

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended

Rakoll® U 320

Version	Revision Date:	SDS Number:	Date of last issue: 10.03.2022
2.0	29.06.2024	100000016956	Date of first issue: 10.03.2022
	Print Date:		
	17.07.2025		

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Product name** : Rakoll® U 320**1.2 Relevant identified uses of the substance or mixture and uses advised against**Use of the Sub-
stance/Mixture : Hot melt adhesiveRecommended restrictions
on use : For industrial use only.**1.3 Details of the supplier of the safety data sheet**

Company : H.B. Fuller, Isar-Rakoll, S.A.

Address : Estrada Nacional 13
PT-4486-851 Mindelo - Vila do Conde
+351 229 288 200E-mail address of person
responsible for the SDS : EU-MSDS@hbfuller.com**1.4 Emergency telephone number**Emergency telephone number : In case of poisoning:
GBK-EMTEL International
Tel.(24h):+49(0)6132/84463 (all languages)In case of transport accidents:
Tel.(24h): (001) 352 323 3500 (Infotrac - Contract ID: 90373 /
GBK)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture.

2.2 Label elements**Labelling (REGULATION (EC) No 1272/2008)**

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.

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Additional Labelling

EUH210 Safety data sheet available on request.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients**3.2 Mixtures****Components**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
vinyl acetate	108-05-4 203-545-4 607-023-00-0 01-2119471301-50-0000	Flam. Liq. 2; H225 Acute Tox. 4; H332 Carc. 2; H351 STOT SE 3; H335 (Respiratory system) Aquatic Chronic 3; H412 Acute toxicity estimate Acute inhalation toxicity (vapour): 11,4 mg/l	>= 0,1 - < 0,25

For explanation of abbreviations see section 16.

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SECTION 4: First aid measures**4.1 Description of first aid measures**

- General advice : Show this safety data sheet to the doctor in attendance.
The molten product can cause serious burns.
- If inhaled : Remove person to fresh air. If signs/symptoms continue, get medical attention.
- In case of skin contact : Cool skin rapidly with cold water after contact with molten material.
Do not peel solidified product off the skin.
Obtain medical attention.
- In case of eye contact : Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.
- If swallowed : Do NOT induce vomiting.
If accidentally swallowed obtain immediate medical attention.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Use mineral oil to soften and loosen product for removal.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water mist
Foam
Dry powder
Carbon dioxide (CO₂)

5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire-fighting : No further relevant information available.

5.3 Advice for firefighters

- Special protective equipment for firefighters : No special technical protective measures required.

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SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : not required

6.2 Environmental precautions

Environmental precautions : Try to prevent the material from entering drains or water courses.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Allow to solidify, use mechanical handling equipment.

6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8., For disposal considerations see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**Advice on safe handling : Avoid breathing vapors/fumes of heated product. Prevent contact with molten product.
Wear personal protective equipment.

Advice on protection against fire and explosion : not required

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Protect against light. Keep in a dry, cool place.

Further information on storage conditions : none

Advice on common storage : not required

7.3 Specific end use(s)

Specific use(s) : No further relevant information available.

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SECTION 8: Exposure controls/personal protection
8.1 Control parameters
Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
vinyl acetate	108-05-4	TWA	5 ppm 17,6 mg/m ³	2009/161/EU
	Further information: Indicative			
		STEL	10 ppm 35,2 mg/m ³	2009/161/EU
	Further information: Indicative			
		OELV - 15 min (STEL)	10 ppm 35 mg/m ³	IE OEL
		OELV - 8 hrs (TWA)	5 ppm 18 mg/m ³	IE OEL

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Resin acids and Rosin acids, esters with pentaerythritol	Workers	Inhalation	Local, long-term	10 mg/m ³
	Workers	Dermal	Systemic, long-term	5 mg/kg
	Workers	Eye contact	Local effects	

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Resin acids and Rosin acids, esters with pentaerythritol	Soil	462,06 mg/kg
	Fresh water	0,1 mg/l
	Fresh water sediment	2317,75 mg/kg
	Marine sediment	231,78 mg/kg
	Marine water	0,01 mg/l
	Sewage treatment plant	2,525 mg/l

8.2 Exposure controls
Personal protective equipment

Eye protection : Safety glasses

 Hand protection
 Material : Protective gloves

Remarks : When handling hot material, use heat resistant gloves. The exact break through time can be obtained from the protective glove producer and this has to be observed.

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Skin and body protection	:	Protective clothing
Respiratory protection	:	No personal respiratory protective equipment normally required.
Protective measures	:	Avoid skin contact with the liquefied material.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Physical state	:	solid
Colour	:	yellow
Odour	:	odourless
Odour Threshold	:	no data available
Melting point/freezing point	:	is not determined
Boiling point/boiling range	:	is not determined
Flammability	:	Not classified as a flammability hazard
Upper explosion limit / Upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Flash point	:	> 200 °C
Auto-ignition temperature	:	not self-igniting
Decomposition temperature	:	No decomposition if used as directed.
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	10.000 mPa.s (175 °C)
		Not applicable at ambient temperature
Viscosity, kinematic	:	Not applicable at ambient temperature
Solubility(ies)		

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Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	no data available
Vapour pressure	:	Not applicable
Relative density	:	no data available
Density	:	1,01 g/cm ³
Relative vapour density	:	no data available

9.2 Other information

Explosives	:	Not explosive
Evaporation rate	:	Not applicable

SECTION 10: Stability and reactivity**10.1 Reactivity**

No further relevant information available.

10.2 Chemical stability

No decomposition if used according to the specifications.

10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

10.4 Conditions to avoid

Conditions to avoid : No further relevant information available.

10.5 Incompatible materials

Materials to avoid : No further relevant information available.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

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SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Based on available data, the classification criteria are not met.

Components:**vinyl acetate:**

Acute oral toxicity	:	LD50 Oral (Rat): 2.920 mg/kg
Acute inhalation toxicity	:	Acute toxicity estimate: 11,4 mg/l Test atmosphere: vapour Method: Calculation method
Acute dermal toxicity	:	LD50 Dermal (Rabbit): 2.320 mg/kg

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation**Skin sensitisation**

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

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

Based on available data, the classification criteria are not met.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Aspiration toxicity

Based on available data, the classification criteria are not met.

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11.2 Information on other hazards**Endocrine disrupting properties****Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information**12.1 Toxicity****Components:****vinyl acetate:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 14 mg/l
Exposure time: 96 Hours
Test Type: static test

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 52 mg/l
aquatic invertebrates : Exposure time: 24 Hours
Test Type: static test

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment**Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to

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REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects**Product:**

Additional ecological information : Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Product : Do not dispose of with domestic refuse.
Do not dispose of waste into sewer.
The generation of waste should be avoided or minimized wherever possible.
Incinerate under controlled conditions in accordance with all local and national laws and regulations.
Disposal must be made according to official regulations.

These EU waste code numbers are recommendations for waste accruing through the use of adhesives and sealants. Any waste produced from organic solvents or other dangerous substances (according GHS) listed under section 3 of this safety datasheet is itself classified as dangerous (*).

Waste accruing during application:

08 04 09* waste adhesives and sealants containing organic solvents or other dangerous substances
08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09

Waste accruing during cleaning:

08 04 11* adhesive and sealant sludges containing organic solvents or other dangerous substances
08 04 12 adhesive and sealant sludges other than those mentioned in 08 04 11

Waste packaging:

15 01 01 paper and cardboard packaging
15 01 02 plastic packaging
15 01 04 metallic packaging
15 01 10* packaging containing residues of or contaminated by dangerous substances.

Contaminated packaging : Disposal must be made according to official regulations.

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SECTION 14: Transport information**14.1 UN number or ID number**

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (SVHC, Article 59) : Compliant

Regulation (EC) 2024/590 on substances that deplete the ozone layer : Compliant

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Compliant

RoHS: 2011/65/EU, Restriction of Hazardous Substances : Compliant

Council Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors : Neither banned nor restricted

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Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Compliant

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. : Not applicable

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Volatile organic compounds (VOC) content: 0,21 %

The components of this product are reported in the following inventories:

TCSI : On the inventory, or in compliance with the inventory

TSCA : All substances listed as active on the TSCA inventory

AICC : On the inventory, or in compliance with the inventory

DSL : All components of this product are on the Canadian DSL

ENCS : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

REACH : On the inventory, or in compliance with the inventory

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15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this mixture.

SECTION 16: Other information**Full text of H-Statements**

H225	: Highly flammable liquid and vapour.
H332	: Harmful if inhaled.
H335	: May cause respiratory irritation.
H351	: Suspected of causing cancer.
H412	: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Carc.	: Carcinogenicity
Flam. Liq.	: Flammable liquids
STOT SE	: Specific target organ toxicity - single exposure
2009/161/EU	: Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
IE OEL	: Ireland. List of Chemical Agents and Carcinogens with Occupational Exposure Limit Values - Code of Practice, Schedule 1 and 2
2009/161/EU / TWA	: Limit Value - eight hours
2009/161/EU / STEL	: Short term exposure limit
IE OEL / OELV - 8 hrs (TWA)	: Occupational exposure limit value (8-hour reference period)
IE OEL / OELV - 15 min (STEL)	: Occupational exposure limit value (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test popula-

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tion; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECL - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

Modified data compared to the previous version

The following sections have been updated:

- Section 1
- Section 2
- Section 3
- Section 8
- Section 11
- Section 12
- Section 15
- Section 16

Contact Point : Prepared by: Global Regulatory Department
EU-MSDS@hbfuller.com

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

IE / EN