

MLS5034 Isocyanate

Version 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Reproductive toxicity, Category 2	H361d: Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :

H304	May be fatal if swallowed and enters airways.
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.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:	
P260	Do not breathe mist or vapours.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:	
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.

MLS5034 Isocyanate

Version 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

Bis(isopropyl)naphthalene	38640-62-9 254-052-6 01-2119565150-48	Asp. Tox. 1; H304 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 20 - < 25
Terphenyl, hydrogenated	61788-32-7 262-967-7 01-2119488183-33	Aquatic Chronic 4; H413	>= 2.5 - < 10
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	6846-50-0 229-934-9 01-2119451093-47	Repr. 2; H361d Aquatic Chronic 3; H412	>= 3 - < 10
Terphenyl	26140-60-3 247-477-3 01-2119488220-43	Acute Tox. 4; H332 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 10	>= 0.25 - < 1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Do not leave the victim unattended.
Get medical attention immediately if symptoms occur.
Show this safety data sheet to the doctor in attendance.
- Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
First Aid responders should pay attention to self-protection and use the recommended protective clothing
- If inhaled : If breathed in, move person into fresh air.
Call a physician or poison control centre immediately.
Keep patient warm and at rest.
Keep respiratory tract clear.
If breathing is difficult, give oxygen.
If breathing is irregular or stopped, administer artificial respiration.
If unconscious, place in recovery position and seek medical advice.
Consult a physician immediately if symptoms such as shortness of breath or asthma are observed.
A hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitised persons.

MLS5034 Isocyanate

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing.

The onset of the respiratory symptoms may be delayed for several hours after exposure.
A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Foam
Carbon dioxide (CO₂)
Dry powder

Unsuitable extinguishing media : Water may be used if no other available and then in copious quantities. Reaction between water and hot isocyanate may be vigorous.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
The pressure in sealed containers can increase under the influence of heat.
Exposure to decomposition products may be a hazard to health.

Hazardous combustion products : Combustion products may include: carbon monoxide, carbon dioxide, nitrogen oxides, hydrocarbons and HCN. In the event of extreme heat (>500 degrees C), aniline is suspected of being formed.

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear. Clothing for fire-fighters (including helmets, protective boots and

MLS5034 Isocyanate

Version: 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate			(NCO)	
Further information	<p>Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even in tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyper-responsive. Substances that can cause occupational asthma should be distinguished from substances which may trigger the symptoms of asthma in people with pre-existing airway hyper-responsiveness, but which do not include the disease themselves. The latter substances are not classified as asthmagens or respiratory sensitisers. Further information can be found in the HSE publication Asthmagen? Critical assessments of the evidence for agents implicated in occupational asthma., Wherever it is reasonably practicable, exposure to substances that can cause occupational asthma should be prevented. Where this is not possible, the primary aim is to apply adequate standards of control to prevent workers from becoming hyper-responsive. For substances that can cause occupational asthma, COSHH requires that exposure be reduced to as low as is reasonably practicable. Activities giving rise to short-term peak concentrations should receive particular attention when risk management is being considered. Health surveillance is appropriate for all employees exposed or liable to be exposed to a substance which may cause occupational asthma and there should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance., Capable of causing occupational asthma., The 'Sen' notation in the list of WELs has been assigned only to those substances which may cause occupational asthma in the categories shown in Table 1. It should be remembered that other substances not in these tables may cause occupational asthma. HSE's asthma web pages (www.hse.gov.uk/asthma) provide further information.</p>			
		STEL	0.07 mg/m3 (NCO)	GB EH40
Further information	<p>Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even in tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyper-responsive. Substances that can cause occupational asthma should be distinguished from substances which may trigger the symptoms of asthma in people with pre-existing airway hyper-responsiveness, but which do not include the disease themselves. The latter substances are not classified as asthmagens or respiratory sensitisers. Further information can be found in the HSE publication Asthmagen? Critical assessments of the evidence for agents</p>			

MLS5034 Isocyanate

Version 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

	<p>implicated in occupational asthma., Wherever it is reasonably practicable, exposure to substances that can cause occupational asthma should be prevented. Where this is not possible, the primary aim is to apply adequate standards of control to prevent workers from becoming hyper-responsive. For substances that can cause occupational asthma, COSHH requires that exposure be reduced to as low as is reasonably practicable. Activities giving rise to short-term peak concentrations should receive particular attention when risk management is being considered. Health surveillance is appropriate for all employees exposed or liable to be exposed to a substance which may cause occupational asthma and there should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance., Capable of causing occupational asthma., The 'Sen' notation in the list of WELs has been assigned only to those substances which may cause occupational asthma in the categories shown in Table 1. It should be remembered that other substances not in these tables may cause occupational asthma. HSE's asthma web pages (www.hse.gov.uk/asthma) provide further information.</p>			
Terphenyl, hydrogenated	61788-32-7	TWA	2 ppm 19 mg/m3	2017/164/EU
Further information	Indicative			
		STEL	5 ppm 48 mg/m3	2017/164/EU
Further information	Indicative			
		TWA	2 ppm 19 mg/m3	GB EH40
		STEL	5 ppm 48 mg/m3	GB EH40
Terphenyl	26140-60-3	STEL	0.5 ppm 4.8 mg/m3	GB EH40

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
4,4'-Methylenediphenyl diisocyanate, oligomers	Workers	Inhalation	Long-term systemic effects	0.05 mg/m3
	Workers	Inhalation	Acute systemic effects	0.1 mg/m3
	Workers	Inhalation	Long-term local effects	0.05 mg/m3
	Workers	Inhalation	Acute local effects	0.1 mg/m3
	Workers	Dermal	Acute systemic effects	50 mg/kg bw/day
	Workers	Dermal	Acute local effects	28.7 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	0.025 mg/m3
	Consumers	Inhalation	Acute systemic effects	0.05 mg/m3
	Consumers	Inhalation	Long-term local effects	0.025 mg/m3

MLS5034 Isocyanate

Version 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

	Consumers	Inhalation	Acute local effects	0.05 mg/m3
	Consumers	Dermal	Acute systemic effects	25 mg/kg bw/day
	Consumers	Dermal	Acute local effects	17.2 mg/cm2
	Consumers	Oral	Acute systemic effects	20 mg/kg bw/day
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	Workers	Inhalation	Long-term systemic effects	110 mg/m3
	Workers	Dermal	Long-term systemic effects	31.2 mg/kg
	Consumers	Inhalation	Long-term systemic effects	32.6 mg/m3
	Consumers	Oral	Long-term systemic effects	18.8 mg/kg
	Consumers	Dermal	Long-term systemic effects	18.8 mg/kg
Bis(isopropyl)naphthalene	Workers	Inhalation	Systemic effects, Long-term exposure	30 mg/m3
	Workers	Dermal	Systemic effects, Long-term exposure	4.3 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Long-term exposure	7.4 mg/m3
	Consumers	Dermal	Systemic effects, Long-term exposure	2.1 mg/kg bw/day
	Consumers	Oral	Systemic effects, Long-term exposure	2.1 mg/kg bw/day
Terphenyl, hydrogenated	Workers	Inhalation	Long-term systemic effects	8.38 mg/m3
	Workers	Inhalation	Long-term local effects	83.8 mg/m3
	Workers	Dermal	Long-term systemic effects	46.3 mg/kg
	Workers	Dermal	Long-term local effects	0.2 mg/m3
	Consumers	Inhalation	Long-term systemic effects	2.5 mg/m3
	Consumers	Inhalation	Long-term local effects	25 mg/m3
	Consumers	Dermal	Long-term systemic effects	27.8 mg/kg
	Consumers	Dermal	Long-term local effects	1.23 mg/m3
	Consumers	Oral	Long-term systemic effects	0.3 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
----------------	---------------------------	-------

MLS5034 Isocyanate

Version 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

4,4'-Methylenediphenyl diisocyanate, oligomers	Fresh water	1 mg/l
	Marine water	0.1 mg/l
	Sewage treatment plant	1 mg/l
	Soil	1 mg/kg dry weight (d.w.)
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate	Fresh water	0.014 mg/l
	Marine water	0.0014 mg/l
	Fresh water sediment	1.15 mg/kg
	Soil	0.926 mg/kg
	Sewage treatment plant	3 mg/l
Bis(isopropyl)naphthalene	Fresh water	0.26 µg/l
Remarks:	Assessment Factors	
	Marine water	0.026 µg/l
	Assessment Factors	
	Sewage treatment plant	0.15 mg/l
	Assessment Factors	
	Fresh water sediment	0.94 mg/kg
	Equilibrium method	
	Marine sediment	0.094 mg/kg
	Equilibrium method	
	Soil	0.1872 mg/kg
	Equilibrium method	
	Secondary Poisoning	25 mg/kg
	Assessment Factors	
Terphenyl, hydrogenated	Fresh water	0 mg/l
	Marine water	0 mg/l
	Intermittent use/release	0.001 mg/l
	Sewage treatment plant	10.3 mg/l
	Fresh water sediment	3.16 mg/kg
	Marine sediment	0.316 mg/kg
	Soil	0.631 mg/kg
	Secondary Poisoning	2.22 mg/kg

8.2 Exposure controls

Personal protective equipment

MLS5034 Isocyanate

Version Revision Date: SDS Number: Date of last issue: -
1.0 23.01.2020 Date of first issue: 23.01.2020

Print Date 06.02.2020

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
Chemical splash goggles.
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.
Please follow all applicable local/national requirements when selecting protective measures for a specific workplace.
Ensure that eyewash stations and safety showers are close to the workstation location.

Hand protection
Remarks : Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.

Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms. Examples of glove materials that might provide suitable protection include: Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated ("EVAL"), Polychloroprene (Neoprene*), Nitrile/butadiene rubber ("nitrile" or "NBR"), Polyvinyl chloride ("PVC" or "vinyl"), Fluoroelastomer (Viton*).

When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended.

When only brief contact is expected, a glove with protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended.

Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to : other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/specifications provided by the glove supplier" The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. By industrial use of aprotic polar solvents for cleaning : Butyl rubber (0.7mm), Nitrile rubber (0.4mm), Chloroprene (0.5mm)

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Recommended:
Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C' , Tyvek-Pro 'F' disposable coverall.

MLS5034 Isocyanate

Version: 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

: Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: 92 mg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

: Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Concentration: 40 - 60 mg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Terphenyl, hydrogenated:
Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 482
Result: negative

: Test Type: Ames test
Metabolic activation: with and without metabolic activation
Result: negative

: Metabolic activation: with and without metabolic activation
Method: In vitro mammalian cell gene mutation test
Result: negative

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

: Concentration: 100 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
Result: negative

: Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Method: OECD Test Guideline 476
Result: negative

Terphenyl:
Genotoxicity in vitro

: Test Type: unscheduled DNA synthesis assay
Test system: mammalian liver cells
Concentration: 0.1 - 2ug/ml

MLS5034 Isocyanate

Version: 1.0 Revision Date: 23.01.2020 SDS Number: Date of last issue: -
Date of first issue: 23.01.2020

Print Date 06.02.2020

Terphenyl, hydrogenated:

Species: Rat, female
Application Route: Oral
Dose: 125, 500, 1500 mg/kg bw/d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level:
125 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 500
mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Species: Rat, females
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
343 mg/kg body weight
Developmental Toxicity: No observed adverse effect level:
343 mg/kg body weight
Method: OECD Test Guideline 414

Components:

Bis(isopropyl)naphthalene:

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

Terphenyl, hydrogenated:

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

Components:

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

4,4'-Methylenediphenyl diisocyanate, oligomers:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

STOT - repeated exposure

Components:

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause damage to organs through prolonged or repeated exposure.

4,4'-Methylenediphenyl diisocyanate, oligomers:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Species: Rat, male and female

NOEC: 0.2

Test atmosphere: dust/mist

Exposure time: 2 yr Number of exposures: 5 d

Method: OECD Test Guideline 453

4,4'-Methylenediphenyl diisocyanate, oligomers:

Species: Rat, male and female

NOEC: 0.2

Test atmosphere: dust/mist

Exposure time: 2 yr Number of exposures: 5 d

Method: OECD Test Guideline 453

Bis(isopropyl)naphthalene:

Species: Rat, male and female

NOAEL: 170 mg/kg

Application Route: oral (feed)

Exposure time: 4,320 h Number of exposures: 7 d

Dose: 170, 340, and 670 mg/kg

Method: Subchronic toxicity

Remarks: No significant adverse effects were reported

Terphenyl, hydrogenated:

Species: Rat, male and female

NOAEL: 12 mg/kg

LOAEL: 120 mg/kg

Application Route: oral (feed)

Exposure time: 14 weeks Number of exposures: 7 days/week

Method: OECD Test Guideline 408

Species: Rat, male and female

NOAEL: 0.1 mg/l

LOAEL: 0.5 mg/l

Application Route: Inhalation

Exposure time: 90 days Number of exposures: 6 hours/day, 5 days/week (67 n)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

Dose: 0, 10, 100, 500 mg/m³
Method: OECD Test Guideline 413

Species: Rabbit, male and female
NOAEL: 2,000 mg/kg
Application Route: Dermal
Exposure time: 21 days Number of exposures: 6 hours/day, 5 days/week
Dose: 125, 500, 2000 mg/kg bw/d
Method: Subacute toxicity
Target Organs: Skin

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Species: Rat, male and female
NOAEL: 150 - 750
Application Route: Ingestion
Exposure time: 13 Weeks Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOEL: 30 mg/kg
Application Route: Ingestion
Number of exposures: 7 d
Method: Subchronic toxicity

Components:

Bis(isopropyl)naphthalene:
Repeated dose toxicity -
Assessment : May be harmful if swallowed or if inhaled.
No adverse effect has been observed in chronic toxicity tests.

Terphenyl, hydrogenated:
Repeated dose toxicity -
Assessment : No adverse effect has been observed in chronic toxicity tests.

Aspiration toxicity

Components:

Bis(isopropyl)naphthalene:
May be fatal if swallowed and enters airways.

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Product:

Remarks: Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

- | | |
|---|---|
| Toxicity to fish | : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202 |
| Toxicity to algae/aquatic plants | : EC50 (Desmodesmus subspicatus (green algae)): > 1,640 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201 |
| Toxicity to microorganisms | : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209 |

MLS 5034 ISOCYANATE

Version Revision Date: SDS Number: Date of last issue: -
1.0 23.01.2020 Date of first issue: 23.01.2020

Print Date 06.02.2020

- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: \geq 10 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211
- Toxicity to soil dwelling organisms : EC50: $>$ 1,000 mg/kg
Exposure time: 336 h
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 207
- 4,4'-Methylenediphenyl diisocyanate, oligomers:
- Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): $>$ 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): $>$ 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): $>$ 1,640 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
- Toxicity to microorganisms : EC50 (activated sludge): $>$ 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: \geq 10 mg/l
Exposure time: 21 d
Species: Brachydanio rerio (zebrafish)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211
- Toxicity to soil dwelling organisms : EC50: $>$ 1,000 mg/kg
Exposure time: 336 h
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 207
- Bis(isopropyl)naphthalene:
- Toxicity to fish : LC50 : $>$ 0.5 mg/l
Exposure time: 96 h

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

Test Type: semi-static test
Method: Directive 67/548/EEC, Annex V, C.1.
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.16 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
Remarks: No toxicity at the limit of solubility

EL50 (Daphnia magna (Water flea)): 1.7 mg/l
Exposure time: 48 h
Test Type: semi-static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : NOECr (Desmodesmus subspicatus (green algae)): ca. 0.15 mg/l
Exposure time: 72 h
Test Type: static test
Method: DIN 38412
Remarks: Aquatic toxicity is unlikely due to low solubility.

M-Factor (Acute aquatic toxicity) : 1

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.013 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202

M-Factor (Chronic aquatic toxicity) : 1

Ecotoxicology Assessment
Acute aquatic toxicity : No toxicity at the limit of solubility

Terphenyl, hydrogenated:
Toxicity to fish : LC50 : > 100 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 56 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (activated sludge): 103 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes

Toxicity to daphnia and other : NOELR: < 1 mg/l

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

aquatic invertebrates
(Chronic toxicity)

Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

Ecotoxicology Assessment
Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Toxicity to fish : EC50 (Lepomis macrochirus (Bluegill sunfish)): \geq 6 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: OECD Test Guideline 203
Remarks: No-observed-effect level

Toxicity to daphnia and other
aquatic invertebrates : EC50 (Daphnia magna (Water flea)): $>$ 1.46 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Remarks: Aquatic toxicity is unlikely due to low solubility.

Toxicity to algae/aquatic
plants : ErC50 (Selenastrum capricornutum (green algae)): $>$ 7.49
mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
Remarks: Aquatic toxicity is unlikely due to low solubility.

Toxicity to fish (Chronic
toxicity) : GLP: yes

Toxicity to daphnia and other
aquatic invertebrates
(Chronic toxicity) : NOEC: 0.7 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: flow-through test
Test substance: Fresh water
Method: OECD Test Guideline 211
Remarks: Aquatic toxicity is unlikely due to low solubility.

EC50: \geq 1.3 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: flow-through test
Test substance: Fresh water

Ecotoxicology Assessment
Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

Terphenyl:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 27 mg/l
Exposure time: 96 h
Test Type: static test
GLP: yes

NOEC (Oncorhynchus mykiss (rainbow trout)): 10 mg/l
Exposure time: 96 h
Test Type: static test
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.27 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 15-29 µg/l
Exposure time: 96 h
Test Type: Growth inhibition
GLP: no

Toxicity to fish (Chronic toxicity) : 0.049 mg/l
Exposure time: 34 d
Species: Pimephales promelas (fathead minnow)
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : 0.0048 - 0.0070 mg/L
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: flow-through test
GLP: yes

M-Factor (Chronic aquatic toxicity) : 10

Ecotoxicology Assessment
Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability.

Components:

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302 C

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

4,4'-Methylenediphenyl diisocyanate, oligomers:

Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302 C

Bis(isopropyl)naphthalene:

Biodegradability : Inoculum: activated sludge
Concentration: 0.2 mg/l
Result: Not readily biodegradable.
Biodegradation: 30 - 35 %
Exposure time: 56 d
Method: OECD Test Guideline 310

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Biodegradability : Inoculum: activated sludge
Concentration: 10 mg/l
Result: Readily biodegradable.
Biodegradation: 70.73 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Stability in water : Degradation half life (DT50): 1.48 - 14.75 yr (20 °C)
pH: 7.5
Method: No information available.

12.3 Bioaccumulative potential,

Components:

Reaction mass of 4,4'-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

Bioconcentration factor (BCF): 439
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 4.51 (22 °C)
pH: 7
Method: OECD Test Guideline 117

4,4'-Methylenediphenyl diisocyanate, oligomers:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

Partition coefficient: n-octanol/water : log Pow: 8.56 (20 °C)

Bis(isopropyl)naphthalene:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 60 d
Bioconcentration factor (BCF): 770 - 6,400
Test substance: Fresh water
Method: flow-through test

Partition coefficient: n-octanol/water : log Pow: 6.081
Method: QSAR

Terphenyl, hydrogenated:
Partition coefficient: n-octanol/water : log Pow: 6.5

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Exposure time: 23 d
Bioconcentration factor (BCF): 1.95
Test substance: Fresh water
Method: flow-through test
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 4.04 - 4.91 (25 °C)
pH: 7

12.4 Mobility in soil,

Components:

Bis(isopropyl)naphthalene:
Distribution among environmental compartments : Koc: 36108
Method: QSAR

12.5 Results of PBT and vPvB assessment,

Product:

Assessment : This substance/mixture contains components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB)..

12.6 Other adverse effects,

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

E1 ENVIRONMENTAL
HAZARDS

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

AICS : On the inventory, or in compliance with the inventory

NZIoC : On the inventory, or in compliance with the inventory

ENCS : Not in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TCSI : On the inventory, or in compliance with the inventory

TSCA : On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOIC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

Full text of H-Statements

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

- H304 : May be fatal if swallowed and enters airways.
- 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.
- H361d : Suspected of damaging the unborn child.
- H373 : May cause damage to organs through prolonged or repeated exposure if inhaled.
- H400 : Very toxic to aquatic life.
- H410 : Very toxic to aquatic life with long lasting effects.
- H412 : Harmful to aquatic life with long lasting effects.
- H413 : May cause long lasting harmful effects to aquatic life.

Full text of other abbreviations

- Acute Tox. : Acute toxicity
- Aquatic Acute : Short-term (acute) aquatic hazard
- Aquatic Chronic : Long-term (chronic) aquatic hazard
- Asp. Tox. : Aspiration hazard
- Carc. : Carcinogenicity
- Eye Irrit. : Eye irritation
- Repr. : Reproductive toxicity
- Resp. Sens. : Respiratory sensitisation
- Skin Irrit. : Skin irritation
- Skin Sens. : Skin sensitisation
- STOT RE : Specific target organ toxicity - repeated exposure
- STOT SE : Specific target organ toxicity - single exposure
- 2017/164/EU : Commission Directive (EU) 2017/164 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
- GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
- 2017/164/EU / STEL : Short term exposure limit
- 2017/164/EU / TWA : Limit Value - eight hours
- GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
- GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

Further information

- Other information : Liquid decontaminants (percentages by weight or volume) :
Decontaminant 1 : *- sodium carbonate : 5 - 10 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %
Decontaminant 2 : *- concentrated ammonia solution : 3 - 8 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %
Decontaminant 1 reacts slower with diisocyanates but is more environmentally friendly than decontaminant 2.
Decontaminant 2 contains ammonia. Ammonia presents health hazards. (See supplier safety information.)

Classification of the mixture:

Classification procedure:

MLS 5034 ISOCYANATE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	23.01.2020		Date of first issue: 23.01.2020

Print Date 06.02.2020

Acute Tox. 4	H332	Calculation method
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Resp. Sens. 1	H334	Calculation method
Skin Sens. 1	H317	Calculation method
Carc. 2	H351	Calculation method
Repr. 2	H361d	Calculation method
STOT SE 3	H335	Calculation method
STOT RE 2	H373	Calculation method
Asp. Tox. 1	H304	Calculation method
Aquatic Chronic 1	H410	Calculation method

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.