

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : RAKU® TOOL PH-3905
 Product code : 06.03.0027

1.2. Recommended use and restrictions on use

Recommended use : Di / poly-isocyanate component for polyurethane manufacture

1.3. Supplier

RAMPF Group, Inc.
 49037 Wixom Tech Drive
 Wixom, 48393
 T 2482950223 - F 2482950224

1.4. Emergency telephone number

Emergency number : CHEMTREC 1-800-424-9300 or +1-703-527-3887 CCN 649907

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

| | |
|---|--|
| Skin corrosion/irritation Category 2 | Causes skin irritation |
| Serious eye damage/eye irritation Category 2 | Causes serious eye irritation |
| Respiratory sensitization, Category 1 | May cause an allergy or asthma symptoms or breathing difficulties if inhaled |
| Skin sensitization, Category 1 | May cause an allergic skin reaction |
| Carcinogenicity Category 2 | Suspected of causing cancer |
| Specific target organ toxicity (single exposure) Category 3 | May cause respiratory irritation |
| Specific target organ toxicity (repeated exposure) Category 2 | May cause damage to organs through prolonged or repeated exposure |

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :

- Causes skin irritation
- May cause an allergic skin reaction
- Causes serious eye irritation
- May cause an allergy or asthma symptoms or breathing difficulties if inhaled
- May cause respiratory irritation
- Suspected of causing cancer
- May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) :

- Avoid breathing dust, mist, fume.
- Wear protective gloves.
- Call a POISON CENTER if you feel unwell
- Take off contaminated clothing and wash it before reuse.
- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.
- Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : Persons suffering from asthma or eczema and persons who have chronic lung diseases, skin or respiratory allergies to isocyanates should not work with the material.

2.4. Unknown acute toxicity (GHS US)

Not applicable

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SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % | GHS-US classification |
|--|---------------------|----------|---|
| Polymeric Diphenylmethane Diisocyanate | (CAS-No.) 9016-87-9 | 95 - 100 | Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335 |

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|--|
| First-aid measures general | : IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor/physician if you feel unwell. |
| First-aid measures after inhalation | : Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. |
| First-aid measures after skin contact | : Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention. |
| First-aid measures after eye contact | : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| First-aid measures after ingestion | : Call a POISON CENTER or doctor/physician if you feel unwell. |

4.2. Most important symptoms and effects (acute and delayed)

| | |
|-------------------------------------|---|
| Symptoms/effects after inhalation | : May cause respiratory irritation. May cause an allergy or asthma symptoms or breathing difficulties if inhaled. |
| Symptoms/effects after skin contact | : Irritation. May cause an allergic skin reaction. |
| Symptoms/effects after eye contact | : May cause eye irritation. |

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | : Water spray. Dry powder. Foam. Carbon dioxide. |
| Unsuitable extinguishing media | : Solid water jet ineffective as extinguishing medium. |

5.2. Specific hazards arising from the chemical

| | |
|-------------|---|
| Fire hazard | : Hazardous combustion products: Carbon oxides (CO,CO2) Nitrogen oxides Isocyanates Hydrogen cyanide. |
| Reactivity | : The product is non-reactive under normal conditions of use, storage and transport. |

5.3. Special protective equipment and precautions for fire-fighters

| | |
|--------------------------------|--|
| Protection during firefighting | : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |
|--------------------------------|--|

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Do not breathe spray, vapors, mist. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

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6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust, fume, gas, mist, vapors, spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.
- Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Storage temperature : 10 - 40 °C °C
- Storage area : Keep out of direct sunlight. Keep away from flames or a sparking source. Keep away from food, drink and animal feeding stuffs.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Polymeric Diphenylmethane Diisocyanate (9016-87-9) | | |
|--|---|---|
| DNEL | DNEL | 0.1 mg/m ³ acute, inhalation, systemic, local |
| PNEC | PNEC | 1 mg/l Freshwater, Micro-organisms in sewage treatment plants (STP) |
| ACGIH | ACGIH TWA (ppm) | ≈ 0.005 ppm |
| OSHA | OSHA PEL (Ceiling) (mg/m ³) | ≈ 0.2 mg/m ³ |
| OSHA | OSHA PEL (Ceiling) (ppm) | ≈ 0.02 ppm |

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Chemically resistant protective gloves. butyl rubber (Butyl) -0.7 mm thickness; Nitrile rubber (Nitrile) - 0.4 mm thickness; Select the appropriate glove material adhering to the breakthrough time, permeation rate and the degradation. Because of the great variety of glove types, the manufacturer's instructions for use must be adhered to.

Eye protection:

Chemical goggles or safety glasses. Face shield

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Wear respiratory protection. Filter type. A2. P2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid

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| | |
|---|--|
| Color | : brown |
| Odor | : earthy stuffy odor |
| Odor threshold | : No data available |
| pH | : No data available |
| Melting point | : No data available |
| Freezing point | : No data available |
| Boiling point | : > 300 °C |
| Flash point | : > 250 °C |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapor pressure | : No data available |
| Vapor pressure at 50 °C | : 12 hPa |
| Relative vapor density at 20 °C | : No data available |
| Relative density | : No data available |
| Specific gravity / density | : 1.22 - 1.24 g/cm ³ @ 20°C |
| Solubility | : Insoluble in water. Reacts with water. |
| Log Pow | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : 300 - 400 mPa.s @ 20° C |
| Explosion limits | : No data available |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |

9.2. Other information

Additional information : Ignition temperature: >500°C (DIN 51794)

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Amines. Strong oxidizing agent. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------|------------------|
| Acute toxicity (oral) | : Not classified |
| Acute toxicity (dermal) | : Not classified |
| Acute toxicity (inhalation) | : Not classified |

| Polymeric Diphenylmethane Diisocyanate (9016-87-9) | |
|--|-------------------------|
| LD50 dermal rat | 49 g/kg |
| LC50 inhalation rat (mg/l) | 490 mg/l/4h |
| ATE US (dermal) | 49000 mg/kg body weight |
| ATE US (gases) | 4500 ppmV/4h |

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| Polymeric Diphenylmethane Diisocyanate (9016-87-9) | |
|---|-------------|
| ATE US (vapors) | 11 mg/l/4h |
| ATE US (dust, mist) | 1.5 mg/l/4h |

| | |
|-----------------------------------|--|
| Skin corrosion/irritation | : Causes skin irritation. |
| Serious eye damage/irritation | : Causes serious eye irritation. |
| Respiratory or skin sensitization | : May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Suspected of causing cancer. |

| Polymeric Diphenylmethane Diisocyanate (9016-87-9) | |
|---|----------------------|
| IARC group | 3 - Not classifiable |

| | |
|--|-------------------------------------|
| Reproductive toxicity | : Not classified |
| Specific target organ toxicity – single exposure | : May cause respiratory irritation. |

| Polymeric Diphenylmethane Diisocyanate (9016-87-9) | |
|---|-----------------------------------|
| Specific target organ toxicity – single exposure | May cause respiratory irritation. |

| | |
|--|---|
| Specific target organ toxicity – repeated exposure | : May cause damage to organs through prolonged or repeated exposure. |
| Aspiration hazard | : Not classified |
| Viscosity, kinematic | : No data available |
| Symptoms/effects after inhalation | : May cause respiratory irritation. May cause an allergy or asthma symptoms or breathing difficulties if inhaled. |
| Symptoms/effects after skin contact | : Irritation. May cause an allergic skin reaction. |
| Symptoms/effects after eye contact | : May cause eye irritation. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|-------------------|--|
| Ecology - general | : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. |
|-------------------|--|

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

| | |
|--|---|
| Waste treatment methods | : Dispose of contents/container in accordance with licensed collector's sorting instructions. |
| Product/Packaging disposal recommendations | : Recycling is preferred to disposal or incineration. Packaging that cannot be cleaned should be disposed of like the product. . Remove to an authorized waste treatment plant. Dispose in a safe manner in accordance with local/national regulations. |

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

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Transportation of Dangerous Goods

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

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EPA TSCA Regulatory Flag

XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Polymeric Diphenylmethane Diisocyanate (9016-87-9)

Subject to reporting requirements of United States SARA Section 313

EPA TSCA Regulatory Flag

XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

15.2. International regulations

CANADA

Polymeric Diphenylmethane Diisocyanate (9016-87-9)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

| Component | State or local regulations |
|---|--|
| Polymeric Diphenylmethane Diisocyanate(9016-87-9) | U.S. - New Jersey - Right to Know Hazardous Substance List |

SECTION 16: Other information

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Full text of H-phrases:

| | |
|------|--|
| H315 | Causes skin irritation |
| H317 | May cause an allergic skin reaction |
| H319 | Causes serious eye irritation |
| H332 | Harmful if inhaled |
| H334 | May cause an allergy or asthma symptoms or breathing difficulties if inhaled |
| H335 | May cause respiratory irritation |

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product