



Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 02/07/2012

Version 4

Reviewed on 02/07/2012

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

· Product identifier

· Trade name: **Metrethane 4717 Base**

· Application of the substance / the preparation: Isocyanate resin

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier: Mereco Division
Metachem Resins Corporation
1505 Main Street
West Warwick, RI 02893
USA Phone +1 / 401 / 822-9300

· Information department: Technical department.
email = info@mereco.com

· Emergency telephone number: Telephone: (401) 822-9300

2 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture of the substances listed below with non-hazardous additions.

· Components:

9016-87-9	diphenylmethanediisocyanate, isomers and homologues	Xn R20-40-48/20; Xi R36/37/38-42/43 Carc. Cat. 3
101-68-8	4,4'-methylenediphenyl diisocyanate	Xn R20-40-48/20; Xi R36/37/38-42/43 Carc. Cat. 3

· Additional information: For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

· Classification of the substance or mixture

· Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xn; Harmful

R20-40-48/20: Harmful by inhalation. Limited evidence of a carcinogenic effect. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Xi; Irritant

R36/37/38-42/43: Irritating to eyes, respiratory system and skin. May cause sensitisation by inhalation and skin contact.

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· **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of international guidelines.
Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.

· **Classification system:**

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

· **Label elements**

· **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with directives on hazardous materials.

· **Code letter and hazard designation of product:**

Xn Harmful

· **Hazard-determining components of labelling:**

diphenylmethanediisocyanate,
isomers and homologues
4,4'-methylenediphenyl diisocyanate

· **Risk phrases:**

20 Harmful by inhalation.
36/37/38 Irritating to eyes, respiratory system and skin.
40 Limited evidence of a carcinogenic effect.
42/43 May cause sensitisation by inhalation and skin contact.
48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

· **Safety phrases:**

1/2 Keep locked up and out of the reach of children.
23 Do not breathe gas/fumes/vapour/spray.
36/37 Wear suitable protective clothing and gloves.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

· **Special labelling of certain preparations:**

Contains isocyanates. See information supplied by the manufacturer.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 1
Reactivity = 1

The substance demonstrates unusual reactivity with water.

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· **HMIS-ratings (scale 0 - 4)** Health = *3
Fire = 1
Reactivity = 1

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* 4 First aid measures

- **General information:** Provide oxygen treatment if affected person has difficulty breathing.
Symptoms of poisoning may even occur after several hours; therefore medical observation is necessary for at least 48 hours after the accident.
Seek immediate medical advice.
- **After inhalation:** Supply fresh air. For added safety, call a doctor.
In case of unconsciousness place patient in a stable side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Induce vomiting, if person is conscious. Seek medical help.

5 Firefighting measures

- **Suitable extinguishing agents:** CO2, sand, extinguishing powder. Do not use water.
Foam
- **For safety reasons unsuitable extinguishing agents:** Water
- **Special hazards arising from the substance or mixture** Formation of toxic gases is possible during heating or in case of fire.
- **Protective equipment:** Mouth respiratory protective device.
- **Additional information** Cool endangered receptacles with water spray.

* 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Mouth respiratory protective device.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.

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- **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 disposal information.
-

* 7 Handling and storage

- **Handling:**
 - **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Use only in well ventilated areas.
 - **Information about protection against explosions and fires:** Protect from heat.
Emergency cooling must be available in case of nearby fire.
 - **Storage:**
 - **Requirements to be met by storerooms and receptacles:** No special requirements.
 - **Information about storage in one common storage facility:** Not required.
 - **Further information about storage conditions:** Keep receptacle tightly sealed.
Protect from humidity and water.
Store in cool, dry conditions in well sealed receptacles.
Store in a cool place. Heat will increase pressure and may lead to the receptacle bursting.
 - **Specific end use(s)** No further relevant information available.
-

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

· Components with limit values that require monitoring at the workplace:	
101-68-8 4,4'-methylenediphenyl diisocyanate	
PEL	Short-term value: C 0.2 mg/m ³ , C 0.02 ppm
REL	Short-term value: C 0.2* mg/m ³ , C 0.02* ppm
	Long-term value: 0.05 mg/m ³ , 0.005 ppm
	*10-min
TLV	0.051 mg/m ³ , 0.005 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

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- **Personal protective equipment:**
 - **General protective and hygienic measures:** Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
 - **Breathing equipment:** In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
 - **Protection of hands:** Protective gloves
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material is based on consideration of the penetration times, rates of diffusion and the degradation of the material.
 - **Material of gloves** The selection of suitable gloves depends not only on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
 - **Penetration time of glove material** The exact penetration time has to be determined by the glove manufacturer and has to be observed.
 - **Eye protection:** Tightly sealed goggles

*** 9 Physical and chemical properties**

· General Information	
· Appearance:	
· Form:	Liquid
· Color:	Amber colored
· Odor:	Mild
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	Undetermined.
· Flash point:	> 121°C
· Flammability (solid, gaseous):	Not applicable.

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· Ignition temperature:	400°C
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not self-igniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
· Lower:	0.4 Vol %
· Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density at 20°C:	0.98 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· Water:	Hydrolized.
· Segregation coefficient (n-octanol/water):	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Solvent content:	
· Organic solvents:	0.0 %
· Other information	No further relevant information available.

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
 - Reacts with water.
 - Reacts with amines.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
 - Protect from humidity and water.
 - Reacts with water.
- **Hazardous decomposition products:**
 - Nitrogen oxides
 - Isocyanate
 - Irritant gases/vapors
 - (possible HCN)

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11 Toxicological information

- **Acute toxicity:**

· LD/LC50 values that are relevant for classification:		
101-68-8 4,4'-methylenediphenyl diisocyanate		
Oral	LD50	2200 mg/kg (mouse) > 10000 mg/kg (rat)
Dermal	LD50	> 6200 mg/kg (rabbit)

- **Primary irritant effect:**

- **on the skin:**

Irritant to skin and mucous membranes.

- **on the eye:**

Irritating effect.

- **Sensitization:**

Sensitization possible through inhalation.

Sensitization possible through skin contact.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

* 12 Ecological information

- **Aquatic toxicity:**

No further relevant information available.

- **Persistence and degradability**

No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential**

No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

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

- **Uncleaned packagings:**

- **Recommendation:**

Disposal must be made according to official regulations.

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* 14 Transport information

· UN-Number · DOT, ADR, ADN, IMDG, IATA	Not Applicable
· UN proper shipping name · DOT · ADR, ADN, IMDG, IATA	Not Regulated Not Applicable
· Transport hazard class(es) · DOT, ADR, ADN, IMDG, IATA · Class	Not Applicable
· Packing group · DOT, ADR, IMDG, IATA	Not Applicable
· Environmental hazards: · Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

* 15 Regulatory information

· Sara

· Section 302 (extremely hazardous substances):			
None of the ingredients is listed.			
· Section 313 (Specific toxic chemical listings):			
9016-87-9	diphenylmethanediisocyanate, isomers and homologues		>60%
101-68-8	4,4'-methylenediphenyl diisocyanate		10-20%
· Sections 311/312 (Specific hazard chemical listings):			
All ingredients are listed.			
· Sections 311/312 Hazard Categorizations:			
9016-87-9	diphenylmethanediisocyanate, isomers and homologues	A = Acute; C = Chronic (health hazards)	>60%
101-68-8	4,4'-methylenediphenyl diisocyanate	A = Acute; C = Chronic (health hazards)	10-20%
· TSCA (Toxic Substances Control Act):			
All ingredients are listed.			
· Proposition 65			
· Chemicals known to cause cancer:			
None of the ingredients is listed.			

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· Chemicals known to cause reproductive toxicity for females:			
None of the ingredients is listed.			
· Chemicals known to cause reproductive toxicity for males:			
None of the ingredients is listed.			
· Chemicals known to cause developmental toxicity:			
None of the ingredients is listed.			
· Carcinogenic categories			
· EPA (Environmental Protection Agency)			
9016-87-9	diphenylmethanediisocyanate, isomers and homologues		CBD
101-68-8	4,4'-methylenediphenyl diisocyanate		CBD
· IARC (International Agency for Research on Cancer)			
9016-87-9	diphenylmethanediisocyanate, isomers and homologues	3	>60%
101-68-8	4,4'-methylenediphenyl diisocyanate	3	10-20%
· NTP (National Toxicology Program)			
None of the ingredients is listed.			
· TLV (Threshold Limit Value established by ACGIH)			
None of the ingredients is listed.			
· MAK (German Maximum Workplace Concentration)			
9016-87-9	diphenylmethanediisocyanate, isomers and homologues	4	>60%
101-68-8	4,4'-methylenediphenyl diisocyanate	4	10-20%
· NIOSH-Ca (National Institute for Occupational Safety and Health)			
None of the ingredients is listed.			
· OSHA-Ca (Occupational Safety & Health Administration)			
None of the ingredients is listed.			

* 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases	R20	Harmful 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.
	R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.

· Department issuing MSDS: Technical department

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- **Contact:** Dr. John F. Plummer
- *** Data compared to the previous version altered.**

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MERECO

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

· Product identifier

· Trade name: **Metrethane 4717 Activator**

· Application of the substance / the preparation

Hardening agent / Curing agent

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

Mereco Division
Metachem Resins Corporation
1505 Main Street
West Warwick, RI 02893
USA

Phone +1 / 401 / 822-9300

· Information department:

Technical department.
email = info@mereco.com

· Emergency telephone number:

Telephone: (401) 822-9300

2 Composition/information on ingredients

· Chemical characterization: Substances

· CAS No. Description Polyol mixture

* 3 Hazards identification

· Classification of the substance or mixture

· Classification according to Directive 67/548/EEC or Directive 1999/45/EC

This material is non-hazardous

Not Applicable

· Information concerning particular hazards for human and environment:

Not applicable.

· Label elements

· Labelling according to EU guidelines:

Observe the general safety regulations when handling chemicals. The substance is not subject to classification according to the sources of literature known to us.

· Classification system:

· NFPA ratings (scale 0 - 4)

Health = 2
Fire = 1
Reactivity = 0

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- **HMIS-ratings (scale 0 - 4)** Health = 2
- Fire = 1
- Reactivity = 0

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* 4 First aid measures

- **General information:** No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.

5 Firefighting measures

- **Suitable extinguishing agents:** CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture:** No further relevant information available.
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:** Not required.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections:** No dangerous substances are released.
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
 - **Precautions for safe handling:** No special measures required.
Store in cool, dry place in tightly closed receptacles.
Use only in well ventilated areas.
- **Information about protection against explosions and fires:** No special measures required.

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- **Storage:**
 - **Requirements to be met by storerooms and receptacles:** No special requirements.
 - **Information about storage in one common storage facility:** Not required.
 - **Further information about storage conditions:** None.
 - **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:** Not required.
 - **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
 - **General protective and hygienic measures:** The usual precautionary measures for handling chemicals should be followed.
 - **Breathing equipment:** Not required.
 - **Protection of hands:** The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material is based on consideration of the penetration times, rates of diffusion and the degradation of the material.
 - **Material of gloves** The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
 - **Penetration time of glove material** The exact penetration time has to be determined by the glove manufacturer and has to be observed.
 - **Eye protection:** Goggles recommended during refilling.

* 9 Physical and chemical properties

- | |
|---|
| <ul style="list-style-type: none"> · General Information · Appearance: · Form: Liquid |
|---|

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· Color:	Light yellow
· Odor:	Mild
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/Melting range:	Undetermined.
· Boiling point/Boiling range:	Undetermined.
· Flash point:	205°C
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
· Lower:	Not determined.
· Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density at 20°C:	0.96 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· Water:	Not miscible or difficult to mix.
· Segregation coefficient (n-octanol/water):	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Organic solvents:	0.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.

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- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
 - **on the skin:** No irritant effect.
 - **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The substance is not subject to classification.

* 12 Ecological information

- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
 - **Bioaccumulative potential:** No further relevant information available.
- **Additional ecological information:**
 - **General notes:** Generally not hazardous for water

13 Disposal considerations

- **Waste treatment methods:**
- **Recommendation:** Smaller quantities can be disposed of with household waste.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

* 14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Not Applicable
· UN proper shipping name	
· DOT	Not Regulated
· ADR, ADN, IMDG, IATA	Not Applicable

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· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Not Applicable
· Packing group	
· DOT, ADR, IMDG, IATA	Not Applicable
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

15 Regulatory information

- **Sara**

· Section 302 (extremely hazardous substances):
Substance is not listed.
· Section 313 (Specific toxic chemical listings):
Substance is not listed.
· Sections 311/312 (Specific hazard chemical listings):
Substance is not listed.
· Sections 311/312 Hazard Categorizations:
Substance is not listed.
· TSCA (Toxic Substances Control Act):
Substance is listed.
· Proposition 65
· Chemicals known to cause cancer:
Substance is not listed.
· Chemicals known to cause reproductive toxicity for females:
Substance is not listed.
· Chemicals known to cause reproductive toxicity for males:
Substance is not listed.
· Chemicals known to cause developmental toxicity:
Substance is not listed.

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- **Carcinogenic categories**

· EPA (Environmental Protection Agency)
Substance is not listed.
· IARC (International Agency for Research on Cancer)
Substance is not listed.
· NTP (National Toxicology Program)
Substance is not listed.
· TLV (Threshold Limit Value established by ACGIH)
Substance is not listed.
· MAK (German Maximum Workplace Concentration)
Substance is not listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
Substance is not listed.
· OSHA-Ca (Occupational Safety & Health Administration)
Substance is not listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Technical department
- **Contact:** Dr. John F. Plummer
 - * **Data compared to the previous version altered.**