ensure adequate ventilation.
Send for recovery or disposal in suitable containers.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders)
- **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 information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Keep away from children
Avoid release to the environment.
Keep eye wash bottles available on working place.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** Keep dark, cool and dry.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**

- **Additional information about design of technical systems:**

Please take care on national and local requirements.

- **Components with critical values that require monitoring at the workplace:**

CAS: 822-06-0 hexamethylene diisocyanate

WEL	Short-term value: 0.07 mg/m ³ Long-term value: 0.02 mg/m ³ Sen; as -NCO
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- **DNELs**

ALIPHATIC POLYISOCYANATE (CAS 28182-81-2):

Hexamethylene-1,6-diisocyanate Homopolymer

Worker (short-term) :

DNEL Dermal - local effects:

No quantitative risk assessment possible. Most sensitive endpoint: Sensitisation (skin)

DNEL Inhalation - local effects: 1 mg/m³ air

Most sensitive endpoint: Irritation (respiratory tract)

Worker (long-term) :

DNEL Dermal - local effects:

No quantitative risk assessment possible. Most sensitive endpoint: Sensitisation (skin)

DNEL Inhalation - local effects: 0.5 mg/m³ air

Most sensitive endpoint: Irritation (respiratory tract)

- **PNECs**

ALIPHATIC POLYISOCYANATE (CAS 28182-81-2):

Freshwater: 0.127 mg/l

Marine water: 0.0127 mg/l

Sediment: 266700 mg/kg dry weight

Soil: 53182 mg/kg dry weight

STP (sewage-treatment plant): 38.28 mg/l

Oral:

Not relevant

- **Additional information:** Based on information valid at the time of writing.

- **8.2 Exposure controls**

- **Personal protective equipment**

- **General protective and hygienic measures**

Keep away from food, drink and animal feedingstuffs.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

In case of brief exposure or low pollution (exceeding of TLV) use breathing filter apparatus. In case

of intensive or longer exposure use breathing apparatus that is independent of circulating air.

Not necessary if room is well-ventilated.

- **Recommended filter device for short term use:** Filter A

- **Protection of hands:**

Protective gloves.

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

- **Material of gloves** Nitrile rubber, NBR

- **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.

- **Eye protection:** Tightly sealed safety glasses.

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- **Body protection:** Protective work clothing.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Colour:	Light yellow
Smell:	Characteristic

· Change in condition

Melting point/freezing point:	Not determined
Initial boiling point and boiling range:	> 150 °C (Literaturw. s beachten.)

Flash point:	163 °C
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Self-inflammability:	Product is not selfigniting.
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Explosive properties:	Product is not explosive.
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Density at 20 °C	1.14 g/cm ³ (DIN 53217 s beachten.)
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· Solubility in / Miscibility with

Water:	Not miscible or difficult to mix
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Partition coefficient: n-octanol/water:	Not determined.
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· Viscosity:

dynamic at 20 °C:	1400 mPas
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· Solvent content:

Solids content:	100.0 %
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9.2 Other information	No further relevant information available.
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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:** No dangerous decomposition products known

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects

· Acute toxicity

Harmful if inhaled.

· LD/LC50 values that are relevant for classification:

CAS: 28182-81-2 Polyisocyanate, aliphatic

Oral	LD50	>5,000 mg/kg (rat)
Inhalative	LC50/2h	11 mg/l (ATE)

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CAS: 98-94-2 cyclohexyldimethylamine

Oral	LD50	348 mg/kg (rat)
Dermal	LD50	300 mg/kg (ATE)
Inhalative	LC50/4 h	4.45 mg/L (rat)

CAS: 822-06-0 hexamethylene diisocyanate

Inhalative	LC50/2h	3 mg/l (ATE)
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- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**
May cause respiratory irritation.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

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.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**
Harmful to aquatic organisms
Danger to drinking water if even small quantities leak into soil.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to disposers of hazardous waste.
Can be deposited with household garbage after solidification following consultation with the operator of the waste disposal facility and the pertinent authorities and under adherence to the necessary technical regulations.
Incineration under approved, controlled conditions using incinerators suitable or designed for the disposal of hazardous chemical wastes, is the preferred method for disposal.

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- **Uncleaned packagings:** S 60 is only applicable for liquid or unreacted materials.
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- | | |
|---|--------------------------------|
| <ul style="list-style-type: none"> · 14.1 UN-Number · ADR, ADN, IMDG, IATA | Void |
| <ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR, ADN, IMDG, IATA | Void |
| <ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR, IMDG, IATA · Class · ADN/R Class: | Void
Not regulated.
Void |
| <ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA | Void |
| <ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: | No |
| <ul style="list-style-type: none"> · 14.6 Special precautions for user | Not applicable. |
| <ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable. |
| <ul style="list-style-type: none"> · UN "Model Regulation": | Void |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Other regulations, limitations and prohibitive regulations**
- **VOC (EU) in %:** 0.00 %
- **VOC (EU) in g/l:** 0.0 g/l
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. The information provided about the product on this Safety Sheet has been compiled from knowledge of the individual constituent.

The data given here only applies when product used for proper application(s). The product is not sold as suitable for other applications - usage in such may cause risks not mentioned in this sheet. Do not use for other application(s) without seeking advice from manufacturer.

- **Relevant phrases**
- H226 Flammable liquid and vapour.
- H301 Toxic if swallowed.
- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.

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H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H331 Toxic if inhaled.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H411 Toxic to aquatic life with long lasting effects.

• **Department issuing data sheet:** Regulatory department

• **Contact:** EU-MSDS@hbfuller.com

• **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)

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

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

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

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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Annex: Exposure scenario

Polyisocyanate, aliphatic

- **Short title of the exposure scenario**

Aliphatic Polyisocyanate
Industrial End Use

- **Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU12 Manufacture of plastics products, including compounding and conversion
SU13 Manufacture of other non-metallic mineral products, e.g. plasters, cement
SU19 Building and construction work

- **Product category** PC1 Adhesives, sealants

- **Process category**

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC7 Industrial spraying
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring
PROC15 Use as laboratory reagent

- **Environmental release category**

ERC2 Formulation into mixture
ERC5 Use at industrial site leading to inclusion into/onto article
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)

- **Conditions of use** Indoor use

- **Duration and frequency**

5 workdays/week.
8hrs (full working shift).

- **Physical parameters**

- **Physical state** Liquid

- **Concentration of the substance in the mixture** The substance is main component.

- **Used amount per time or activity** >1000 tons per year

- **Other operational conditions** No special measures required.

- **Other operational conditions affecting environmental exposure** No special measures required.

- **Other operational conditions affecting worker exposure**

Avoid contact with the skin.
Avoid long-term or repeated skin contact.
Do not breathe gas/vapour/aerosol.

- **Other operational conditions affecting consumer exposure during the use of the product**

Not applicable.

- **Risk management measures**

- **Worker protection**

Ensure adequate ventilation
Avoid contact with the skin and eyes.

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· Organisational protective measures

Keep good industrial hygiene.

Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.

Deploy only trained chemical workers.

· Technical protective measures

Ensure that suitable extractors are available on processing machines

· Personal protective measures

In case of brief exposure or low pollution (exceeding of TLV) use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.

Not necessary if room is well-ventilated.

Protective gloves.

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

Tightly sealed safety glasses.

· Environmental protection measures**· Air**

Exhaust air is introduced into the incinerator.

Exhaust air is introduced into the adsorption tower.

· Water No special measures required.**· Soil** Prevent contamination of soil.**· Disposal measures** Disposal must be made according to official regulations.**· Disposal procedures**

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

· Waste type Partially emptied and uncleaned packaging**· Exposure estimation****· Worker (dermal)** The calculated value is smaller than the DNEL.**· Worker (inhalation)** The calculated value is smaller than the DNEL.**· Environment** The calculated value is smaller than the PNEC.

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