


RAKU-TOOL PH-3905 Isocyanat

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SECTION 1: Identification of the substance/mixture and of the company/undertaking
1.1. Product identifier

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1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture

Di / poly-isocyanate component for polyurethane manufacture

Uses advised against

None known

1.3. Details of the supplier of the safety data sheet

Company name: RAMPF Group, Inc.
 Street: 49037 Wixom Tech Drive
 Place: Wixom, MI 48393
 Telephone: 2482950223
 e-mail: info@rampf-group.com

1.4. Emergency telephone number:

Emergency telephone : INFOTRAC 352 323 3500

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

Hazard categories:

Carcinogenicity: Carc. 2

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Respiratory or skin sensitisation: Resp. Sens. 1

Respiratory or skin sensitisation: Skin Sens. 1

Specific target organ toxicity - single exposure: STOT SE 3

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazard Statements:

Harmful if inhaled.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

Causes serious eye irritation.

Causes skin irritation.

May cause an allergic skin reaction.

Suspected of causing cancer.

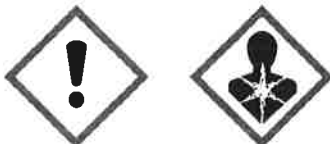
May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements
Regulation (EC) No. 1272/2008
Hazard components for labelling

CAS-No. 9016-87-9 diphenyl methane diisocyanate, isomers and homologues

Signal word: Danger

Pictograms:


Hazard statements

H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H319 Causes serious eye irritation.

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- H317 May cause an allergic skin reaction.
 H351 Suspected of causing cancer.
 H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

- P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P308+P313 IF exposed or concerned: Get medical advice/attention.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Special labelling of certain mixtures

- EUH204 Contains isocyanates. May produce an allergic reaction.

2.3. Other hazards

For their own protection, persons who suffer from hypersensitivity of the respiratory tract (e. g. asthmatics and chronic bronchitis sufferers) should avoid handling this product.

SECTION 3: Composition/information on ingredients
3.1. Substances
Chemical characterization

Isocyanate

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
9016-87-9	diphenyl methane diisocyanate, isomers and homologues			100 %
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures
4.1. Description of first aid measures
General information

Remove contaminated soaked clothing immediately.
 In the event of persistent symptoms receive medical treatment.
 Take away from danger area and lay down affected person.

After inhalation

Move to fresh air in case of accidental inhalation of vapours.
 In case of inhalation of aerosol/mist consult a physician if necessary.

After contact with skin

In the event of contact with skin, preferably wash with a cleaner based on polyethylene glykol or with plenty of warm water and soap.
 Treat subsequently with skin cream.
 Consult a doctor if skin irritation persists.

After contact with eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
 Seek medical treatment by eye specialist.

After ingestion

Do not induce vomiting.
 Summon a doctor immediately.

4.2. Most important symptoms and effects, both acute and delayed

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Symptoms may be delayed.

4.3. Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Foam, carbon dioxide (CO₂), dry chemical, water-spray.

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

In case of fire formation of carbon monoxide, nitrogen oxide, isocyanat vapour and traces of hydrogen cyanide is possible.

In the event of fire and/or explosion do not breathe fumes.

Heating will cause pressure rise with risk of bursting. Cool containers at risk with water spray jet.

5.3. Advice for firefighters

Protective suit

Use breathing apparatus with independent air supply.

Additional information

Do not let enter contaminated extinguishing water into the soil, groundwater or surface waters.

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

In case of vapour formation use respirator.

Ensure adequate ventilation.

Use personal protective clothing.

6.2. Environmental precautions

Clean contaminated surface thoroughly.

Do not discharge into the drains/surface waters/groundwater.

6.3. Methods and material for containment and cleaning up

"Cover with humid, absorbent material (e.g. sand, sawdust, chemical binder). After approx. 1 hour, collect in disposal drum; do not close (CO₂ development)."

Keep damp in the open air in a safe place for 7 to 14 days.

6.4. Reference to other sections

None

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Provide sufficient air exchange and/or exhaust in work rooms.

Avoid contact with skin, eyes and clothing.

Do not inhale vapours.

Further information on handling

Keep container tightly closed.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture. Protect against direct sun radiation.

Storage temperature may not fall below 10°C (=50°F). Avoid temperatures above 40°C.

Please read section "Handling and storage" in our data sheet and our product notice for additional information.

Advice on storage compatibility

Keep away from water.

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Further information on storage conditions

Keep container tightly closed in a dry, cool and well-ventilated place.

Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
9016-87-9	diphenyl methane diisocyanate, isomers and homologues			
Worker DNEL, acute		dermal	systemic	50 mg/kg bw/day
Worker DNEL, acute		inhalation	systemic	0,1 mg/m ³
Worker DNEL, acute		dermal	local	28,7 mg/cm ²
Worker DNEL, acute		inhalation	local	0,1 mg/m ³
Worker DNEL, long-term		inhalation	systemic	0,05 mg/m ³
Worker DNEL, long-term		inhalation	local	0,05 mg/m ³

PNEC values

CAS No	Substance	Value
9016-87-9	diphenyl methane diisocyanate, isomers and homologues	
Freshwater		1 mg/l
Marine water		0,1 mg/l
Micro-organisms in sewage treatment plants (STP)		1 mg/l
Soil		1 mg/kg

8.2. Exposure controls
Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.

Provide appropriate exhaust ventilation at machinery.

Protective and hygiene measures

Do not inhale vapours.

Avoid contact with eyes and skin. Remove contaminated soaked clothing immediately.

Wash hands before breaks and immediately after handling the product.

When using, do not eat, drink or smoke.

Treat subsequently with skin cream.

Eye/face protection

Tightly fitting goggles / Face shield

Hand protection

Chemical-resistant gloves (EN 374)

Suitable materials also for extended, direct contact (recommended: protection index 6, corresponding to a permeation rate > 480 minutes according to EN 374):

butyl rubber (Butyl) - 0.7 mm thickness; i.e. < Butoject 898 > made by KCL.

Nitrile rubber (Nitrile) - 0.4 mm thickness : i.e. < Camatril Velours 730 > made by KCL.

Because of the great variety of glove types, the manufacturer's instructions for use must be adhered to.

The data given refer to information from glove manufacturers or have been assessed by analogy to similar materials. It should be taken into consideration, that due to the great number of influential factors such as the temperature, the daily durability of chemicals resistant protective gloves may be considerably reduced in practice, compared to the permeation rate assessed according to EN 374.

Skin protection

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Respiratory protection

Use suitable breathing apparatus if there is inadequate ventilation.

If product is sprayed, use fresh-air breathing apparatus or (only short-term use) a combination filter A2-P2.

Environmental exposure controls

no data available

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

Physical state:	Liquid
Colour:	brown
Odour:	erthy, musty

Test method

pH-Value:	n.d.
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Changes in the physical state

Initial boiling point and boiling range:	> 300 °C
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Flash point:	> 250 °C
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Flammability

Solid:	n.a.
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Gas:	n.a.
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Lower explosion limits:	n.d.
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Upper explosion limits:	n.d.
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Ignition temperature:	> 400 °C
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Auto-ignition temperature

Solid:	n.a.
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Gas:	n.a.
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Vapour pressure:	< 0,00001 hPa
(at 20 °C)	

Density (at 20 °C):	~ 1,23 g/cm³
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Water solubility:	Insoluble, Reacts with water
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Viscosity / dynamic:	200 mPa·s
(at 20 °C)	

Vapour density:	n.d.
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Evaporation rate:	n.d.
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9.2. Other information

The delivery specifications are contained in the corresponding product sheet.

SECTION 10: Stability and reactivity
10.1. Reactivity

no data available

10.3. Possibility of hazardous reactions

Container can be pressurized by carbon dioxide due to reaction with humid air and/or water. (Risk of bursting.)

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat. (> 200°C)

Avoid moisture.

10.5. Incompatible materials

Amines, Strong oxidizing agents, Strong acids and strong bases

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

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SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity**

Toxicological studies of a comparable product. The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Assessment: Harmful if inhaled.

CAS No	Chemical name			
	Exposure route	Dose	Species	Source
9016-87-9	diphenyl methane diisocyanate, isomers and homologues			
	oral	LD50 > 10000 mg/kg	rat	OECD 401
	dermal	LD50 > 9400 mg/kg	rabbit	OECD 402
	inhalative vapour	ATE 11 mg/l		
	inhalative (4 h) aerosol	LC50 (1,5) mg/l	Method: Expert judgement	

Irritation and corrosivity

Irritating to skin.

Causes serious eye damage.

Sensitising effects

May cause sensitization by inhalation and skin contact.

Carcinogenic/mutagenic/toxic effects for reproduction

Limited evidence of a carcinogenic effect.

Mutagenicity: 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

Irritating to respiratory system.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

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

Practical experience**Observations relevant to classification**

With hypersensitive people, reactions as cough or difficulty of breathing may appear even with tiny concentrations of isocyanates; therefore keep room aerated and ventilated. Over-exposure, especially when spraying coatings containing isocyanate without the necessary precautions, entails the risk of concentration-dependent irritating effects on eyes, nose throat, and respiratory tract. Delayed appearance of the complaints and development of hyper-sensitivity (difficult breathing, coughing, asthma) are possible. In case of longer contact with skin, tanning and irritating effects are possible.

SECTION 12: Ecological information**12.1. Toxicity**

Do not allow to escape into waterways, wastewater or soil.

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CAS No	Chemical name				
	Aquatic toxicity	Dose	[h] [d]	Species	Source
9016-87-9	diphenyl methane diisocyanate, isomers and homologues				
	Acute fish toxicity	LC50 > 1000 mg/l	96 h	Zebra fish	OECD 203
	Acute algae toxicity	ErC50 > 1640 mg/l	72 h	green algae	
	Acute bacteria toxicity	(> 100 mg/l)	3 h	active sludge	

12.2. Persistence and degradability

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
9016-87-9	diphenyl methane diisocyanate, isomers and homologues			
	Biodegradable (OECD): 302 D	0 %	28	
	i.e. not inherently degradable			

12.3. Bioaccumulative potential

No data available.

BCF

CAS No	Chemical name	BCF	Species	Source
9016-87-9	diphenyl methane diisocyanate, isomers and homologues	< 14	Carp	OECD 305

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

Not fulfilling PBT.

12.6. Other adverse effects

The product reacts with water at the interface forming CO₂ and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by watersoluble solvents. Previous experience shows that polyurea is inert and non-degradable.

Further information

Do not flush into surface water or sanitary sewer system.
Slightly water hazardous.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Advice on disposal**

Where possible recycling is preferred to disposal.
Can be incinerated, when in compliance with local regulations.
It is not possible to give this product a waste code number according to the European waste catalogue because only the intended use of the user consents the assignment of a specific code number.
The waste code number must be agreed with the disposer / manufacturer / competent authority.

Contaminated packaging

Contaminated packagings are to be treated like the product itself.
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.
Empty containers should be taken for local recycling, recovery or waste disposal.

SECTION 14: Transport information**Land transport (ADR/RID)****14.1. UN number:**

No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name:

No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es):

No dangerous good in sense of this transport regulation.

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Marine transport (IMDG)

- 14.1. UN number:** No dangerous good in sense of this transport regulation.
- 14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.
- 14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.
- 14.4. Packing group:** No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

- 14.1. UN number:** No dangerous good in sense of this transport regulation.
- 14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.
- 14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.
- 14.4. Packing group:** No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No dangerous good in sense of this transport regulation.

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

Water contaminating class (D): 1 - slightly water contaminating

Additional information

"ZH 1/34 ""Data Sheet: Polyurethane manufacture / Isocyanate (M 044)"""

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s) 10, 11, 12

Relevant H and EUH statements (number and full text)

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.
- H351 Suspected of causing cancer.
- H373 May cause damage to organs through prolonged or repeated exposure.
- EUH204 Contains isocyanates. May produce an allergic reaction.

Further Information

Protective measures for handling freshly moulded polyurethane parts :

Depending on the production parameters, uncovered surfaces of polyurethane moulds produced using this raw material may contain traces of substances (e. g. starting and reaction products, catalysts, release agents) with hazardous effects (e. g. harmful, irritating, corrosive, sensitising). Avoid skin contact with traces of these substances.

When demoulding or otherwise handling freshly moulded polyurethane parts, protective textile gloves should be worn as a minimum. Their palm and finger areas should preferably be coated on the outside with Nitrile rubber, PVC or polyurethane. Wear suitable protective clothing, if necessary long-sleeved, when handling freshly moulded PUR parts under standard (handling) conditions.

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of



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accidents and irregularities.

The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge.

The delivery specifications are contained in the corresponding product sheet.

This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.

"(n.a. = not applicable; n.d. = not determined)"