Section 1 Identification of the product and of the company

1.1 Product identifier

SC-AwaTec® pur I Component A
Contains: N,N,N',N'-Tetramethyl-2,2'-oxybis(ethylamine) [CAS: 3033-62-3],
4,4'-Methylenebis(cyclohexylamine) [CAS: 1761-71-3]

1.2 Relevant identified uses of the mixture and uses advised against

No relevant information available.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier

Th. Scholten GmbH & Co. KG
Robert-Bosch-Straße 23-25
D-42489 Wülfrath
Tel.: +49 2058 9245 0
E-Mail: scholten@scholten-gmbh.de

Section 2 Hazards identification

2.1 Classification of the substance or mixture according to Regulation (EC) No. 1272/2008

Skin irritation	Category 2 (Skin Irrit. 2)
Causes skin irritation	H315
Severe eye damage/ Eye irritation	Category 1 (Eye Dam. 1)
Causes severe eye damage	H318

2.2 Label elements according to Regulation (EC) No. 1272/2008

The product is classified and labelled in accordance with CLP Regulation.

Hazard pictograms

Signal word: Danger
Contains: N,N,N',N'-Tetramethyl-2,2'-oxybis(ethylamine) [CAS: 3033-62-3],
4,4'-Methylenebis(cyclohexylamine) [CAS: 1761-71-3]

Hazard statements

H315	Causes skin irritation.
H318	Causes serious eye damage.
EUH208	Contains 4,4'-Methylenebis(cyclohexylamine). May cause allergic reactions.

Precautionary statements

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P302+P352	If on skin: Wash with plenty of water and soap.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P332+P313	If skin irritation occurs: Get medical advice or attention.
P337+P313	If eye irritation persists: Get medical advice or attention.

2.3 Other hazards

No relevant data available.

Section 3 Composition / information on ingredients

3.1 Substances

Not applicable.

3.2 Mixtures

Identification name (Reg. Number)	Contents [%]	CAS Number	EU-Number	Index-Number	Classification Regulation (EC) No. 1272/2008	
					Hazard class and category	Hazard statements
Tris(2-chlorisopropyl) phosphate (01-2119480419-30-0000)	< 15	13674-84-5	237-158-7	-	Acute Tox. 4 oral	H302
2,2',6,6'-tetrabromo-4,4'-izopropyloidenodifenol oligomeric reaction products of propylene oxide and glycidol ether, butyl. (01-2119971810-36-0000)	< 5	-	926-564-6	-	Acute Tox. 4 oral	H302
N,N,N',N'-Tetramethyle 2,2'-oxybis(ethylamine) (-)	< 4	3033-62-3	221-220-5	-	Acute Tox. 4 oral	H302
					Acute Tox. 3 dermal	H311
					Skin Corr. 1B	H314
					Acute Tox. 4 inhalation	H332
Triethyl phosphate (-)	< 2	78-40-0	201-114-5	015-013-00-7	Acute Tox. 4 oral	H302

4,4'-Methylenebis(cyclohexylamin) (01-211954167338)	< 0,8	1761-71-3	217-168-8	-	Acute Tox. 4 oral	H302
					Skin Corr. 1B	H314
					Skin Sens. 1	H317
					Eye Dam. 1	H318
					STOT RE 2	H373a
					Aquatic Chronic 2	H411

See Section 16 for wordings of the hazard statements.

Section 4 First Aid measures

4.1 Description of First Aid measures

General notes: In the event of an accident or physical discomfort incurred by the product, protect the person from further risk and immediately seek medical attention.

If inhaled: Move the person to fresh air. Seek medical attention if experiencing any discomfort.

If on skin: Remove contaminated clothing. Immediately wash off with water and soap, rinse thoroughly. Seek medical attention if experiencing any discomfort.

If in eyes: Remove contact lenses if present and easy to do. Rinse eyes open for at least 15 minutes under running water. Immediately seek medical attention.

If swallowed: Immediately rinse mouth with plenty of water. Do not induce vomiting. Seek medical attention if experiencing any discomfort.

4.2 Most important acute and delayed symptoms and effects

No relevant data available.

4.3 Indication of any immediate medical attention and special treatment needed

If in eyes or swallowed, always seek immediate medical attention.

Section 5 Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media: chemical dry extinguishing media, CO_2, foam or sand for fire-fighting

Unsuitable extinguishing media: water may be used if no other extinguishing media are available.

5.2 Special hazards arising from the substance or mixture.

The product is not classified as combustible.

Products of incomplete combustion may contain gaseous CO_2

5.3 Advice for fire-fighters

No specific measures required.

Section 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure sufficient ventilation.

6.2 Environmental precautions
Avoid contamination of ground and water. Secure sink basin; leakage (turn off influx of fluids, pack damaged containers into tight protective parcels; if possible, isolate liquid if leakage is too severe.

6.3 Methods and material for containment and cleaning up
Major leakage: Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, diatomite or other universal absorption agent. If possible, collect in appropriate, marked, tight container provided for this purpose, for controlled recycling or disposal by an authorized waste disposal contractor. Treat residual amounts as non-significant contamination.

Minor leakage: Remove leakage. Isolate leaked material using sand, earth or any other universal absorption agent. Collect in appropriate, marked, tight container provided for this purpose, for controlled recycling or disposal by an authorized waste disposal contractor..

6.4 Reference to other sections
See section 7 for information on safe handling.
See section 8 for information on personal protective equipment.
See section 13 for details on disposal.

Section 7 Handling and storage

7.1 Precautions for safe storage
Store product in tightly closed containers. Avoid skin and eye contact. Do not eat or drink in areas where the product is handled and stored. Avoid contact with isocyanates; an uncontrolled exothermic reaction may be delayed. Keep away from strong oxidizing agents. Do not expose containers to direct sunlight.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed and store in a well ventilated, dry and cool room. Keep away from oxidizing agents, strong acids and alkalis. Once opened, keep container tightly closed and store appropriately to avoid any leakage.
Recommended storage temperature between +10 and +30°C.
Packing material:
Suitable: steel, stainless steel.
Unsuitable: copper, copper alloys and galvanized surfaces.

7.3 Specific end use(s)
No further relevant data available.

Section 8 Exposure controls / personal protection

8.1 Control parameter

For Tris(2-chlorisopropyl) phosphate

DNEL values:

acute dermal exposition, systematic	8 mg/kg bodyweight/day
acute inhalative exposition, systematic	22,4 mg/m³
long-term skin exposition, systematic	2,08 mg/kg bodyweight/day

For the population in general:

acute dermal exposition, systematic	4 mg/kg bodyweight/day
acute inhalative exposition, systematic	11,2 mg/m³
long-term skin exposition, systematic	1,04 mg/kg bodyweight/day
long-term inhalative exposition, systematic	1,46 mg/m³
long-term oral exposition, systematic	0,52 mg/kg bodyweight/day

PNEC values:

freshwater	0,64 mg/l
seawater	0,064 mg/l
PNEC periodical	0,51 mg/l
freshwater sediment	13,4 mg/kg dry weight of sediment
seawater sediment	1,34 mg/kg dry weight of sediment
ground	1,7 mg/kg dry weight of sediment
purification plant	7,84 mg/l
PNEC oral	< 11,6 mg/kg foods

8.2 Exposure controls / personal protection

General protective and hygiene measures:
Do not eat, drink, smoke or sniff in workplace areas.
Keep away from food, drink and animal feeding stuff.
Immediately take off soiled, contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with eyes and skin.

Respiratory protection:
In case of inadequate ventilation, use half mask with combination filter for organic vapours and particles. Breathing protection is not required at room temperature.

Hand protection:
use protective gloves made of rubber or other fabric.

Eye protection:
Tight sealing safety goggles

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	yellowish liquid
Odour	specific
Odour threshold:	unknown
pH:	unknown
Melting point/freeze point:	unknown
Initial boiling point and boiling range:	unknown
Flash point:	unknown
Evaporation rate:	unknown
Combustibility (solid, gaseous):	not classified as combustible
Upper/lower combustibility or explosion limit:	not potentially explosive
Vapour pressure:	unknown
Vapour density:	unknown
Relative density:	1,11 ± 0,05 g/cm^3
Solubility:	unknown
n-octanol partition coefficient water (log):	unknown
Self-ignition temperature:	unknown
Decomposition temperature:	not applicable
Viscosity:	200 ± 100 mPas
Explosive properties:	not applicable
Oxidizing properties:	unknown

9.2 Other information

No further relevant information available.

Section 10 Stability and reactivity

10.1 Reactivity

Avoid contact with strong oxidants.

10.2 Chemical stability

The product is stable at room temperature.

10.3 Possibility of hazardous reactions

Reacts with isocyanates, as an uncontrolled exothermic reaction may be induced.

10.4 Conditions to avoid

Avoid the effect of heat sources (sunrays, radiators, etc.).

10.5 Incompatible materials

Strong oxidants, isocyanates, acids.

10.6 Hazardous decomposition products

The probability of the formation of hazardous decomposition products in normal industrial procedures is low. Incomplete combustion products may contain gaseous carbon oxides, phosphor oxides, nitrogen oxides, ammonia.

Section 11 Toxicological information

11.1 Information on toxicological effects

Acute toxicity:
Oral: ATEmix = 4474 mg/kg (classification criteria are not met 300 mg/kg < ATEmix ≤ 2000 mg/kg)
Dermal: ATEmix = 7874 mg/kg (classification criteria are not met 1000 mg/kg < ATEmix ≤ 2000 mg/kg)
Inhalation: ATEmix = 275 mg/l (classification criteria are not met 10 mg/l < ATE_{mix} ≤ 20 mg/l)

For Tris(2-chlorisopropyl) phosphate:

LD50 (rat, oral)	630 - 2000 mg/kg
LD50 (rabbit, oral)	> 5000 mg/kg
LD50 (rat, dermal)	> 2000 mg/kg
LC50 (rat, inhalation)	> 7 mg/l/4h
NOAEL (rat, oral)	100 mg/kg/28 days
NOAEL (rat, oral)	170 mg/kg/90 days

For Triethylphosphate:

LD50 (oral)	< 150 mg/kg
LC50 (rabbit, dermal)	> 21400 mg/kg
LC50 (rat, inhalation)	> 8817 mg/m3/4h

For Tris(2-chlorisopropyl) phosphate and 2,2',6,6'-tetrabromo-4,4'-izopropyloidenodifenol, oligomeric reaction products of propylene oxide and glycidol ether, butyl:

LD50 (rat, oral)	1977 mg/kg
LD50 (rat, dermal)	> 2000 mg/kg

For 2,2',6,6'-tetrabromo-4,4'-izopropyloidenodifenol, oligomeric reaction products of propylene oxide and glycidol ether, butyl:

NOAEL (female rat, oral)	5 mg/kg
Dose quantities:	0 - 5 - 15 - 45 mg/kg
Exposition time:	every day for 30 days
Method:	OECD guideline 407
NOAEL (male rat, oral)	10 mg/kg
Dose quantities	0 - 10 - 30 - 90 mg/kg
Exposition time:	30 days
Method:	OECD guideline 407

For 4,4'-Methylenebis(cyclohexylamine):

LD50 (rat, oral)	625 mg/kg
LD50 (rabbit, dermal)	2110 mg/kg

For N,N,N',N'-Tetramethyl-2,2'-oxybis(ethylamine):

LD50 (rat, oral)	677 mg/kg
LD50 (rabbit, dermal)	213-537 mg/kg
LC50 (rat, inhalation)	1,08 – 1,63 mg/l/4h

Corrosive / irritation effect on the skin

For Triethylphosphate:
May cause dermatitis.
Method: OECD guideline 407

For 4,4'-Methylenebis(cyclohexylamine):
Causes skin irritation.

For N,N,N',N'-Tetramethyl-2,2'-oxybis(ethylamine):
Corrosive effect on skin and mucosa.

Severe eye damage / irritation
For Triethylphosphate:
Causes irritation of the eyes.
Method: OECD guideline 407
For 4,4'-Methylenebis(cyclohexylamine):
Causes irritation of the eyes.
For N,N,N',N'-Tetramethyl-2,2'-oxybis(ethylamine):
Strong corrosive effect on the eyes.

Sensitizing effect on the respiratory tract or skin
Method: OECD guideline 407
For 4,4'-Methylenebis(cyclohexylamine):
Experimental studies on rabbits have shown that the substance may lead to a weak sensitization of the skin. Sensitization through skin contact possible with sensitive persons.

Germ-cell mutagenicity
For Triethylphosphate:
Mutagenic effects were found in at least one test.

Carcinogenicity
Based on the analysis of the components - not found.

Reproduction toxicity
For 2,2',6,6'-tetrabromo-4,4'-izopropyloidenodifenol, oligomeric reaction products of propylene oxide and glycidol ether, butyl:
NOAEL (parents, general toxicity): 5 mg/kg
NOAEL (parents, fertility): 45 mg/kg
Female rat, oral
Dose quantities: 0 - 5 - 15 - 45 mg/kg
Method: OECD guideline 407
NOAEL (parents, general toxicity): 10 mg/kg
NOAEL (parents, fertility): 90 mg/kg
Male rate, oral
Dose quantities: 0 - 10 - 30 - 90 mg/kg
Method: OECD guideline 407
For Tris(2-chlorisopropyl) phosphate:
NOAEL (parents, general toxicity): 85 mg/kg
NOAEL (parents, fertility): 99 mg/kg
Tested on two generations of rats, male/female through daily analysis of the feeding.

Aspiration hazard
Based on the analysis of the components – not found.

Section 12 Ecological information

12.1 Toxicity:

For Tris(2-chlorisopropyl) phosphate:

Fish	LD50:	56.2 mg/l/96h
Pimephales promelas	LC50:	51 mg/l/96h
Daphnia magna	EC50:	131 mg/l/48h
Daphnia magna	NOEC:	32 mg/l/21days
Pseudokirchneriella subcapitata	IC50:	82 mg/l/72h
Pseudokirchneriella subcapitata	NOEC:	13 mg/l72h
Method: OECD guideline 201		
bacteria	EC50:	784 mg/l/3h

For 2,2',6,6'-tetrabromo-4,4'-izopropyloidenodifenol, oligomeric reaction products of propylene oxide and glycidol ether, butyl:

Danio rerio	LC50:	> 100 mg/l/96h
Method: OECD guideline 203		
Daphnia magna	EC50:	> 100 mg/l48h
Method: C.2 Annex V Directive 67/548/EEC		
Desmodesmus subspicatus	ErC50:	> 100 mg/l/72h
Type of study: growth inhibition / Method: OECD Directive 201		
Bacterial sludge, activated	EC50:	> 1000 mg/l/3h
Type of study: Release of breath / Method: OECD Directive 209		

For Triethylphosphate:

Fish *Pimephales promelas*	LC50:	> 100 mg/l/96h
Method OECD Directive 407		

For 4,4'-Methylenebis(cyclohexylamine):

Leuciscus idus	LC50:	46-100 mg/l/96h
Daphnia magna	EC50:	6,84 mg/l/48h
Algae	EC50:	140-200 mg/l/72h

For N,N,N',N'-Tetramethyl-2,2'-oxybis(ethylamine):

Fish	LC50:	>130 mg/l/96h

12.2 Persistence and Degradability:

If the substances penetrate into the soil, they may seep into the groundwater, due to their water solubility.

12.3 Bioaccumulative potential:

For 2,2',6,6'-tetrabromo-4,4'-izopropyloidenodifenol, oligomeric reaction products of propylene oxide and glycidol ether, butyl:

BCF: 170

For Tris(2-chlorisopropyl) phosphate:

Biodegradability: 1 %, 28 days, not rapidly degradable
Method: closed bottle test – ecotoxicological product studies
BCF 0,8 < 14 – insufficient bioaccumulation
log Pow: 2,59

12.4 Mobility in soil:
For 2,2',6,6'-tetrabromo-4,4'-izopropyloidenodifenol, oligomeric reaction products of propylene oxide and glycidol ether, butyl:
Adsorbed in the soil. There is a risk that the wastewater after machine cleaning may be hazardous in high concentrations.
Koc value: 100 000
log Koc value: 4,4

12.5 Results of PBT and vPvB-assessment:
No further relevant information available.

12.6 Other adverse effects:
No further relevant information available.

Section 13 Disposal considerations

13.1 Waste treatment methods
The generation of waste should be avoided as far as possible, or reduced to a minimum. Disposal has to be effected in accordance with the local or national regulatory requirements (Waste Act).Untreated materials are not suitable for the disposal. Do not (not even in small quantities) empty into drains or allow to reach sewer systems or water courses. Empty packaging has to be disposed of through an authorised waste disposal company.

Section 14 Transport information

14.1 UN-Number ADR, ADN, IMDG, IATA	not relevant
14.2 UN proper shipping name ADR, ADN, IMDG, IATA	not relevant
14.3 Transport hazard class(es) ADR, ADN, IMDG, IATA class	not relevant
14.4 Packing group ADR, IMDG, IATA	not relevant
14.5 Environmental hazards Marine pollutant	not relevant
14.6 Special precautions for user	Protect against humidity. Avoid contact with food and drink, acids and alkalis.

Section 15 Regulatory information

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

1. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (UEL 136 of 29 May 2007)
2. Regulation (EU) No 453/2010 of 20 Mai 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (U.L 133 of 31 May 2010).
3. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on the classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, an amending Regulation (EC) No 1907/2006

15.2 Chemical safety assessment

No chemical safety assessment has been carried out.

Section 16 Other information

All values and information supplied are based on our current knowledge. They do not constitute a legally binding assurance of specific product properties or justify a contractual legal relationship.

Full wording of hazard statements, if indicated in Sections 2 or 3

H302	Harmful if swallowed.
H311	Toxic if in contact with skin.
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
P373	Do not fight fire when fire reaches explosives.
Acute Tox 4	Acute toxicity (oral), hazard category 4
Acute Tox 4	Acute toxicity (inhalation), hazard category 4
Acute Tox 3	Acute toxicity (oral), hazard category 3
Skin Corr. 1 B	Skin corrosion / irritation, hazard category 1B
Eye Dam. 1	Serious eye damage, hazard category 1
Skin Irrit. 2	Skin irritation, hazard category 2
Skin sens. 1	Skin sensitization, hazard category 1
Aquatic Chronic 2	Hazardous to the aquatic environment, hazard category 2
STOT RE 2	Specific target organ toxicity, repeated exposure hazard category 2

Abbreviations and acronyms:

ADR/RID	European Agreements on the Transport of Dangerous Goods by Road/Railway
BGR	Berufsgenossenschaftliche Regel für die Sicherheit und Gesundheit (Trade Association Health and Safety at Work Rules)
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)
EC	Effective Concentration (median effective concentration)
IATA	International Air Transport Association
IMDG	International Agreement on the Maritime Transport of Dangerous Goods
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Regulation (EC) 1907/2006)
SDB	Safety Data Sheet
STOT	Specific Target Organ Toxicity (spezifische Zielorgantoxizität)
TRGS	Technische Regeln für Gefahrstoffe (Technical Rules for Hazardous Substances)
VCI	Verband der Chemischen Industrie e.V. (Association of the Chemical Industry)
vPvB	Very Persistent, very Bioaccumulative
VwVwS	Verwaltungsvorschrift wassergefährdende Stoffe (Administrative Regulation on the Classification of Substances Hazardous to Waters into Water Hazard Classes)

Section 1 Identification of the product and of the company

1.1 Product identifier
SC-AwaTec® pur II Component A
Contains: Dibutyl tin dilaurate [CAS: 77-58-7]

1.2 Relevant identified uses of the mixture and uses advised against
No relevant information available.

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier
Th. Scholten GmbH & Co. KG
Robert-Bosch-Straße 23-25
D-42489 Wülfrath
Tel.: +49 2058 9245 0
E-Mail: scholten@scholten-gmbh.de

Section 2 Hazards identification

2.1 Classification of the substance or mixture
According to Regulation (EC) No. 1272/2008

Skin irritation Causes skin irritation	Category 2 (Skin Irrit. 2) H315
Eye irritation Causes severe eye irritation	Category 2 (Eye Irrit. 2) H319
Reproduction toxicity May damage fertility. May damage the unborn child.	Category 1B (Repr. 1B) H360FD
Aquatic environment, long-term hazard Harmful to aquatic life, with long-lasting effects.	Category Chronic 3 (Aqu. Chron. 3) H412

2.2 Label elements according to Regulation (EC) No. 1272/2008
The product is classified and labelled in accordance with CLP Regulation.

Hazard pictograms

Signal word: Danger
Contains: Dibutyl tin dilaurate [CAS: 77-58-7]

Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H360FD	May damage fertility. May damage the unborn child.
H412	Harmful to aquatic life, with long-lasting effects.
EUH208	Contains dibutyl tin dilaurate and potassium 2 ethylhexanoate hydrate. May produce allergic reactions.

Precautionary statements

P273	Avoid release to the environment.
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P302+P352	If on skin: Wash with plenty of water.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P332+P313	If skin irritation occurs: Get medical advice or attention.
P337+P313	If eye irritation persists: Get medical advice or attention.

2.3 Other hazards

No relevant data available.

Section 3 Composition / information on ingredients

3.1 Substances

Not applicable.

3.2 Mixtures

Identification name (Reg. Number)	Contents [%]	CAS Number	EU-Number	Index-Number	Classification	
					Regulation (EC) No. 1272/2008	
					Hazard class and category	Hazard statements
tris(2-chloro-1-methylethyl) phosphate (01-2119480419-30-0000)	< 25	13674-84-5	237-158-7	-	Acute Tox. 4 oral	H302
					Skin Irrit. 2	H315
					Eye Irrit. 2	H319
Ethandiol (01-2119456816-28-XXX)	< 5	107-21-1	203-473-3	603-027-00-1	Acute Tox. 4 oral	H302
					STOT RE 2	H373
Potassium 2-Ethylhexanoate Hydrate (-)	< 1	3164-85-0	221-625-7	-	Skin Sens. 1	H317
					Eye Dam. 1	H318
					Repr. 1B	H361d

Dibutyl tin dilaurate (01-2119496068-27)	< 1	77-58-7	201-039-8	-	Skin. Corr. 1C	H314
					Skin Sens. 1	H317
					Muta 2	H341
					Repr. 1B	H360FD
					STOT SE 1	H370
					STOT RE 1	H372
					Aquatic Acute 1	H400
					Aquatic Chronic 1	H410

See Section 16 for wordings of the hazard statements.

Section 4 First Aid measures

4.1 Description of First Aid measures

General notes: In the event of an accident or physical discomfort incurred by the product, protect the person from further risk and immediately seek medical attention.

If inhaled: Move the person to fresh air. Seek medical attention if experiencing any discomfort.

If on skin: Remove contaminated clothing. Immediately wash off with water and soap, rinse thoroughly. Seek medical attention if experiencing any discomfort.

If in eyes: Remove contact lenses if present and easy to do. Rinse eyes open for at least 15 minutes under running water. Immediately seek medical attention.

If swallowed: Immediately rinse mouth with plenty of water. Do not induce vomiting. Seek medical attention if experiencing any discomfort.

4.2 Most important acute and delayed symptoms and effects

No relevant data available.

4.3 Indication of any immediate medical attention and special treatment needed

If in eyes or swallowed, always seek immediate medical attention.

Section 5 Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media: chemical dry extinguishing media, CO_2, foam or sand for fire-fighting

Unsuitable extinguishing media: water may be used if no other extinguishing media are available.

5.2 Special hazards arising from the substance or mixture.

The product is not classified as combustible.

Products of incomplete combustion may contain gaseous CO_2

5.3 Advice for fire-fighters

No specific measures required.

Section 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away. Ensure sufficient ventilation.

6.2 Environmental precautions
Do not discharge into sewage and drainage systems or into bodies of water. Secure drains.

6.3 Methods and material for containment and cleaning up
Collect the spillage with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

6.4 Reference to other sections
See section 7 for information on safe handling.
See section 8 for information on personal protective equipment.
See section 13 for details on disposal.

Section 7 Handling and storage

7.1 Precautions for safe storage
Store product in tightly closed containers. Avoid skin and eye contact. Do not eat or drink in areas where the product is handled and stored. Avoid contact with isocyanates; an uncontrolled exothermic reaction may be delayed. Keep away from strong oxidizing agents. Do not expose containers to direct sunlight.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed and store in a well ventilated, dry and cool room. Keep away from oxidizing agents, strong acids and alkalis. Once opened, keep container tightly closed and store appropriately to avoid any leakage.
Recommended storage temperature between +10 and +30°C.
Packing material:
Suitable: steel, stainless steel.
Unsuitable: copper, copper alloys and galvanized surfaces.

7.3 Specific end use(s)
No further relevant data available.

Section 8 Exposure controls / personal protection

8.1 Control parameter
Ethandiol:
Occupational exposure limit (Germany) 26 mg/m³, 10 ml/m³
2(I);DFG, EU, H, Y
IOELV (European Union) Short-term value: 104 mg/m³, 40 ml/m³
Long-term value: 52 mg/m³, 20 ml/m³
Skin

Ethandiol:

DNEL values:

For workers in conditions of long-term dermal (systemic) exposition: 106 mg/kg bodyweight.
For workers in conditions of long-term inhalative (local) exposition: 35 mg/kg bodyweight.
For the general population, including end consumers, in conditions of long-term dermal (systemic) exposition: 53 mg/kg bodyweight.
For the general population, including end consumers, in conditions of long-term inhalative (local) exposition: 7 mg/kg bodyweight.

PNEC values:

for freshwater environment: 10 mg/l
for seawater: 1 mg/l
for mixed water: 10 mg/l
for activated sludge (freshwater): 20,9 mg/kg
for sewage treatment: 199 mg/l

Dibutyl tin dilaurate:

DNEL/DMEL values:

Area of application: worker.
Route of exposure: skin contact
Effect on health: systemic effects
Dose: 1 mg/kg
Area of application: worker
Route of exposure: dermal, long-term
Effect on health: systemic effects
Dose: 0,2 mg/kg
Area of application: worker
Route of exposure: inhaling, acute
Effect on health: systemic effects
Dose: 0,07 mg/m3 .
Area of application: worker
Route of exposure: inhaling, long-term
Effect on health: systemic effects
Dose: 0,01 mg/m3 .
Area of application: population
Route of exposure: skin contact
Effect on health: systemic effects
Dose: 0,5 mg/kg
Area of application: population
Route of exposure: dermal, long-term
Effect on health: systemic effects
Dose: 0,08 mg/kg
Area of application: population
Route of exposure: inhaling, acute
Effect on health: systemic effects
Dose: 0,02 mg/m3 .
Area of application: population
Route of exposure: inhaling, long-term
Effect on health: systemic effects
Dose: 0,003 mg/m3 .

Area of application: population
Route of exposure: oral
Effect on health: systemic effects
Dose: 0,01 mg/kg
Area of application: population
Route of exposure: oral, long-term
Effect on health: systemic effects
Dose: 0,002 mg/kg
PNEC values:
Freshwater: 0,000463 mg/l
Seawater: 0,0463 µg/l
Intermittent release: 0,00463 mg/l
Freshwater sediment: 0,05 mg/kg
Ground: 0,0407 mg/kg
Purification plant: 100 mg/l
Freshwater sediment: 0,005 mg/kg

8.2 Exposure controls / personal protection

General protective and hygiene measures:
Do not eat, drink, smoke or sniff in workplace areas.
Keep away from food, drink and animal feeding stuff.
Immediately take off soiled, contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with eyes and skin.

Respiratory protection:
not required

Hand protection:
Protective gloves

Glove material

Nitrile-impregnated cotton gloves

The selection of suitable gloves not only depends on the material, but also on further quality factors and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has to be checked before use.

Eye protection:
Tight sealing safety goggles

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	colourless liquid
Odour:	specific
Odour threshold:	unknown
pH:	unknown

Melting point/freeze point:	unknown
Initial boiling point and boiling range:	unknown
Flash point:	unknown
Evaporation rate:	unknown
Combustibility (solid, gaseous):	not classified as combustible
Upper/lower combustibility or explosion limit:	not potentially explosive
Vapour pressure:	unknown
Vapour density:	unknown
Relative density:	1,05 ± 0,05 g/cm^3
Solubility:	unknown
n-octanol partition coefficient water (log):	unknown
Self-ignition temperature:	unknown
Decomposition temperature:	not applicable
Viscosity:	200 ± 100 mPas
Explosive properties:	not applicable
Oxidizing properties:	unknown

9.2 Other information
No further relevant information available.

Section 10 Stability and reactivity

10.1 Reactivity
No relevant information available.

10.2 Chemical stability
No decomposition if used according to specification.

10.3 Possibility of hazardous reactions
Reacts with isocyanates under heat development.

10.4 Conditions to avoid
No relevant information available.

10.5 Incompatible materials
No relevant information available.

10.6 Hazardous decomposition products
No available data on hazardous decomposition products.

Section 11 Toxicological information

11.1 Information on toxicological effects

Acute toxicity:
Oral: ATE mix= 4 985 mg/kg (classification criteria are not met 300 mg/kg < ATE mix ≤ 2000 mg/kg)

Tris(2chloro-1-methyethyl)-phosphate:
LD50 (rat, oral) 1 230 mg/kg
Potassium 2-Ethylhexanoate Hydrate :
Estimated value acute toxicity (calculation procedure) 2 000 mg/kg
Ethandiol:
LD50 (rat- male, female; oral) 7112 mg/kg
LD50 (rat- male, female, inhalation) 2,5 mg/l
LD50 (rat- male, female, dermal) 3500 mg/kg
Dibutyl tin dilaurate:
LD50 (rat- male, female; oral) 2071 mg/kg (method: OECD 401)
LD50 (rat- male, female, dermal) >2000 mg/kg
Skin corrosivity / irritation:
tris(2-chloro-1-methylethyl) phosphate:
Irritates the skin.
Dibutyl tin dilaurate: corrosive
Severe eye damage / irritation:
tris(2-chloro-1-methylethyl) phosphate:
Irritates the eyes.
Dibutyl tin dilaurate: irritating (rat, method: OECD 405)
Sensitization of the respiratory system / skin:
Dibutyl tin dilaurate: sensitizing (guinea pig, method OECD 406)
Germ-cell mutagenicity:
Dibutyl tin dilaurate: In-vitro tests have shown mutagenic effects, in-vivo tests have shown mutagenic effects.
Ethandiol:
Experimental animal studies have shown no negative effects on reproduction.
NOAEC, rat. Toxicity in the dam (inhalation, aerosol) 150 mg/m^3
NOAEC, toxic effects on the progeny (growth) (inhalation aerosol)
150 mg/m^3
NOAEC, rat. Toxicity in the dam (oral) 1 000 mg/kg bodyweight
NOAEC, growth toxicity 500 mg/m^3
Carcinogenicity:
Based on the analysis of the components – not found
Reproduction toxicity:
Based on the analysis of the components – not found
Dibutyl tin dilaurate: May affect reproductiveness.
May cause harm to the unborn child.
Effect of the organ toxicity – single exposition:
Dibutyl tin dilaurate:
Repeat dose (oral) NOEL: 0,3 mg/kg
Harms the thymus.
Effect of organ toxicity – repeated exposition:
Harms the thymus.
Danger of aspiration:
Based on the analysis of the components – not found

Section 12 Ecological information

12.1 Toxicity:

Ethandiol:
- Fish
Pimephales promelas LC50 (96h): 72860 mg/l
Lepomis macrochirus LC50 (96h): 85 mg/l
Method OECD Test Directive 203
- Plankton
Daphnia magna EC50 (48h)13900-57600 mg/l
Method OECD Test Directive 202
- Algae:
Pseudokirchnerella subcapitata EC50 (96h) 6500 - 13000 mg/l
Method OECD Test Directive 201
- Bacteria:
Pseudomonas putida TTC (16h) > 10000 mg/l
Activated sludge of purification plants: EC20 (0,5h) > 1995 mg/l
Acute toxicity:
- Fish NOEC 15380 mg/l/7 days
- Daphnia NOEC 8590 mg/l/7 days
Dibutyl tin dilaurate:
- Fish
Zebrafish LC50 3,1 mg/l (Method OECD 203)
- Plankton
Daphnia magna EC50 (48h)
Chronic ecotoxicity for daphnia: EC50 (48h) 463 µg/l (method OECD 202)
- Algae
Desmodesmus subspicatus EC50 (72h) >1 mg/l (Method OECD 201)

12.2 Persistence and Degradability:

If the substances penetrate into the soil, they may seep into the groundwater, due to their water solubility.

12.3 Bioaccumulative potential:

No further relevant information available.

12.4 Mobility in soil:

No further relevant information available.

12.5 Results of PBT and vPvB assessment:

No further relevant information available.

12.6 Other adverse effects:

No further relevant information available.

Section 13 Disposal considerations

13.1 Waste treatment methods

The generation of waste should be avoided as far as possible, or reduced to a minimum. Disposal has to be effected in accordance with the local or national regulatory requirements (Waste Act).Untreated materials are not suitable for the disposal. Do not (not even in small quantities) empty into drains or allow to reach sewer systems or water courses. Empty packaging has to be disposed of through an authorised waste disposal company.

Section 14 Transport information

14.1 UN-Number	
ADR, ADN, IMDG, IATA	not relevant
14.2 UN proper shipping name	
ADR, ADN, IMDG, IATA	not relevant
14.3 Transport hazard class(es)	
ADR, ADN, IMDG, IATA class	not relevant
14.4 Packing group	
ADR, IMDG, IATA	not relevant
14.5 Environmental hazards	
Marine pollutant	not relevant
14.6 Special precautions for user	not relevant

Section 15 Regulatory information

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

1. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (UEL 136 of 29 May 2007)
2. Regulation (EU) No 453/2010 of 20 Mai 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (U.L 133 of 31 May 2010).
3. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on the classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, an amending Regulation (EC) No 1907/2006

15.2 Chemical safety assessment

No chemical safety assessment has been carried out.

Section 16 Other information

All values and information supplied are based on our current knowledge. They do not constitute a legally binding assurance of specific product properties or justify a contractual legal relationship.

Full wording of hazard statements, if indicated in Sections 2 or 3

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H341	Suspected of causing genetic defects.
H360FD	May damage fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H370	Causes damage to organs.
P372	Explosion risk in case of fire.
P373	DO NOT fight fire when fires reaches explosives.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long-lasting effects.
Acute Tox 4	Acute toxicity (oral), hazard category 4
Skin Corr. 1 C	Skin Corrosion / irritation, hazard category 1A, 1B, 1C
Eye Dam. 1	Serious eye damage, hazard category 1
Skin Irrit. 2	Skin irritation, hazard category 2
Eye Irrit. 2	Eye irritation, hazard category 2
Skin sens. 1	Skin sensitization, hazard category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, hazard category chronic 1
Aquatic Acute 1	Hazardous to the aquatic environment, hazard category acute 1
Muta 2	Germ cell mutagenicity, hazard category 2
Repr. 1 B	Reproductive toxicity, hazard category 1 B
Repr. 2	Reproductive toxicity, hazard category 2
STOT RE 1	Specific target organ toxicity, repeated exposure hazard category 1
STOT RE 2	Specific target organ toxicity, repeated exposure hazard category 2
STOT SE 1	Specific target organ toxicity, repeated exposure hazard category 1

Abbreviations and acronyms:

ADR/RID	European Agreements on the Transport of Dangerous Goods by Road/Railway
BGR	Berufsgenossenschaftliche Regel für die Sicherheit und Gesundheit (Trade Association Health and Safety at Work Rules)
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)
EC	Effective Concentration (median effective concentration)
IATA	International Air Transport Association
IMDG	International Agreement on the Maritime Transport of Dangerous Goods
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Regulation (EC) 1907/2006)
SDB	Safety Data Sheet
STOT	Specific Target Organ Toxicity (spezifische Zielorgantoxizität)
TRGS	Technische Regeln für Gefahrstoffe (Technical Rules for Hazardous Substances)
VCI	Verband der Chemischen Industrie e.V. (Association of the Chemical Industry)
vPvB	Very Persistent, very Bioaccumulative
VwVwS	Verwaltungsvorschrift wassergefährdende Stoffe (Administrative Regulation on the Classification of Substances Hazardous to Waters into Water Hazard Classes)

Section 1 Identification of the product and of the company

1.1 Product identifier
SC-AwaTec® pur II Component B
Contains: Diphenyl methane diisocyanate, isomers and homologens [CAS: 9016-87-9]

1.2 Relevant identified uses of the mixture and uses advised against
No relevant information available.

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier
Th. Scholten GmbH & Co. KG
Robert-Bosch-Straße 23-25
D-42489 Wülfrath
Tel.: +49 (0)2058 9245 0
E-Mail: scholten@scholten-gmbh.de

Section 2 Hazards identification

2.1 Classification of the mixture
According to Regulation (EC) No. 1272/2008

Skin irritation Causes skin irritation	Category 2 (Skin Irrit. 2) H315
Sensitisation of the skin May cause an allergic skin reaction	Category 1 (Skin Sens.1) H317
Eye irritation Causes serious eye irritation	Category 2 (Eye Irrit. 2) H319
Acute toxicity (if inhaled) Harmful if inhaled	Category 4 (Acute Tox. 4) H332
Sensitisation of the respiratory tract May cause allergy or asthma symptoms or breathing difficulties if inhaled.	Category 1 (Sens. Resp. 1) H334
Specific target organ toxicity (single exposure) May cause respiratory irritation.	Category 3 (STOT SE 3) H335
Carcinogenicity Suspected of causing cancer	Category 2 (Carc. 2) H351

Specific target organ toxicity (repeated exposure)	Category 2 (STOT RE 2)
May cause damage to organs through prolonged or repeated exposure.	H373

2.2 Label elements according to Regulation (EC) No. 1272/2008

The product is classified and labelled in accordance with CLP Regulation.

Hazard pictograms

Signal word: Danger

Contains: Diphenyl methane diisocyanate, isomers and homologens [CAS: 9016-87-9]

Hazard statements

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.
EUH204	Contains isocyanates. May produce an allergic reaction.

Precautionary statements

P261	Avoid inhaling dust / fumes / gas / mist / vapours / spray.
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P284	In case of inadequate ventilation: wear respiratory protection.
P302+P352	If on skin: Wash with plenty of water and soap.
P304+P340	If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P312	If feeling unwell: Call a poison centre / doctor.
Additional information:	Contains isocyanates. Observe manufacturer's instructions.

2.3 Other hazards

Persons with respiratory hypersensitivity (e.g. asthma, chronic bronchitis) should avoid contact with the product. Symptoms of excessive irritation of the respiratory tract by the product may persist for several hours. Dust, vapours and sprays are the main hazards to the respiratory tract.

Section 3 Composition / information on ingredients

3.1 Substances

Not applicable.

3.2 Mixtures

Identification name (Reg. Number)	Contents [%]	CAS Number	EU-Number	Index-Number	Classification	
					Regulation (EC) No. 1272/2008	
					Hazard class and category	Hazard statements
Diphenylmethane diisocyanate, Isomers and Homologens (-)	> 50	9016-87-9	-	-	Acute Tox. 4 inhalation	H332
					Skin irrit.2	H315
					Eye irrit.2	H319
					Sens. resp. 1	H334
					Skin sens. 1	H317
					Carc. 2	H351
					STOT SE 3	H335
					STOT RE 2 Inhalat.	H373

See Section 16 for wordings of the hazard statements.

Section 4 First Aid measures

4.1 Description of First Aid measures

General notes: In the event of an accident or physical discomfort incurred by the product, protect the person from further risk and immediately seek medical attention.

If inhaled: Move the person to fresh air. Seek medical attention if experiencing any discomfort.

If on skin: Remove contaminated clothing. Immediately wash off with water and soap, rinse thoroughly. Seek medical attention if experiencing any discomfort.

If in eyes: Remove contact lenses if present and easy to do. Rinse eyes open for at least 15 minutes under running water. Immediately seek medical attention.

If swallowed: Immediately rinse mouth with plenty of water. Do not induce vomiting. Seek medical attention if experiencing any discomfort.

4.2 Most important acute and delayed symptoms and effects

The product is irritating to the respiratory tract and has a potential allergenic effect when inhaled. The inhalation of vapours or sprays over a longer period of time of MDI concentrates above maximum occupational exposure limit values may cause a sensitization of the respiratory tract. Sensitized persons may experience an extremely strong reaction to minimum MDI concentrations. Symptoms after inhaling may take several hours after exposition. Persons with developed sensitization reaction to MDI may experience wheezing, night-time cough, tightness in the chest, or

shortness of breath. In minor cases, the person susceptible to sensitization may experience a slight irritation of eyes, nose, throat, possibly with dryness of the mouth. In severe cases, the person may experience an acute irritation of the bronchial tubes and shortness of breath.

4.3 Indication of any immediate medical attention and special treatment needed
Symptomatic treatment and supporting therapy as applicable. After serious exposition, the person should remain under medical supervision for at least 48 hours.

Section 5 Fire-fighting measures

5.1 Extinguishing media
Adapt extinguishing measures to suit the environment.
Suitable extinguishing media: dry extinguishing media, foam, carbon dioxide (CO2), water spray.
The following may be released during a fire: carbon monoxide, carbon dioxide, nitrogen oxides, hydrocyanic acid, diphenylmethane-4,4'-diisocyanate.
Special protective equipment: use self-contained breathing apparatus and hazmat suit. Do not inhale fumes.
Further statements: Cool vulnerable containers with water. Gaseous decomposition products may be released if material overheats: decomposition, risk of bursting. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Collect contaminated extinguishing water separately; do not allow liquids to reach sewage or effluent systems.

5.2 Special hazards arising from the substance or mixture.
The product is not classified as combustible.
In the event of fire, do not inhale fumes. If overheated, the containers may explode. If reacting with water, gaseous CO_2 is formed, which in case of tightly closed containers may cause a dangerous increase of pressure.

5.3 Advice for fire-fighters
Use self-contained breathing apparatus (SCBA).
Wear protective gloves/ protective clothing/ eye protection / face protection.

Section 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure sufficient ventilation.

6.2 Environmental precautions
Do not discharge into sewage and drainage systems or into bodies of water. Secure drains.

6.3 Methods and material for containment and cleaning up
Collect the spillage with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

6.4 Reference to other sections
See section 7 for information on safe handling.
See section 8 for information on personal protective equipment.
See section 13 for details on disposal.

Section 7 Handling and storage

7.1 Precautions for safe storage

Ensure good ventilation during handling.
Check for leak tightness during pumping.
It is essential to avoid formation of aerosols. Avoid inhalation of vapours and aerosols. Respiratory protection required when aerosols are generated.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed and store in a well ventilated, dry and cool room. Ingress of moisture causes generation of CO_2, building up of pressure and risk of bursting.
Do not store together with: acids, amines or products containing amines.
Store away from food, beverages and animal feeding stuff.
Recommended storage temperature between +10 and +30°C.
Packing material:
Suitable: steel, stainless steel.
Unsuitable: copper, copper alloys and galvanized surfaces.

7.3 Specific end use(s)

No further relevant data available.

Section 8 Exposure controls / personal protection

8.1 Control parameter

Contents with workplace-related limits to be monitored:
Diphenyl methane diisocyanate, isomers and homologens
Occupational exposure limit 0,05 mg/m^3, 0,005 ml/m^3

DNEL: Diphenylmethylene-4,4'-diisocyanate

exposition	value	population	hazard
Short-term, dermal	50 mg/kg bw/day	Worker	systemic
Short-term, inhalation	0,1 mg/m^3	Worker	systemic
Short-term, dermal	28,7 mg/cm^3	Worker	local
Short-term, inhalation	0,1 mg/m^3	Worker	local
Long-term, inhalation	0,05 mg/m^3	Worker	systemic
Long-term, inhalation	0,05 mg/m^3	Worker	local
Short-term, dermal	25 mg/kg bw/day	Consumer	systemic
Short-term, inhalation	0,05 mg/m^3	Consumer	systemic
Short-term, oral	20 mg/kg bw/day	Consumer	systemic
Short-term, dermal	17,2 mg/cm^3	Consumer	local
Short-term, inhalation	0,05 mg/m^3	Consumer	systemic
Short-term, inhalation	0,025 mg/m^3	Consumer	systemic
Short-term, inhalation	0,025 mg/m^3	Consumer	local

PNEC: Diphenylmethylen-4,4'-diisocyanate
Freshwater: 1 mg/l
Seawater: 0,1 mg/l
Activated sludge - microorganisms: 1 mg/l
Ground: 1 mg/kg

8.2 Exposure controls / personal protection

General protective and hygienic measures:
Do not eat, drink, smoke or sniff in workplace areas.
Keep away from food, drink and animal feeding stuff.
Immediately take off soiled, contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with eyes and skin.

Respiratory protection:
In case of brief exposure or low pollution (exceeding the MAC value), use respiratory filter device, during intensive or longer exposure use self-contained breathing apparatus.

Hand protection:
Protective gloves

Glove material

Nitrile rubber
Fluorinated rubber
Butyl rubber
PVC gloves

The selection of the suitable gloves not only depends on the material, but also on further quality characteristics and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has to be reviewed before use.

Eye protection:
Tight sealing safety goggles

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	brown liquid
Odour:	specific
Odour threshold:	unknown
pH:	unknown
Melting point/freeze point:	unknown
Initial boiling point and boiling range:	> 300°C, decomposition
Flash point:	> 250°C
Evaporation rate:	unknown
Combustibility (solid, gaseous):	not classified as combustible
Upper/lower combustibility or explosion limit:	not potentially explosive
Vapour pressure:	1hPa

Vapour density:	unknown
Relative density:	approx. 1,23 ± 0,02 g/cm^3
Solubility:	not soluble, reacts with water
n-octanol partition coefficient water (log):	unknown
Self-ignition temperature:	> 600°C
Decomposition temperature:	not applicable
Viscosity:	200 ± 100 mPas
Explosive properties:	not applicable
Oxidizing properties:	not applicable

9.2 Other information
No further relevant information available.

Section 10 Stability and reactivity

10.1 Reactivity
Reacts exothermically with substances containing active hydrogen groups. Avoid reaction with water (humidity). Release of carbon dioxide.

10.2 Chemical stability
The product is stable at room temperature.

10.3 Possibility of hazardous reactions
Reacts exothermically with substances containing active hydrogen groups. The reaction slowly gets stronger and may turn severe at higher temperatures if the blendability of the reagents is good or supported by stirring or presence of solvents. Avoid reaction with water (humidity). Release of carbon dioxide. MDI is insoluble in water, and heavier than water. It sinks to the ground, but reacts slowly at the phase boundary, where a solid, water-insoluble layer of polyuria forms and carbon dioxide is emitted.

10.4 Conditions to avoid
Avoid high temperatures.

10.5 Incompatible materials
water, alcohols, amines, alkalis and acids.

10.6 Hazardous decomposition products
The combustion products may contain carbon dioxides (CO, CO_2).

Section 11 Toxicological information

11.1 Information on toxicological effects
Acute toxicity:
Inhalation: ATE mix= 1,5 mg/l (classification criteria are met 1 mg/l < ATE mix ≤ 5 mg/l)
LD50 (rat, oral) > 10000 mg/kg
LD50 (rabbit, dermal) > 9400 mg/kg
LC50 (rat, inhalation): 0,31 mg/l (4 hours)

Concentration of the saturated vapour of 4,4-MDI at a temperature of +25°C: 0,09 mg/m3 .
The product irritates the respiratory system and has allergic potential when inhaled:
The product is irritating and sensitizing when inhaled. Repeated inhalation of vapours or aerosols in concentrations exceeding the above indicated workplace limit values may sensitize the respiratory system. The following symptoms may appear: irritation of eyes, nose, throat and lungs, sometimes together with dry throat, tightness in the chest and difficulty breathing. Symptoms caused by inhalation may appear several hours after exposition. Sensitized persons may suffer extremely severe reactions to minimum MDI-concentrations.

Skin corrosivity / irritation:

LD50 (skin, rabbit) 5000 mg/kg
Method: Directive OECD 404
Toxicological tests of a similar product.
The product irritates the skin.
Possible sensitization through skin contact.
Experimental animal studies have shown that the skin contact with substances known as sensitizing to the respiratory system, such as diisocyanates, may cause respiratory sensitization. These results show the importance of wearing protective clothing including gloves during the handling of these chemicals or maintenance work.

Substantial damage to the eyes /irritates:

Irritates the eyes, causes lacrimation and burning sensation of the eyes.

Sensitizing effect on the respiratory system or skin:

The product irritates the respiratory system and has allergic potential when inhaled:
The product irritates the skin.
Sensitization through skin contact possible.
Experimental animal studies have shown that the skin contact with substances known as sensitizing to the respiratory system, such as diisocyanates, may cause respiratory sensitization.
These results show the importance of wearing protective clothing including gloves during the handling of these chemicals or maintenance work.

Germ-cell mutagenicity:

No data on substantial germ-cell mutagenicity available.

Carcinogenicity:

For two years, rats were exposed to a breathable aerosol of polymer-MDI, which led to chronic lung irritation at high doses.
A significant incidence of a benign lung tumour (adenoma) and a malign tumour (adenocarcinoma) was encountered only at the highest concentration (6 mg/m^3).
At 1 – 2 mg/m^3, no lung tumours were found.
In total, the incidence of benign as well as malign tumours and the number of animals with tumours does not differ from the control.
The increased incidence of lung tumours is connected with the longer irritation of the respiratory system and the accumulation of yellow matter in the lung connected with it, which was found throughout the entire study.
If no long-term influence of high MDI concentrations is present which would lead to a chronic irritation and damage of the lungs, the formation of tumours is unlikely.

Reproduction toxicity:

No defects of new-borns were found in two independent experimental animal tests (rats).
Phototoxicity was found at higher doses which were extremely toxic for the dam (even lethal).
No phototoxicity was found at levels not toxic for the dam.
The doses applied in these studies were the maximum breathable concentrations, which by far exceeded the MAK-defined valued.

Aspiration hazard: low oral toxicity.
Swallowing may cause irritation of the digestive tract.

Section 12 Ecological information

12.1 Toxicity:

Name of component	Value	Species	Exposition
Diphenylmethanediisocyanate, isomers and homologens	LC50 > 1000 mg/l	freshwater fish	96 hours
	EC50/LC50 > 1000 mg/l	freshwater invertebrates	24 hours
	EC10/LC10 or NOEC 10 mg/l	freshwater invertebrates	21 days
	EC50/LC50 > 1640 mg/l	freshwater algae	72 hours
	EC50/LC50 > 100 mg/l	microorganisms	3 hours
	EC50 > 100 mg/kg dry weight soil	*Eisenia fetida*	14 days
	EC50 > 100 mg/kg dry weight soil	*Avena sativa*	14 days
	EC50 > 100 mg/kg dry weight soil	*Lactuca sativa*	14 days

12.2 Persistence and degradability:
Not biodegradable: 0%, 28 days (method: OECD 302 C)
The product cannot be mixed with water, but reacts with water. The reaction products are chemically inert, not biodegradable solids. The conversion into soluble products, including diamindiphenylmethane (MDA), is a very slow process under optimum laboratory conditions at good dispersion and low concentration. Based on the calculations and in line with equivalent diisocyanates it is contemplated that a relatively fast OH-radical attack towards the dominating degradation product in the air is likely.

12.3 Bioaccumulative potential:
No further relevant information available.

12.4 Mobility in soil:
Under observation of the production technology and application of this substance, the development of a substantial environmental hazard through contamination of air and water is unlikely.

12.5 Results of PBT and vPvB assessment:
No further relevant information available.

12.6 Other adverse effects:
The measured ecotoxicity refers to the hydrolysed product under conditions which are very favourable for the formation of soluble forms. Even under these conditions, the observed toxicity is low / very low. A pond study has shown that a strong contamination does not have any significant toxic effects on a wide range of plants; there were no recognizable traces of diamindiphenyl-methane (MDA) on any trophic levels (including fish).

Section 13 Disposal considerations

13.1 Waste treatment methods

The generation of waste should be avoided as far as possible, or reduced to a minimum. Disposal has to be effected in accordance with the local or national regulatory requirements (Waste Act).Untreated materials are not suitable for the disposal. Do not (not even in small quantities) empty into drains or allow to reach sewer systems or water courses. Empty packaging has to be disposed of through an authorised waste disposal company.

Section 14 Transport information

14.1 UN-Number	
ADR, ADN, IMDG, IATA	not relevant
14.2 UN proper shipping name	
ADR, ADN, IMDG, IATA	not relevant
14.3 Transport hazard class(es)	
ADR, ADN, IMDG, IATA class	not relevant
14.4 Packing group	
ADR, IMDG, IATA	not relevant
14.5 Environmental hazards	
Marine pollutant	not relevant
14.6 Special precautions for user	not relevant

Section 15 Regulatory information

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

1. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (UEL 136 of 29 May 2007)
2. Regulation (EU) No 453/2010 of 20 Mai 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (U.L 133 of 31 May 2010).
3. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on the classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, an amending Regulation (EC) No 1907/2006

15.2 Chemical safety assessment

No chemical safety assessment has been carried out.

Section 16 Other information

All values and information supplied are based on our current knowledge. They do not constitute a legally binding assurance of specific product properties or justify a contractual legal relationship.

Full wording of hazard statements, if indicated in Sections 2 or 3

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
P362	Take off contaminated clothing and wash before reuse.
Acute Tox 4	Acute toxicity (oral), hazard category 4
Carc. 2	Carcinogenicity, hazard category 2
Eye irrit. 2	Causes severe eye irritation / irritates the eyes Hazard category 2
Resp. sens. 1	Respiratory sensitization, hazard category 1
Skin irrit. 2	Skin irritation, hazard category 2
Skin sens. 1	Skin sensitization, hazard category 1
STOT RE 2	Specific target organ toxicity, repeated exposure Hazard category 2
STOT SE 3	Specific target organ toxicity, single exposure Hazard category 3

Abbreviations and acronyms:

ADR/RID	European Agreements on the Transport of Dangerous Goods by Road/Railway
BGR	Berufsgenossenschaftliche Regel für die Sicherheit und Gesundheit (Trade Association Health and Safety at Work Rules)
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)
EC	Effective Concentration (median effective concentration)
IATA	International Air Transport Association
IMDG	International Agreement on the Maritime Transport of Dangerous Goods
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Regulation (EC) 1907/2006)
SDB	Safety Data Sheet
STOT	Specific Target Organ Toxicity (spezifische Zielorgantoxizität)
TRGS	Technische Regeln für Gefahrstoffe (Technical Rules for Hazardous Substances)
VCI	Verband der Chemischen Industrie e.V. (Association of the Chemical Industry)
vPvB	Very Persistent, very Bioaccumulative
VwVwS	Verwaltungsvorschrift wassergefährdende Stoffe (Administrative Regulation on the Classification of Substances Hazardous to Waters into Water Hazard Classes)