13-302A Iso Component Part A

Material Safety Data Sheet

According to MOEL Public notice 2023-9
MSDS Number: No data available
Issue date: 4/21/2025 Version: 1.0

1. Product and company identification

1.1. Product Name

Product form	:	Mixture
Trade name	:	13-302A Iso Component Part A
Other means of identification	:	Part No. TBA-13302A

1.2. Recommended use of the chemical and restrictions on use

1.2.1. Recommended use

Recommended use : Thermal barrier polymer (Part A).

1.2.2. Restrictions on use

No data available

1.3. Supplier information

- Manufacturer

Company	:	Azon USA Inc.
Address	:	(49004) USA Michigan Kalamazoo 2204 Ravine Rd
Tel.	:	269-385-5942
Emergency information	:	For 24/7 multilingual advice for spill, leak, fire, exposure, or accident call CHEMTREC at 080-880-0454 (Toll Free, Local, Korean) and provide CCN 2189 Back-up Emergency Number: +65 3163 8374 (Singapore, multilingual) +1-703-527-3887 (USA, English Only)

- Distributor

Company	:	Azon Asia Inc.
Address	:	(CB 27459 KOR) South Korea Chungju 168 Joongwon Ind Rd. Judeok
Tel.	:	+82 (0) 43 840 0500

2. Hazards identification

2.1. Hazard Classification

Flammable liquids, Not classified	
Acute toxicity (inhalation:vapour), Category 4	H332
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2A	H319
Respiratory sensitisation, Category 1	H334
Skin sensitisation, Category 1	H317
Carcinogenicity, Category 2	H351
Specific target organ toxicity - Single exposure, Category 3, Respiratory tract irritation	H335
Specific target organ toxicity - Repeated exposure, Category 2	H373

2.2. Label elements including precautionary statements

2.2.1. Hazard pictograms (GHS KR)

2.2.2. Signal word (GHS KR)

Danger.

2.2.3. Hazard statements (GHS KR)

H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H332 - Harmful if inhaled.
H334 - May cause allergic reactions, asthma or shortness of breath and etc if inhaled.
H335 - May cause respiratory irritation.
H351 - Suspected of causing cancer.
H373 - May cause damage to organs (respiratory system) through prolonged or repeated exposure (Inhalation).

2.2.4. Precautionary statements (GHS KR)

Precaution:

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe mist, spray, vapours.
P261 - Avoid breathing mist, spray, vapours.
P264 - Wash hands, forearms and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P284 - Wear respiratory protection.

Treatment:

P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a doctor, a POISON CENTER.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P308+P313 - IF exposed or concerned: Get medical advice/attention.

Storage:

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.

Disposal:

P501 - Dispose of contents/container according to waste related regulations.

2.3. Other Hazard which are not included in the classification criteria

Causes skin and eye irritation.
May cause an allergic skin reaction.
May cause respiratory irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Harmful if inhaled

3. Composition/information on ingredients

Product form : Mixture

Substance name	Other Names	CAS-No. and Identifier number	Concentration (%)
Diphenylmethane Diisocyanate, isomers and homologues	No data available	CAS-No.: 9016-87-9	90 – 100
4,4'-Methylenediphenyl diisocyanate	No data available	CAS-No.: 101-68-8 KECI-No.: KE-12080	27 – 50
1,3-Bis(4-((4-isocyanatophenyl)methyl)phenyl)-1,3-diazetidine-2,4-dione	No data available	CAS-No.: 17589-24-1 KECI-No.: 2015-3-6626	<5

Substance name	Other Names	CAS-No. and Identifier number	Concentration (%)
Isocyanic acid, polymethylenepolyphenylene ester, polymer with a-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl)	No data available	CAS-No.: 57636-09-6	<5

Comments : CAS [101-68-8] is an MDI isomer that is part of CAS [9016-87-9].

4. First-aid measures

4.1. 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.

4.2. Skin contact

Remove affected clothing and wash all exposed skin areas with mild soap and water, followed by warm water rinse.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.

4.3. Inhalation

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
If the victim is unconscious : Lay in a stable manner on victim's side.
Induce artificial respiration with mask fitted with one-way valve or other suitable device; not mouth-to-mouth.
Call a physician immediately.

4.4. Ingestion

Rinse mouth.
Do NOT induce vomiting.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
Call a poison center or a doctor if you feel unwell.

4.5. Indication of immediate medical attention and notes for physician

Call a physician or poison control center immediately.

5. Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Carbon dioxide (CO2), dry chemical powder, foam.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No fire hazard.
Reactivity in case of fire : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Fight fire from safe distance and protected location.
Do not enter fire area without proper protective equipment, including respiratory protection.
Move containers from fire area if it can be done without personal risk.
Prevent fire fighting water from entering the environment.

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

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear recommended personal protective equipment.
Evacuate the danger area.
If possible without taking personal risks, remove ignition sources.
If outdoors, move to an area upwind of the danger area.
Prevent other non-emergency personnel from entering the danger area.
Only qualified personnel equipped with suitable protective equipment may intervene.
Do not attempt to take action without suitable protective equipment.
For further information refer to section 8: "Exposure controls/personal protection".
Evacuate unnecessary personnel.
Stop leak if safe to do so.
Prevent runoff from entering drains, sewers or waterways.

6.2. Environmental precautions and protective procedures

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Stop leak without risks if possible.
Contain with non-combustible inert absorbent.
Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Take up in non-combustible inert absorbent and place into container for disposal.
Contaminated absorbent material may pose the same hazard as the spilt product.
Decontaminate surfaces and equipment with water and detergent.
Until a sufficient level of dilution is achieved, the decontamination water may pose the same hazards as the product.
Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.
Notify authorities if product enters sewers or public waters.

7. Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ensure good ventilation of the work station. Wear personal protective equipment. Do not breathe mist, spray, vapours. Avoid contact with skin, eyes and clothing. Take precautionary measures against static discharge.
Hygiene measures	:	Always wash hands after handling the product. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage

Storage conditions	:	Store in a cool, dry and well-ventilated area away from incompatible substances. Keep container tightly closed.
Incompatible materials	:	Alcohols. Amines. Copper alloys. Strong oxidizers. Acids. Ammonia. Bases. Humid air, water.
Packaging materials	:	Always store product in container of same material as original container.

8. Exposure controls & personal protection

8.1. Control parameters (e.g. occupational exposure limit values, biological limit values)

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
Korea - Occupational Exposure Limits	
Local name	디페닐메탄 디이소시아네이트 (메틸렌비스페닐 이소시아네이트) # Diphenylmethanediisocyanate (Methylene bisphenyl isocyanate)
ISHA OEL TWA	0.005 ppm
Remark (KR)	발암성 2 # Carcinogenicity 2
Regulatory reference	고용노동부고시 제2020-48호 # MOEL Public Notice. No. 2020-48

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Use general ventilation, local exhaust ventilation, or process enclosure to keep the airborne concentrations below the permissible exposure limits.
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Environmental exposure controls : Avoid release to the environment.
Take measures to reduce or limit air emissions and releases to soil and the aquatic environment.

8.3. Personal protection equipment

Personal protective equipment

Personal protective equipment should be chosen according to national standards and in discussion with the supplier of the protective equipment.
Wear recommended personal protective equipment.

Respiratory protection

In case of inadequate ventilation, wear respiratory protection.

Eye protection

Chemical goggles or face shield

Hand protection

Wear protective gloves.
Protective gloves made of : Neoprene or nitrile rubber gloves, PVC or other plastic material or natural rubber gloves

Skin and body protection

Wear suitable protective clothing

Personal protective equipment symbol(s):

9. Physical and chemical properties

a)	Appearance	:	No data available
	Physical state	:	Liquid
	Colour	:	Brown.
b)	Odour	:	Slight. Musty.
c)	Odour threshold	:	No data available
d)	pH	:	No data available
e)	Melting / freezing point	:	Not applicable / No data available
f)	Initial boiling point and boiling range	:	208 °C / 406.4 °F
g)	Flash point	:	198.89 °C / 390 °F
h)	Evaporation rate	:	No data available
i)	Flammability (solid, gas)	:	Not applicable.
j)	Upper / lower flammability or explosive limits	:	No data available

k)	Vapour pressure	:	No data available
l)	Solubility	:	No data available
m)	Vapour density	:	No data available
n)	Relative density	:	1.24
o)	Partition coefficient n-octanol/water (Log Kow)	:	No data available
p)	Auto-ignition temperature	:	No data available
q)	Decomposition temperature	:	No data available
r)	Viscosity, kinematic	:	No data available
	Viscosity, dynamic	:	150 – 270 cP
s)	Molecular mass	:	No data available

10. Stability and reactivity

10.1. Chemical stability and Possibility of hazardous reactions

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

10.2. Conditions to avoid

Incompatible materials.

10.3. Incompatible materials

Alcohols.
Amines.
Copper alloys.
Strong oxidizers.
Acids.
Ammonia.
Bases.
Humid air, water.

10.4. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Thermal decomposition generates:
Carbon dioxide.
Carbon monoxide.
Nitrogen oxides.

11. Toxicological information

11.1. Information on the likely routes of exposure

Oral	:	Not classified
Skin and eyes contact	:	Skin corrosion/irritation - Causes skin irritation. Serious eye damage/eye irritation - Causes serious eye irritation. Skin sensitization - May cause an allergic skin reaction.
Inhalation	:	Acute toxicity (Inhalation:vapour) - Harmful if inhaled. Respiratory sensitization - May cause allergic reactions, asthma or shortness of breath and etc if inhaled.

11.2. Health hazards information

Acute toxicity (oral):

Not classified

Acute toxicity (dermal):

Not classified

Acute toxicity (inhalation):

Inhalation:vapour - Harmful if inhaled.

13-302A Iso Component Part A	
ATE KR (vapours)	11 mg/l/4h

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
LD50 oral rat	49 g/kg
LD50 dermal rabbit	> 9400 mg/kg bodyweight
LC50 Inhalation - Rat	490 mg/m³

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
LD50 oral rat	9200 mg/kg bodyweight
LC50 Inhalation - Rat (Dust/Mist)	1.12 mg/l/4h

Skin corrosion/irritation:

Causes skin irritation.

Serious eye damage/irritation:

Causes serious eye irritation.

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Serious eye damage/irritation, rabbit	Mildly irritating

Respiratory sensitization:

May cause allergic reactions, asthma or shortness of breath and etc if inhaled.

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Additional information	Reexposure to extremely low isocyanate concentrations may cause allergic respiratory reactions in individuals already sensitized. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Skin sensitization:

May cause an allergic skin reaction.

Carcinogenicity:

Suspected of causing cancer.

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
IARC group	3 - Not classifiable

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
IARC group	3 - Not classifiable

Mutagenicity:

Not classified

Reproductive toxicity:

Not classified

STOT-single exposure:

May cause respiratory irritation.

Isocyanic acid, polymethylenepolyphenylene ester, polymer with a-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (57636-09-6)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure:

May cause damage to organs (respiratory system) through prolonged or repeated exposure (Inhalation).

Aspiration hazard:

Not classified

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
Density	1.18 g/cm³ Type: 'density' Temp.: 50 °C

12. Ecological information

12.1. Aquatic and terrestrial ecotoxicity

Ecology - general : Hazardous ingredients: Methylenediphenyl diisocyanate (MDI).

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Not classified

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
NOEC chronic algae	1640
BCF - Fish [1]	92 28 days
Partition coefficient n-octanol/water (Log Pow)	< 3
Additional information	MDI (methylene diphenyl diisocyanate) is considered a marine pollutant because it can react with water, forming hazardous mixtures of diisocyanates and amines, and ultimately producing inert, solid, insoluble polyurea.

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
NOEC (chronic)	≥ 10 mg/l
Partition coefficient n-octanol/water (Log Pow)	< 3

12.2. Persistence and degradability

13-302A Iso Component Part A	
Persistence and degradability	Not rapidly degradable

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Persistence and degradability	0 % biodegradation Not readily biodegradable.

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
Persistence and degradability	Not rapidly degradable

1,3-Bis(4-((4-isocyanatophenyl)methyl)phenyl)-1,3-diazetidine-2,4-dione (17589-24-1)	
Persistence and degradability	Not rapidly degradable

Isocyanic acid, polymethylenepolyphenylene ester, polymer with a-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (57636-09-6)	
Persistence and degradability	Not rapidly degradable

12.3. Bioaccumulative potential

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
BCF - Fish [1]	92 28 days

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Partition coefficient n-octanol/water (Log Pow)	< 3

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
Partition coefficient n-octanol/water (Log Pow)	< 3

12.4. Mobility in soil

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Partition coefficient n-octanol/water (Log Pow)	< 3

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
Partition coefficient n-octanol/water (Log Pow)	< 3

12.5. Other adverse effects

Ozone : Not classified

Other adverse effects : No data available

13. Disposal considerations

13.1. Disposal method

Regional waste regulation : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Ecological waste information : Avoid release to the environment.

13.2. Disposal precaution

Product/Packaging disposal recommendations : Disposal must be done according to official regulations.
Dispose of this material and its container at hazardous or special waste collection point.
Refer to all applicable national, international and local regulations or provisions.

Sewage disposal recommendations : Disposal must be done according to official regulations.

Additional information : Do not re-use empty containers.

14. Transport information

In accordance with UN RTDG / IMDG / IATA

UN RTDG	IMDG	IATA
14.1. UN number		
3082	3082	3082
14.2. UN proper shipping name		
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MDI)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MDI)	Environmentally hazardous substance, liquid, n.o.s. (MDI)
Transport document description		
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MDI), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MDI), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (MDI), 9, III
14.3. Transport hazard class(es)		
9	9	9

UN RTDG	IMDG	IATA
		
14.4. Packing group		
III	III	III
14.5. Marine pollutant		
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes
Non-bulk packages of this product are not regulated as hazardous materials in package sizes less than the product reportable quantity, unless transported by inland waterway. The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg. Reportable quantity 8333.3 lbs / 3783.3 kg [806.01 gal / 3051.1 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.		

14.6. Special precaution which a user to be aware of or meeds to comply with in connection with transport or conveyance either within or outside their premises

No data available

15. Regulatory information

15.1. Occupational Safety and Health Act

Hazardous Substances Prohibited for Manufacturing	Not applicable	
Hazardous Substances Requiring Permission	Not applicable	
Threshold Limit Values Chemicals	Applicable	101-68-8: Diphenylmethanediisocyanate (Methylene bisphenyl isocyanate)
Hazardous Substances Below Permissible Level	Applicable	101-68-8: Methylene bis(phenyl isocyanate)
Hazardous Substances Subject to Working Environment Measurement	Applicable	101-68-8: Methylene bis (phenyl isocyanate) (Measurement Cycle: 6 months) (contains above 1%)
Hazardous Substances Subject to Workers Requiring Health Examination	Applicable	101-68-8: Methylene bis(phenyl isocyanate) (Examination Cycle: 12 months) (contains above 1%)
Hazardous Substances Subject to Control	Applicable	101-68-8: 4,4'-Methylenediphenyl diisocyanate (contains above 1%)
Substance Subject to Submission of PSM	Not applicable	

15.2. Chemical Substances Control Act

Toxic Substances	Applicable	101-68-8: Methylene diphenyl diisocyanate (Toxic-No. : 97-1-423 (contains above 25%))
Prohibited Substances	Not applicable	
Restricted Substances	Not applicable	
Substances Requiring Preparation for Accident	Not applicable	

15.3. Safety Control of Dangerous Substances Act

Safety Control of Dangerous Substances Act	Applicable	9016-87-9: Polymethylene polyphenylisocyanate

15.4. Wastes Control Act

Hazardous Substances in Designated wastes	Not applicable
Types of wastes	No data available

15.5. Other requirements in domestic and other countries

Act on Registration and Evaluation of Chemicals (K-REACH)

Korea Existing Chemicals Inventory (KECI)	Applicable	9016-87-9: Isocyanic acid polymethylenepolyphenylene ester ; Polymethylene polyphenylene isocyanate

		101-68-8: Diphenyl methane diisocyanate ; 4,4'-Methylenediphenyldiisocyanate (KECI-No. : KE-12080) 17589-24-1: 1,3-Bis[4-[(4-isocyanatophenyl)methyl]phenyl]-1,3-diazetidine-2,4-dione (KECI-No. : 2015-3-6626)
Priority Existing Chemicals (PEC)	Applicable	101-68-8: Diphenyl methane diisocyanate (PEC-No. : 102)
Substances Subject to Intensive Control	Not applicable	
CMR Substances	Not applicable	

Other Domestic Regulations

Persistent Organic Pollutants(POPs) Control Act	Not applicable	
Ozone Depleting Substances(ODS)	Not applicable	
PRTR Substances	Applicable	101-68-8: Diphenylmethane 4,4'-diisocyanate (Group 2)

EU Regulatory Information

EU Candidate list (SVHC)	Contains no substance(s) listed on the REACH Candidate List
EU authorization list (REACH Annex XIV)	Contains no substance(s) listed on REACH Annex XIV (Authorisation List)
EU restriction list (REACH Annex XVII)	Not applicable

US Regulatory Information

CERCLA Section 103 (40CFR302.4)	Contains listed substances
EPCRA Section 302 (40CFR355.30)	Not applicable
EPCRA Section 304 (40CFR355.40)	Not applicable
EPCRA Section 313 (40CFR372.65)	Contains listed substances

16. Other information

16.1. Information source and references

SDS prepared by CHEMTREC.

16.2. Issue date

4/21/2025

16.3. Revision number and Revision date

Version	:	1.0
Revision date	:	No data available

16.4. Others

No data available

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.