MATERIAL SAFETY DATA SHEET

1. Identification of the substance and of the company

1.1. **Identification of the substance:**
Name of the substance: **m-tolylidene diisocyanate**
Formula: $C_9H_6N_2O_2$
Trade name: **ONGRONAT 1065**

1.2. **Use of the substance: chemical raw material**
The highly reactive diisocyanate chemicals are important materials used in production of PUR products. Their reaction with various polyols and auxiliary materials is utilized to obtain miscellaneous type material structures, like foams, coatings or adhesives.

1.3. **Company identification:**
BorsodChem Zrt.
H - 3700 Kazincbarcika
Bolyai tér 1.
Emergency phone number: **+36 48 511 211** (0-24)
E-mail of responsible person for SDS: **sds@borsodchem.hu**

1.4. **Emergency telephone**
Health Toxicological Information Service (HTIS)
Phone: +36 80 20 1199 (green number, free of charge)
+36 1 476 6464 (0-24)

2. Hazards identification

Very toxic if inhaled.
Irritating to eye, skin and respiratory system.
It may be carcinogenic.
May cause sensitization by inhalation and skin contact.
Harmful to aquatic organisms.

3. Composition / Information on ingredients

Chemical name	EC-No.	CAS- No.	Concentration w/w%	Hazard classification
m-tolylidene diisocyanate	**247-722-4**	**26471-62-5**	**min. 99,5**	**T^+ R26-36/37/38-40-42/43-52/53**
4-methyl-m-phenylene diisocyanate	209-544-5	584-84-9	~ 65	T^+ R26-36/37/38-40-42/43-52/53
2-methyl-m-phenylene diisocyanate	202-039-0	91-08-7	~ 35	T^+ R26-36/37/38-40-42/43-52/53

4. First aid measures

4.1. **Skin contact:** Remove contaminated clothing and footwear. The contaminated parts of the body must be wiped off and washed with soap and plenty of water. Seek medical aid.
4.2. **Eye contact:** Rinse immediately with plenty of water, keeping eyelids open, for at least 15 minutes very carefully. Seek medical aid.
4.3. **Inhalation:** Take the affected person into fresh air and then immediately to medical aid. In case inconvenience of breathing give oxygen.
4.4. **Ingestion:** Do not induce vomiting. Seek immediate medical aid.
4.5. **Further information:** Contaminated clothing must be washed thoroughly before re-use.

5. Fire-fighting measures

5.1. **Suitable extinguishing media**: extinguishing powder, CO_2, foam. More serious fires can be extinguished with plenty of water spray.
5.2. **Extinguishing media which shall not be used for safety reasons:** Warning! Avoid water enter the container as this could cause a chemical reaction.
5.3. **Special hazards, combustion products:** In contact with fire or strong heat the product decomposes, forming CO_2, CO, nitrous gases as well as hydrogen cyanide and isocyanate vapours in traces. Cool drums exposed to the fire with water spray to avoid overheating.
5.4. **Special protective equipment:** Fire-proof suit. Personal protective equipment must be used!
5.5. **Further information:** Fire risk class “C” flammable

6. Accidental release measures

6.1. **Personal precautions:** Remove not affected people. Close the affected area. Areas of leakage must be closed down if this can be done without personal injury. Protective clothing and breathing apparatus must be worn. Inform the relevant authorities.
6.2. **Environmental precautions:** The material must be stopped from entering drainage system, manholes and sewage system. Protect spread of the material by encircling it with sand, earth or other suitable material.
6.3. **Methods for cleaning up:** Cover spilled material with wet sand or wet earth, let it rest for an hour. After collection it must be treated with ammonium-hydroxide and handled as hazardous waste.
6.4. **Further information:** Neutralise the contaminated area with a solution of 3-10% ammonium-hydroxide, 30-40% ethanol or a water-based solution of isopropyl-alcohol and then wash down with water. Handle the solutions used for cleaning as any hazardous waste material

7. Handling and storage

7.1. **Handling:** Handle the material with care. Avoid contact with water and damp. No smoking, eating or drinking during handling of the product. Avoid contact with skin and eyes. Do not inhale the vapours of the product. See point 8 for the use of protective apparatus. Avoid damaging the container. Avoid static charge. Avoid mechanical shaking or blows. Use non-sparking-tools.
7.2. **Storage:** Store in a dry and well-ventilated store-room at 15-40°C in sealed barrels or containers under nitrogen cushion.

8. Exposure controls / personal protection

8.1. Exposure limit values:
Occupational exposure limit: 0.035 mg/m^3

8.2. Exposure controls

8.2.1 **Occupational exposure controls**
Well ventilated workplaces
Provide emergency shower and eye-washer
Personal protective equipment:
Hand protection: neoprene or polyacryl –nitrile gloves
Respiratory protection: gas-mask with “A” filter or self contained breathing apparatus
Eye protection: closed safety goggles
Skin protection: closed antistatic protective clothing, protective shoes
Other: Careful personal washing. Contaminated protective clothing must be changed immediately.

9. Physical and chemical properties

9.1. **General information**
Appearance: colourless or mildly yellow liquid.
Odour: pungent, strong.

9.2. **Important health, safety and environmental information**
pH: not applicable.
Boiling point: 250°C
Melting point (melting range): 7-9°C
Flash point: 127°C (closed cup)
Auto-ignition: >600°C
Explosion limit: 0.9-9.5 v/v% (in air)
Oxidising properties: -
Vapour pressure: 1.4 Pa (20°C)
Relative density: 1.21 g/cm^3 (25°C)
Solubility in water: not soluble, reacts with water and generates CO_2
Viscosity: 3 mPa s (25°C)

10. Stability and reactivity

10.1. **Conditions to avoid:** contact with water, mechanical shaking or strike, electrostatic discharge.
10.2. **Materials to avoid:** water, alcohol, amines, acids, bases, surfactants, copper and its alloy-compositions.
10.3. **Hazardous decomposition products:** CO, CO_2, NO_x, and traces of HCN. Increase of pressure!
10.4. **Note:** dangerous polymerisation is possible.

11. Toxicological information

Acute toxicity: LD_{50} (oral) rat: 5800 mg/kg
Skin irritation: Irritating.
Sensitivity: It may cause sensitivity.
Carcinogenic category 3: All available effects are proved by animal tests, in case of human beings carcinogenic effect can only be supposed.
Further information: In case of inhalation it can cause asthmatic symptoms. The effects of acute exposure can also appear up to 24 hours later.

12. Ecological information

Ecotoxicity: LC_{50} for fish (Pimephales promelas) 96 hours: 164 mg/l
Biodegradability: It is not biodegradable.
WGK (German Water Hazard Class): 2

13. Disposal considerations

Comply with national and local regulations concerning waste treatment.
13.1. **Product**: Treat the remaining substance (neutralizer and reaction product) as hazardous waste.
13.2. **Packaging**: Treat emptied packing material as hazardous waste following neutralisation.

14. Transport information

Crystallization of the substance might start below 21°C.
Advised transport temperature in containers: 25-30°C,
in drums without temperature control.

ADR/RID/GGVSE ADN/ADNR/IMDG-Code IATA-DGR/ICAO-TI	UN number: 2078 Proper shipping name: TOLUENE DIISOCYANATE Hazard class: 6.1 Hazard number: 60 Packaging group: II Not marine pollutant

15. Regulatory information

Chemical safety assessment has not been prepared yet.

Labelling:

T+

Very toxic

Risk - phrases:

R26	Very toxic by inhalation.
R36/37/38	Irritating to eyes, respiratory system and skin.
R40	Limited evidence of a carcinogenic effect.
R42/43	May cause sensitisation by inhalation and skin contact.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety - phrases:

S1/2	Keep locked up and out of reach of children.
S23	Do not breathe vapour.
S36/37	Wear suitable protective clothing and gloves.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S61	Avoid release to the environment. Refer to special instructions /Safety data sheets.

Relevant national Laws:

1. Law XXV / 2000 on chemical safety
2. HM decree No 44/2000 (27.12.) on the detailed regulation of processes and activities applied to treat hazardous materials and products
3. Common Decree No 25/2000 (30.09.) of Ministry of Health, Social and Family Affairs on the chemical safety of workplaces
4. Decree No 20/1979 (18.09.)of the Ministry of Transport and Post Affairs on the announcement and domestic application of Annexes A and B attached to European Convention on the International Road Transport of Hazardous Goods
5. Decree No 16/2001 (18.07.) of the Ministry of Environmental Protection on the registry of wastes
6. Government Decree No 98/2001 (15.06.) on the conditions of carrying out certain activities in the treatment of hazardous wastes

16. Other information

T^+ very toxic

R-phrases:

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For professional use only!

Sources:

1. Council Directive No 67/548/EEC (27 June 1967) on the harmonization of statutory, decree and administrative provisions regarding the classification, packaging and labelling of hazardous materials (by amendment No. 30 inclusive)
2. REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENTAND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
3. ISOPA directives
4. International Chemical Safety Cards (WHO/IPCS/ILO)
5. MDI&TDI Safety, Health and Environment, John Wiley & Sons Ltd. 2003
6. ESIS - European chemical Substances Information System (http://ecb.jrc.ec.europa.eu/esis/)

The information given corresponds with our actual knowledge and experience. However, this shall not constitute a guarantee for any specific properties or quality standards and shall not establish a legally valid contractual relationship.
This information is meant to describe our product in view of possible safety requirements, but it remains the responsibility of the customer to provide a safe workplace and comply with all applicable laws and regulations.

This version replaces all previous versions.