

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



FIRE PROTECTION FOAM JDF - 600 ML

Version	Revision Date:	SDS Number:	Date of last issue: 26.07.2019
6.0	29.04.2020	1743366-00004	Date of first issue: 11.11.2011

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

1.1 Product identifier

Trade name : FIRE PROTECTION FOAM JDF - 600 ML
Product code : 0893303300

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub- : Sealant, Fire retardant
stance/Mixture : Professional use product

1.3 Details of the supplier of the safety data sheet

Company : Adolf Wuerth GmbH & Co. KG
Reinhold-Würth-Str. 12-17
74653 Künzelsau

Telephone : +49 794015 0

Telefax : +49 794015 10 00

E-mail address of person : prodsafe@wuerth.com
responsible for the SDS

1.4 Emergency telephone number

+49 (0)6132 – 84463

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Aerosols, Category 1	H222: Extremely flammable aerosol. H229: Pressurised container: May burst if heated.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Respiratory sensitisation, Category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Specific target organ toxicity - single exposure, Category 3	H335: May cause respiratory irritation.

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Specific target organ toxicity - repeated exposure, Category 2

H373: May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :

- H222 Extremely flammable aerosol.
- H229 Pressurised container: May burst if heated.
- 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.
- H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P211 Do not spray on an open flame or other ignition source.
- P251 Do not pierce or burn, even after use.
- P260 Do not breathe spray.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

Hazardous components which must be listed on the label:

Diphenylmethane diisocyanate, isomers and homologues
4,4'-Diphenylmethane diisocyanate

Additional Labelling

Contains fluorinated greenhouse gases. (HFC-152a)

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2.3 Other hazards

Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Diphenylmethane diisocyanate, isomers and homologues	9016-87-9	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 Carc. 2; H351 STOT SE 3; H335 STOT RE 2; H373	>= 90 - <= 100
Tris(2-chloro-1-methylethyl) phosphate	13674-84-5 237-158-7	Acute Tox. 4; H302	>= 10 - < 20
Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated	86675-46-9	Acute Tox. 4; H302	>= 10 - < 20
N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine	15875-13-5 240-004-1	Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318	>= 1 - < 3
1,1-Difluoroethane	75-37-6 200-866-1	Flam. Gas 1A; H220 Press. Gas Liquefied gas; H280 STOT SE 3; H336	>= 10 - < 20
4,4'-Diphenylmethane diisocyanate	101-68-8 202-966-0 615-005-00-9	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 Carc. 2; H351 STOT SE 3; H335 STOT RE 2; H373	>= 0,1 - < 1
Dimethyl ether	115-10-6 204-065-8 603-019-00-8	Flam. Gas 1A; H220 Press. Gas Liquefied gas; H280 STOT SE 3; H336	>= 1 - < 10

For explanation of abbreviations see section 16.

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SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- If inhaled : If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

- Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
Harmful if inhaled.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.
- Respiratory symptoms, including pulmonary edema, may be delayed.
Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

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4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
Water spray in large fire situations

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Flash back possible over considerable distance.
Vapours may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.

Hazardous combustion products : Carbon oxides
Oxides of phosphorus
Chlorine compounds
Bromine compounds
Nitrogen oxides (NO_x)
Isocyanates
Hydrogen cyanide (hydrocyanic acid)
Fluorine compounds

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Remove all sources of ignition.
Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.

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6.2 Environmental precautions

Environmental precautions : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Non-sparking tools should be used.
Soak up with inert absorbent material.
Suppress (knock down) gases/vapours/mists with a water spray jet.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
After approximately one hour, transfer to waste container and do not seal, due to evolution of carbon dioxide.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Advice on safe handling : Do not get on skin or clothing.
Do not breathe vapours or spray mist.
Do not swallow.
Do not get in eyes.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Keep away from water.

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Protect from moisture.
Already sensitised individuals should consult their physician regarding working with respiratory irritants or sensitisers.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Do not spray on an open flame or other ignition source.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store locked up. Protect from moisture. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Do not pierce or burn, even after use. Keep cool. Protect from sunlight.

Advice on common storage : Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Oxidizing agents
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures, which in contact with water, emit flammable gases
Explosives

Storage class (TRGS 510) : 2B, Aerosol cans and lighters

Recommended storage temperature : < 40 °C

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
	Further information: For the two core content the limit values of the single isomers apply (4,4'-MDI, 2,4'-MDI, 2,2'-MDI); for the homologue content use the exposure assessment value (as indicated by the manufacturer).			

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Diphenylmethane diisocyanate, isomers and homologues	9016-87-9	AGW (Inhalable fraction)	0,05 mg/m ³ (MDI)	DE TRGS 900
Peak-limit: excursion factor (category): 1;=2=(I)				
Further information: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., The exposure limit is established for monomers. For regulatory details on oligomers and polymers see TRGS 430 'Isocyanate'., Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sensitizing through the skin and respiratory system				
Dimethyl ether	115-10-6	TWA	1.000 ppm 1.920 mg/m ³	2000/39/EC
Further information: Indicative				
		AGW	1.000 ppm 1.900 mg/m ³	DE TRGS 900
Peak-limit: excursion factor (category): 8;(II)				
Further information: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., European Union (The EU has established a limit value: deviations in value and peak limit are possible)				
4,4'-Diphenylmethane diisocyanate	101-68-8	AGW (Vapour and aerosols)	0,05 mg/m ³	TRGS 430
Peak-limit: excursion factor (category): 1;=2=(I)				
Further information: Sum of vapour and aerosols, The exposure limit is established for monomers. For regulatory details on oligomers and polymers see TRGS 430 'Isocyanate'., airway sensitizing substance				
		AGW (Vapour and aerosols, inhalable fraction)	0,05 mg/m ³	DE TRGS 900
Peak-limit: excursion factor (category): 1;=2=(I)				
Further information: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., Sum of vapor and aerosols., The exposure limit is established for monomers. For regulatory details on oligomers and polymers see TRGS 430 'Isocyanate'., Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sensitizing through the skin and respiratory system				

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Formaldehyde	50-00-0	AGW	0,3 ppm 0,37 mg/m ³	DE TRGS 900
Peak-limit: excursion factor (category): 2;(I)				
Further information: Carcinogenic substance Cat. 1A or 1B or carcinogenic activity or procedure according to § 2 (3) No. 4 of the Hazardous Substances Ordinance - in addition, § 10 GefStoffV must be observed, Commission for dangerous substances, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sen-				

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		sitizing through the skin		
		STEL	0,6 ppm 0,74 mg/m ³	2004/37/EC
		Further information: Dermal sensitisation, Carcinogens or mutagens		
		TWA	0,3 ppm 0,37 mg/m ³	2004/37/EC
Methanol	67-56-1	TWA	200 ppm 260 mg/m ³	2006/15/EC
		Further information: Indicative, Identifies the possibility of significant uptake through the skin		
		AGW	200 ppm 270 mg/m ³	DE TRGS 900
		Peak-limit: excursion factor (category): 4;(II)		
		Further information: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., European Union (The EU has established a limit value: deviations in value and peak limit are possible), Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child		

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Tris(2-chloro-1-methylethyl) phosphate	Workers	Inhalation	Long-term systemic effects	5,82 mg/m ³
	Workers	Inhalation	Acute systemic effects	5,82 mg/m ³
	Workers	Skin contact	Long-term systemic effects	2,08 mg/kg bw/day
	Workers	Skin contact	Acute systemic effects	2,08 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,46 mg/m ³
	Consumers	Inhalation	Acute systemic effects	1,46 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	1,04 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	1,04 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0,52 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	0,52 mg/kg bw/day
Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated	Workers	Inhalation	Long-term systemic effects	6 mg/m ³
	Workers	Skin contact	Long-term systemic effects	0,87 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,5 mg/m ³

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	Consumers	Inhalation	Acute local effects	4,5 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	0,44 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	1,3 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0,44 mg/kg bw/day
Poly(PO) Glycerine Ether	Workers	Inhalation	Long-term systemic effects	98 mg/m ³
	Workers	Skin contact	Long-term systemic effects	13,9 mg/kg bw/day
	Workers	Skin contact	Long-term systemic effects	8,3 mg/kg bw/day
1,1-Difluoroethane	Workers	Inhalation	Long-term systemic effects	2713 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	675 mg/m ³
Dimethyl ether	Workers	Inhalation	Long-term systemic effects	1894 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	471 mg/m ³
4,4'-Diphenylmethane diisocyanate	Workers	Inhalation	Long-term local effects	0,05 mg/m ³
	Workers	Inhalation	Acute local effects	0,1 mg/m ³
	Consumers	Inhalation	Long-term local effects	0,025 mg/m ³
	Consumers	Inhalation	Acute local effects	0,05 mg/m ³

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

Substance name	Environmental Compartment	Value
Tris(2-chloro-1-methylethyl) phosphate	Fresh water	0,64 mg/l
	Marine water	0,064 mg/l
	Intermittent use/release	0,51 mg/l
	Sewage treatment plant	7,84 mg/l
	Fresh water sediment	2,92 mg/kg dry weight (d.w.)
	Marine sediment	0,29 mg/kg dry weight (d.w.)
	Soil	1,7 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	11600000 mg/kg food
Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated	Fresh water	1 mg/l
	Marine water	0,1 mg/l
	Intermittent use/release	10 mg/l
	Sewage treatment plant	1 mg/l
	Fresh water sediment	37,5 mg/kg
	Marine sediment	3,75 mg/kg
	Soil	6,92 mg/kg

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Poly(PO) Glycerine Ether	Fresh water	0,2 mg/l
	Marine water	0,02 mg/l
	Intermittent use/release	1 mg/l
	Sewage treatment plant	1000 mg/l
	Fresh water sediment	0,52 mg/kg
	Marine sediment	0,052 mg/kg
	Soil	0,067 mg/kg
N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine	Fresh water	0,063 mg/l
	Marine water	0,006 mg/l
	Intermittent use/release	0,63 mg/l
	Sewage treatment plant	20 mg/l
	Fresh water sediment	0,958 mg/kg
	Marine sediment	0,096 mg/kg
	Soil	0,154 mg/kg
1,1-Difluoroethane	Fresh water	0,048 mg/l
	Marine water	0,0048 mg/l
	Intermittent use/release	0,48 mg/l
	Fresh water sediment	0,19 mg/kg
	Marine sediment	0,019 mg/kg
	Soil	0,141 mg/kg
Dimethyl ether	Fresh water	0,155 mg/l
	Marine water	0,016 mg/l
	Intermittent use/release	1,549 mg/l
	Sewage treatment plant	160 mg/l
	Fresh water sediment	0,681 mg/kg dry weight (d.w.)
	Marine sediment	0,069 mg/kg dry weight (d.w.)
4,4'-Diphenylmethane diisocyanate	Fresh water	1 mg/l
	Marine water	0,1 mg/l
	Intermittent use/release	10 mg/l
	Sewage treatment plant	1 mg/l
	Soil	1 mg/kg

8.2 Exposure controls

Engineering measures

Processing may form hazardous compounds (see section 10).

Minimize workplace exposure concentrations.

If sufficient ventilation is unavailable, use with local exhaust ventilation.

If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Personal protective equipment

Eye protection : Wear the following personal protective equipment:
Safety goggles
Equipment should conform to DIN EN 166

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- Hand protection
- Material : butyl-rubber
 - Break through time : > 480 min
 - Glove thickness : > 0,4 mm
- Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
- Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Equipment should conform to DIN EN 137
- Filter type : Self-contained breathing apparatus
-

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : aerosol
- Propellant : 1,1-Difluoroethane, Dimethyl ether
- Colour : light red
- Odour : characteristic
- Odour Threshold : No data available
- pH : No data available
- Melting point/freezing point : No data available
- Initial boiling point and boiling range : Not applicable
- Flash point : Not applicable

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Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Extremely flammable aerosol.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable
Relative density	:	No data available
Solubility(ies) Water solubility	:	immiscible
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

Particle size	:	Not applicable
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SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.

Polymerises at high temperatures with evolution of carbon dioxide.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Extremely flammable aerosol. Vapours may form explosive mixture with air. Isocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by
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stirring or if the other material mixes with the isocyanate.
Exothermic reaction with acids, amines and alcohols
Reacts with water to form carbon dioxide and heat
Isocyanates are not soluble in water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.
Hazardous decomposition products will be formed upon contact with water or humid air.
Hazardous decomposition products will be formed at elevated temperatures.

10.4 Conditions to avoid

Conditions to avoid : Exposure to moisture
Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents
Acids
Bases
Water
Alcohols
Amines
Ammonia
Aluminium
Zinc
Brass
Tin
Copper
Galvanised metals
Humid air

10.6 Hazardous decomposition products

Thermal decomposition : Formaldehyde
Methanol

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if inhaled.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

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Acute inhalation toxicity : Acute toxicity estimate: 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2,24 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Tris(2-chloro-1-methylethyl) phosphate:

Acute oral toxicity : LD50 (Rat): 931 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Acute oral toxicity : LD50 (Rat): 917 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 4,87 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Acute oral toxicity : LD50 (Rat): 2.964 mg/kg

Acute dermal toxicity : LD50 (Rabbit): 1.842 mg/kg

1,1-Difluoroethane:

Acute inhalation toxicity : LC50 (Rat): > 437500 ppm
Exposure time: 4 h

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||| Test atmosphere: gas

4,4'-Diphenylmethane diisocyanate:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 2,24 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg
Remarks: Based on data from similar materials

||| Dimethyl ether:

Acute inhalation toxicity : LC50 (Rat): 164000 ppm
Exposure time: 4 h
Test atmosphere: gas

Skin corrosion/irritation

Causes skin irritation.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Species : Rabbit
Result : Skin irritation

Tris(2-chloro-1-methylethyl) phosphate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl)-Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Species : Rabbit
Result : Skin irritation

4,4'-Diphenylmethane diisocyanate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

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Remarks : Based on data from similar materials

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Result : Irritation to eyes, reversing within 7 days

Tris(2-chloro-1-methylethyl) phosphate:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Species : Rabbit
Result : Irreversible effects on the eye

4,4'-Diphenylmethane diisocyanate:

Result : Irritation to eyes, reversing within 7 days
Remarks : Based on harmonised classification in EU regulation 1272/2008, Annex VI

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive
Remarks : Based on data from similar materials

Assessment : Probability or evidence of skin sensitisation in humans

Exposure routes : inhalation (dust/mist/fume)
Species : Rat

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Result : positive

Assessment : Probability of respiratory sensitisation in humans based on animal testing

Tris(2-chloro-1-methylethyl) phosphate:

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Method : OECD Test Guideline 429
Result : negative

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative
Remarks : Based on data from similar materials

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Method : OECD Test Guideline 429
Result : negative

4,4'-Diphenylmethane diisocyanate:

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive

Assessment : Probability or evidence of skin sensitisation in humans

Exposure routes : Inhalation
Species : Rat
Result : positive
Remarks : Based on data from similar materials

Assessment : Probability of respiratory sensitisation in humans based on animal testing

Germ cell mutagenicity

Not classified based on available information.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

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Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: inhalation (dust/mist/fume)
Method: OECD Test Guideline 474
Result: negative

Tris(2-chloro-1-methylethyl) phosphate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: positive

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: Ingestion
Result: negative

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: positive
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Rat
Application Route: inhalation (dust/mist/fume)
Method: OECD Test Guideline 486
Result: negative

Germ cell mutagenicity- Assessment : Weight of evidence does not support classification as a germ cell mutagen.

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: in vitro micronucleus test
Method: OECD Test Guideline 487
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

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1,1-Difluoroethane:

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
- Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo
cytogenetic assay)
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative

4,4'-Diphenylmethane diisocyanate:

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
- Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo
cytogenetic assay)
Species: Rat
Application Route: inhalation (dust/mist/fume)
Method: OECD Test Guideline 474
Result: negative

Dimethyl ether:

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
- Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
- Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
- Genotoxicity in vivo : Test Type: Sex-linked recessive lethal test in *Drosophila mel-*
anogaster (in vivo)
Application Route: inhalation (gas)
Result: negative

Carcinogenicity

Suspected of causing cancer.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

- Species : Rat
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 Years

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Result : positive

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

1,1-Difluoroethane:

Species : Rat
Application Route : inhalation (vapour)
Exposure time : 104 weeks
Result : negative

4,4'-Diphenylmethane diisocyanate:

Species : Rat
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 Years
Result : positive
Remarks : Based on data from similar materials

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Dimethyl ether:

Species : Rat
Application Route : inhalation (vapour)
Exposure time : 2 Years
Result : negative

Reproductive toxicity

Not classified based on available information.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (dust/mist/fume)
Result: negative

Tris(2-chloro-1-methylethyl) phosphate:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: negative

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Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

1,1-Difluoroethane:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (gas)
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
Result: negative

4,4'-Diphenylmethane diisocyanate:

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (dust/mist/fume)
Result: negative
Remarks: Based on data from similar materials

Dimethyl ether:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: inhalation (vapour)
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development

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||| ment Species: Rat
Application Route: inhalation (vapour)
Result: negative

STOT - single exposure

May cause respiratory irritation.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Assessment : May cause respiratory irritation.

||| **1,1-Difluoroethane:**

||| Assessment : May cause drowsiness or dizziness.

4,4'-Diphenylmethane diisocyanate:

Assessment : May cause respiratory irritation.

||| **Dimethyl ether:**

||| Assessment : May cause drowsiness or dizziness.

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Exposure routes : inhalation (dust/mist/fume)
Target Organs : Respiratory Tract
Assessment : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

Tris(2-chloro-1-methylethyl) phosphate:

Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

4,4'-Diphenylmethane diisocyanate:

Exposure routes : inhalation (dust/mist/fume)
Target Organs : Respiratory Tract
Assessment : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

Repeated dose toxicity

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Species : Rat
NOAEL : 1.4 mg/m3

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LOAEL : 4.1 mg/m³
Application Route : inhalation (dust/mist/fume)
Exposure time : 13 Weeks

Tris(2-chloro-1-methylethyl) phosphate:

Species : Rat
LOAEL : 52 mg/kg
Application Route : Ingestion
Exposure time : 13 Weeks

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl)-Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Species : Rat
LOAEL : 417 mg/kg
Application Route : Ingestion
Exposure time : 14 Days
Remarks : Based on data from similar materials

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Species : Rat
NOAEL : 240 mg/kg
Application Route : Ingestion
Exposure time : 41 - 54 Days
Method : OECD Test Guideline 422

1,1-Difluoroethane:

Species : Rat
NOAEL : 100000 ppm
Application Route : inhalation (gas)
Exposure time : 14 Days

4,4'-Diphenylmethane diisocyanate:

Species : Rat
NOAEL : 0,2 mg/m³
LOAEL : 1 mg/m³
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 yr
Remarks : Based on data from similar materials

Dimethyl ether:

Species : Rat
NOAEL : 47,11 mg/l
Application Route : inhalation (vapour)
Exposure time : 2 yr

Aspiration toxicity

Not classified based on available information.

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SECTION 12: Ecological information

12.1 Toxicity

Components:

Diphenylmethane diisocyanate, isomers and homologues:

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 1.000 mg/l
Exposure time: 96 h
- Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 1.640 mg/l
Exposure time: 72 h
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 10 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

Tris(2-chloro-1-methylethyl) phosphate:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 51 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 131 mg/l
Exposure time: 48 h
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 82 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- EC10 (Pseudokirchneriella subcapitata (green algae)): 42 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- Toxicity to microorganisms : EC50 : 784 mg/l
Exposure time: 30 min
Method: ISO 8192
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 32 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

- Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 1.000 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.000 mg/l
Exposure time: 48 h
- Toxicity to algae/aquatic : EC50 (Pseudokirchneriella subcapitata (green algae)): >

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plants 1.000 mg/l
Exposure time: 96 h

NOEC (Pseudokirchneriella subcapitata (green algae)): 500 mg/l
Exposure time: 96 h

Toxicity to microorganisms : EC50 : > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 62,6 mg/l
aquatic invertebrates Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 65,3
plants - < 67,3 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

EC10 (Pseudokirchneriella subcapitata (green algae)): > 26 - 28,5 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : > 1.000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

4,4'-Diphenylmethane diisocyanate:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 3.000 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 129,7 mg/l
aquatic invertebrates Exposure time: 24 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 (Desmodesmus subspicatus (green algae)): > 1.640
plants mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

NOEC (Desmodesmus subspicatus (green algae)): 1.640 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

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Toxicity to microorganisms : EC50 : > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 10 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Dimethyl ether:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 4.100 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 4.400 mg/l
Exposure time: 48 h

Toxicity to microorganisms : EC10 (Pseudomonas putida): > 1.600 mg/l

12.2 Persistence and degradability

Components:

Diphenylmethane diisocyanate, isomers and homologues:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d

Tris(2-chloro-1-methylethyl) phosphate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl)-Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 10 %
Exposure time: 28 d

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 90 - 100 %
Exposure time: 12 d
Method: OECD Test Guideline 301A

4,4'-Diphenylmethane diisocyanate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %

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Exposure time: 28 d
Method: OECD Test Guideline 302
Remarks: Based on data from similar materials

Dimethyl ether:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

Components:

Tris(2-chloro-1-methylethyl) phosphate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 0,8 - 4,6
Method: OECD Test Guideline 305C

Partition coefficient: n-octanol/water : log Pow: 2,68

Polymer with 2-Butyne-1,4-Diol and (Chloromethyl)-Oxirane, Brominated, Dehydrochlorinated, Methoxylated:

Partition coefficient: n-octanol/water : log Pow: 0 - 3

N,N,N',N',N'',N''-hexamethyl-1,3,5-triazine-1,3,5(2H,4H,6H)-tripropanamine:

Partition coefficient: n-octanol/water : log Pow: > 0,18 - < 0,26

1,1-Difluoroethane:

Partition coefficient: n-octanol/water : log Pow: 0,75

4,4'-Diphenylmethane diisocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200

Partition coefficient: n-octanol/water : log Pow: 4,51

Dimethyl ether:

Partition coefficient: n-octanol/water : log Pow: 0,2

12.4 Mobility in soil

No data available

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12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

Global warming potential

Regulation (EU) No 517/2014 on fluorinated greenhouse gases

Product:

100-year global warming potential: 12,947

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Product : Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
- Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous.
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.
Please ensure aerosol cans are sprayed completely empty (including propellant)
- Waste Code : The following Waste Codes are only suggestions:
- used product
 - 08 05 01, waste isocyanates
 - 16 05 04, gases in pressure containers (including halons) containing hazardous substances
 - unused product
 - 08 05 01, waste isocyanates
 - 16 05 04, gases in pressure containers (including halons) containing hazardous substances
 - uncleaned packagings
 - 15 01 10, packaging containing residues of or contaminated by hazardous substances
-

SECTION 14: Transport information

14.1 UN number

ADN : UN 1950

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ADR : UN 1950
RID : UN 1950
IMDG : UN 1950
IATA : UN 1950

14.2 UN proper shipping name

ADN : AEROSOLS
ADR : AEROSOLS
RID : AEROSOLS
IMDG : AEROSOLS
IATA : Aerosols, flammable

14.3 Transport hazard class(es)

ADN : 2
ADR : 2
RID : 2
IMDG : 2.1
IATA : 2.1

14.4 Packing group

ADN
Packing group : Not assigned by regulation
Classification Code : 5F
Labels : 2.1

ADR
Packing group : Not assigned by regulation
Classification Code : 5F
Labels : 2.1
Tunnel restriction code : (D)

RID
Packing group : Not assigned by regulation
Classification Code : 5F
Hazard Identification Number : 23
Labels : 2.1

IMDG
Packing group : Not assigned by regulation
Labels : 2.1
EmS Code : F-D, S-U

IATA (Cargo)
Packing instruction (cargo aircraft) : 203
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

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IATA (Passenger)

Packing instruction (passenger aircraft) : 203
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered: Diphenylmethane diisocyanate, isomers and homologues (Number on list 56)
4,4'-Diphenylmethane diisocyanate (Number on list 56)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Regulation (EC) No 649/2012 of the European Parlia- : Not applicable

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ment and the Council concerning the export and import of dangerous chemicals

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

P3a	FLAMMABLE AEROSOLS	Quantity 1 150 t	Quantity 2 500 t
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Water contaminating class (Germany) : WGK 1 slightly hazardous to water
Classification according to AwSV, Annex 1 (5.2)

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Remarks: Not applicable

Other regulations:

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

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

TRGS 430 (German regulatory requirements)

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information : Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

H220	: Extremely flammable gas.
H280	: Contains gas under pressure; may explode if heated.
H302	: Harmful if swallowed.
H312	: Harmful in contact with skin.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
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.
H336	: May cause drowsiness or dizziness.
H351	: Suspected of causing cancer.
H373	: May cause damage to organs through prolonged or repeated exposure if inhaled.

Full text of other abbreviations

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Acute Tox.	:	Acute toxicity
Carc.	:	Carcinogenicity
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Flam. Gas	:	Flammable gases
Press. Gas	:	Gases under pressure
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
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2004/37/EC	:	Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
2006/15/EC	:	Europe. Indicative occupational exposure limit values
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
TRGS 430	:	Germany. TRGS 430 - Isocyanates
2000/39/EC / TWA	:	Limit Value - eight hours
2004/37/EC / STEL	:	Short term exposure limit
2004/37/EC / TWA	:	Long term exposure limit
2006/15/EC / TWA	:	Limit Value - eight hours
DE TRGS 900 / AGW	:	Time Weighted Average
TRGS 430 / AGW	:	Occupational Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature;

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SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Classification of the mixture:

Aerosol 1	H222, H229
Acute Tox. 4	H332
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Resp. Sens. 1	H334
Skin Sens. 1	H317
Carc. 2	H351
STOT SE 3	H335
STOT RE 2	H373

Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

DE / EN