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

1.1. Product identifier

Product name PU ACTIVATOR

Product code 3PE092

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

Identified uses

Hardener for professional use

Based on use descriptor system given by guideline of the European Chemical Agency
Sector of use SU 3, SU 22
Product category PC9a, PC9b
Further information see chapter Exposure scenario
The product is only for industrial and/or professional use, not for any private consumer use.

1.3. Details of the supplier of the safety data sheet

DUTHOO NV

Street : ESSERSTRAAT 3

Postal code/city : BE - 8550 ZWEVEGEM

Telephone : +32 (0)56 360 774

Telefax : +32 (0)56 360 776 - E-mail (competent person) : info@duthoo.eu

1.4. Emergency telephone number

Belgisch Antigifcentrum: +32 70 245 245

Section 2. Hazards identification

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

2.1. Classification of the substance or mixture

Classification of the mixture

According to Regulation (EC) No 1272/2008
Flam. Liq. 3, H226; Skin Sens. 1, H317; STOT SE 3, H335; Aquatic Chronic 2, H411; EUH204;

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008.

Pictogram and Signal word of the product

Signal word: Warning

Hazardous components which must be listed on the label

Contains	Hexamethylene diisocyanate, oligomers bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate 1,2,4-trimethylbenzene

Hazard statements

H226	Flammable liquid and vapour.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.
EUH204	Contains isocyanates. May produce an allergic reaction.

Precautionary statements

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261	Avoid breathing dust/ vapours/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT). This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

Restricted to professional users.

Section 3. Composition/information on ingredients

3.1. Substances

This product is a mixture. Health hazard information is based on its components.

3.2. Mixtures

Chemical characterization

Mixture of synthetic resins and solvents

Hazardous components

Substances presenting a health or environmental hazard within the meaning of Regulation (EC) No 1272/2008

CAS	28182-81-2	Hexamethylene diisocyanate, oligomers		
EC	500-060-2	REACh 01-2119485796-17	75 - <	85 %
Classification		Skin Sens. 1, H317; Acute Tox. 4, H332; STOT SE 3, H335;		

CAS 123-86-4	n-butyl acetate		
EC 204-658-1	REACh 01-2119485493-29	10 - <	12.5 %
Classification	Flam. Liq. 3, H226; STOT SE 3, H336; EUH066;		
CAS 41556-26-7	bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate		
EC 255-437-1	REACh no registration number available	5 - <	7 %
Classification	Skin Sens. 1, H317; Aquatic Acute 1, H400; Aquatic Chronic 1, H410;		
CAS 64742-95-6	solvent naphtha (petroleum), light arom. (<0,1% benzene)		
EC 265-199-0	REACh 01-2119455851-35	2 - <	2.5 %
Classification	Flam. Liq. 3, H226; Asp. Tox. 1, H304; STOT SE 3, H335; STOT SE 3, H336; Aquatic Chronic 2, H411; EUH066; Note H (Table 3.1); Note P;		
CAS 82919-37-7	methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate		
EC 280-060-4	REACh no registration number available	2 - <	2.5 %
Classification	Skin Sens. 1, H317; Aquatic Acute 1, H400; Aquatic Chronic 1, H410;		
CAS 95-63-6	1,2,4-trimethylbenzene		
EC 202-436-9	REACh no registration number available	1 - <	2 %
Classification	Flam. Liq. 3, H226; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Acute Tox. 4, H332; STOT SE 3, H335; Aquatic Chronic 2, H411;		
CAS 77-58-7	dibutylbis((1-oxododecyl)oxy)stannane		
EC 201-039-8	REACh 01-2119496068-27	0.1 - <	0.2 %
Classification	Skin Corr. 1B, H314; Skin Sens. 1, H317; Eye Dam. 1, H318; Muta. 2, H341; Repr. 1B, H360FD; STOT SE 1, H370; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410;		
CAS 822-06-0	hexamethylene-di-isocyanate		
EC 212-485-8	REACh 01-2119457571-37	0.1 - <	0.2 %
Classification	Acute Tox. 4, H302; Skin Irrit. 2, H315; Skin Sens. 1, H317; Eye Irrit. 2, H319; Acute Tox. 1, H330; Resp. Sens. 1, H334; STOT SE 3, H335; Note 2;		

Up to the given revision date of this safety data sheet only the above mentioned REACh registration numbers are assigned to the chemical substances used in this mixture.

Additional advice
See full text of H-phrases in chapter 16.

Section 4. First aid measures

4.1. Description of first aid measures

General advice

When symptoms persist or in all cases of doubt seek medical advice. Never give anything by mouth to an unconscious person.

Inhalation

Avoid inhalation of vapour or mist. Move to fresh air in case of accidental inhalation of vapours. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

Skin contact

Do NOT use solvents or thinners. Take off all contaminated clothing immediately. Wash skin thoroughly with soap and water or use recognized skin cleanser. If skin irritation persists, call a physician.

Eye contact

Remove contact lenses. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Seek medical advice.

Ingestion

If swallowed, seek medical advice immediately and show this safety data sheet (SDS) or product label. Do NOT induce vomiting. Keep at rest.

4.2. Most important symptoms and effects, both acute and delayed

Please see practical experience in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

If unconscious place in recovery position and seek medical advice.

Section 5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Universal aqueous film-forming foam, Carbon dioxide (CO2), Dry chemical, Water spray.

Extinguishing media which shall not be used for safety reasons

High volume water jet

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Fire will produce dense black smoke containing hazardous combustion products. Exposure to decomposition products may be a hazard to health.

Hazardous decomposition products

When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide and dioxide, smoke, oxides of nitrogen as well as hydrogen cyanide, amines, alcohols and water.

5.3. Advice for firefighters

Fire and Explosion Hazards

Flammable liquid. Vapours may form explosive mixtures with air. Remove all sources of ignition. Solvent vapours are heavier than air and may spread along floors.

Special Protective Equipment and Fire Fighting Procedures

Wear as appropriate: Full protective flameproof clothing. Wear self-contained breathing apparatus for firefighting if necessary. In the event of fire, cool tanks with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Section 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep in a well-ventilated place. Keep away from sources of ignition. Do not inhale vapours.

6.2. Environmental precautions

Do not let product enter drains. Notify the respective authorities in accordance with local law in the case of contamination of rivers, lakes or waste water systems. Please avoid any emission of volatile organic compounds as possible.

6.3. Methods and materials for containment and cleaning up

Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations. The contaminated area should be cleaned up immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts), concentrated (d : 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts), water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in non-sealed container. Once this stage is reached, close container and dispose according to local regulations (see section 13).

6.4. Reference to other sections

Comply with safety directives (see chapters 7 and 8).

Section 7. Handling and storage

Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

7.1. Precautions for safe handling

Safe handling advice

Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Preparation may charge electrostatically: always use grounded leads when transferring from one container to another.

Operators should wear antistatic footwear and clothing. No sparking tools should be used. Avoid skin and eye contact. Do not breathe vapours or spray mist. Smoking, eating and drinking should be prohibited in the application area.

For personal protection see section 8. Comply with the health and safety at work laws. If material is a coating, do not sand, flame cut, braze or weld dry coating without an appropriate respirator or appropriate ventilation, and gloves.

Advice on protection against fire and explosion

Solvent vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Never use pressure to empty container: container is not a pressure vessel. Always keep in containers of same material as the original one. The accumulation of contaminated rags may result in spontaneous combustion. Good housekeeping standards and regular safe removal of waste materials will minimize the risks of spontaneous combustion and other fire hazards.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Observe label precautions. Refer to Technical Data Sheet (TDS) for further information about storage temperature. Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight. No smoking. Prevent unauthorized access. Containers which are opened must be carefully resealed and kept upright to prevent leakage. The storage and use of this product is subject to the requirements of the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR). Up to 50 litres of such highly flammable liquids may be stored in a work area provided they are kept in a fire-proof cupboard or bin. Larger quantities must be kept in a separate storeroom conforming to the structural requirements of the regulations. Further guidance is contained in the HSE ACOP L135, “Storage of Dangerous Substances.”

Advice on common storage

Store separately from oxidizing agents, strongly alkaline and strongly acidic materials, amines, alcohols and water. Precautions should be taken to avoid exposure to atmospheric humidity or water. Evolution of CO2 in closed containers causes overpressure and produces a risk of bursting.
Do not store together with explosives, gases, oxidizing solids, products which form flammable gases in contact with water, oxidizing products, infectious products and radioactive products.

Additional information on storage conditions

Precautions should be taken to avoid exposure to atmospheric humidity or water. Humid air and/or water will produce carbon dioxide which will pressurize the container. Open drum carefully as content may be under pressure.

7.3. Specific end use(s)

Please see exposure scenarios as given in the annex.

Section 8. Exposure controls/personal protection

8.1. Control parameters

DNEL

CAS-No.	Chemical name	End Use	Exposure routes	Frequency of exposure	Type	Value
123-86-4	n-butyl acetate	Workers	Dermal	Long term	Systemic effects	11 mg/kg/day
		Workers	Inhalative	Long term	Systemic effects	100 ppm
41556-26-7	bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	Workers	Dermal	Long term	Systemic effects	2.5 mg/kg/day
		Workers	Inhalative	Long term	Systemic effects	0.111 ppm
64742-95-6	solvent naphtha (petroleum), light arom. (<0,1% benzene)	Workers	Dermal	Long term	Systemic effects	25 mg/kg/day
		Workers	Inhalative	Long term	Systemic effects	30.1 ppm

PNEC

No information available.

Community / national occupational exposure limits

CAS-No.	Chemical name	Source	Time	Type	Value	Note
123-86-4	n-butyl acetate			STEL	966 mg/m3	
				STEL	200 ppm	
				TWA	724 mg/m3	
				TWA	150 ppm	
95-63-6	1,2,4-trimethylbenzene		8 hr	IOELV8	100 mg/cm3	
			8 hr	IOELV8	20 ppm	
				TWA	125 mg/m3	
				TWA	25 ppm	
108-67-8	mesitylene		8 hr	IOELV8	100 mg/cm3	
			8 hr	IOELV8	20 ppm	
				TWA	125 mg/m3	
				TWA	25 ppm	
822-06-0	hexamethylene-di-isocyanate	Supplier	15 min	STEL	0.07 mg/m3	
		Supplier	8 hr	TWA	0.02 mg/m3	

Glossary

IOELV	Indicative Occupational Exposure Limit Values
STEL	Short term exposure limit
TWA	Time weighted average

8.2. Exposure controls

Additional technical information on the plant

Provide adequate ventilation. Air-fed protective respiratory equipment must be worn by spray operator even when good ventilation is provided.

Protective equipment

Personal protective equipment should be worn to prevent contact with eyes, skin or clothing.

Respiratory protection

For spraying: air-fed respirator. For operations other than spraying: in well ventilated areas, air-fed respirators could be replaced by a combination of charcoal filter and particulate filter mask.

Hand protection

The breakthrough time of gloves is unknown for the product itself. The glove material given is recommended on basis of the substances in the preparation.

Chemical name	Glove material	Glove thickness	Break through time
n-butyl acetate	Viton (R) ®	0.7 mm	10 MIN
	Nitrile rubber	0.33 mm	30 MIN
solvent naphtha (petroleum), light arom. (<0,1% benzene)	Viton (R) ®	0.7 mm	30 MIN

The protective glove should be checked in each case for their work specific suitability (e.g. mechanical stability, product compatibility, and anti-static properties). When the intended use is for spray application a nitrile glove of the chemical resistance group 3 (e.g. Dermatril® glove) is to be used. After contamination, the glove has to be changed. If immersing the hands into the product is not avoidable (e.g. maintenance work) a butyl or fluorocarbon rubber glove should be used. When skin exposure may occur to materials specified in section 3 of this SDS, advice should be sought from the glove supplier as to appropriate type to use with this product and the permeation breakthrough times. Care should be taken when working with sharp edged articles as these can easily damage the gloves and make them ineffective. The instructions and information provided by the glove supplier on use, storage, maintenance and replacement must be followed. Damaged gloves or those showing signs of wear should be replaced immediately.

Eye protection

Use safety eyewear designed to protect against splash of products.

Skin and body protection

Wear suitable protective clothing. Personnel should wear antistatic clothings made of natural fiber or of high temperature resistant synthetic fiber.

Hygiene measures

Wash skin thoroughly with soap and water or use recognized skin cleanser. Do not use organic solvents!

Environmental exposure controls

Do not let product enter drains.
For ecological information refer to section 12.

Section 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Form: liquid; **Colour:** yellow; **Odour:** Odour is not perceptible.;

Important health, safety and environmental information

Property	Value	Method

pH	pH cannot be measured due to less solubility in water.	
Melting point/freezing point	Not applicable.	
Boiling point/boiling range	125 °C	
Flash point	24 °C	EN ISO 3679
Evaporation rate	Slower than Ether	
Flammability (solid, gas)	not relevant as product is liquid	
Lower explosion limit	1.2 vol-% based on organic solvent content	
Upper explosion limit	7.5 vol-% based on organic solvent content	
Vapour pressure	2.0 hPa	
Vapour density	No data available	
Density	1.09 g/cm^3	20 °C - DIN 53217/ISO 2811
Solubility(ies)		
Water solubility	nil	
Solubility in other solvents	miscible with most organic solvents Listed in: Section 3. Composition/information on ingredients	
Partition coefficient: n-octanol/water	This product is a mixture. For ingredient details see section 12	
Auto-ignition temperature	380 °C	DIN 51794 based on organic solvent content
Decomposition temperature	This product is a mixture. For further information see section 10.	
Viscosity (23 °C)	<20 s	ISO 2431 - 1993 6 mm
Explosive properties	Not explosive	
Oxidizing properties	not oxidizing	

9.2. Other information

Solvent separation test	< 3%	ADR/RID
Content of volatile components (including water)	16.2 %	Basis Vapour pressure >= 0.01 kPa
organic solvent content	16.2 %	Basis Vapour pressure >= 0.01 kPa
European VOC	16.2 %	Basis Vapour pressure >= 0.1 hPa

Section 10. Stability and reactivity

10.1. Reactivity

Keep away from oxidizing agents and strongly acid or alkaline materials. Amines and alcohols cause exothermic reactions. Mixture reacts slowly with water resulting in evolution of CO2. Evolution of CO2 in closed containers causes overpressure and produces a risk of bursting.

10.2. Chemical stability

The product is chemically stable.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials to avoid

not required under normal use

10.6. Hazardous decomposition products

None known.

Section 11. Toxicological information

11.1. Information on toxicological effects

General observations

There is no data available on the product. The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1272/2008/EC and classified for toxicological hazards accordingly. See sections 2 and 3 for details.

Practical experience

Swallowing may cause nausea, diarrhoea, vomiting, gastro-intestinal irritation and chemical pneumonia. Based on the properties of the isocyanate components and considering toxicological data on similar products, the following applies: This formulation may cause acute irritation and/or sensitization of the respiratory system leading to an asthmatic condition, wheeziness and a tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Through skin resorbtion, solvents can cause some of the effects described here. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and absorption through the skin. Exposure to component solvents vapours concentration in excess of the stated occupational exposure limit may result in adverse health effect such as mucous membrane and respiratory system irritation and adverse effect on kidney, liver and central nervous system. Components of the product may be absorbed into the body through the skin. Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and absorption through the skin.

Acute toxicity

Acute inhalation toxicity

EINECS-No.	Chemical name	Species	Type	Exposure time	Value	Method
500-060-2	Hexamethylene diisocyanate, oligomers	Rat	LC50	4 h	> 1.5 mg/l	
202-436-9	1,2,4-trimethylbenzene	Rat	LC50	4 h	18,000 mg/l	
212-485-8	hexamethylene-di-isocyanate	Rat	LC50	4 h	0.124 mg/l	

Acute oral toxicity

EINECS-No.	Chemical name	Species	Type	Exposure time	Value	Method
212-485-8	hexamethylene-di-isocyanate	Rat	LD50		746 mg/kg	
201-039-8	dibutylbis((1-oxododecyl)oxy)stannane	Rat	LD50		> 2,000 mg/kg	

irritant effects

Inhalation of mist causes irritation of respiratory system.

Sensitisation

Contains: Hexamethylene diisocyanate, oligomers; bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate; methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate; hexamethylene-di-isocyanate; dibutylbis((1-oxododecyl)oxy)stannane. May produce an allergic reaction.

Section 12. Ecological information

There are no data available on the product itself. The product should not be allowed to enter drains or watercourses.

The data in this section is consistent with data from chemical safety reports available at the date of revision.

12.1. Toxicity

Aquatic toxicity

Acute toxicity aquatic invertebrates

EINECS-No.	Chemical name	Species	Type	Exposure time	Value	Method
255-437-1	bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	Daphnia	EC50	24 h	20 mg/l	
265-199-0	solvent naphtha (petroleum), light arom. (<0,1% benzene)	Daphnia	EC50	24 h	170 mg/l	
280-060-4	methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Daphnia	EC50	24 h	20 mg/l	
202-436-9	1,2,4-trimethylbenzene	Daphnia	LC50	48 h	6 mg/l	
203-604-4	mesitylene	Daphnia	EC50	48 h	6 mg/l	
203-132-9	n-propylbenzene	Daphnia	EC50	24 h	2 mg/l	
201-039-8	dibutylbis((1-oxododecyl)oxy)stannane	Daphnia	EC50	48 h	0.463 mg/m3	

Acute and extended toxicity of fishes

EINECS-No.	Chemical name	Species	Type	Exposure time	Value	Method
255-437-1	bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	Lepomis macrochirus (Bluegill sunfish)	LC50	96 h	0.97 mg/l	
265-199-0	solvent naphtha (petroleum), light arom. (<0,1% benzene)	Danio rerio (zebra fish)	LC50	96 h	10 mg/l	
280-060-4	methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Lepomis macrochirus (Bluegill sunfish)	LC50	96 h	0.97 mg/l	
280-060-4	methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	Oncorhynchus mykiss (rainbow trout)	LC50	96 h	7.9 mg/l	
202-436-9	1,2,4-trimethylbenzene	Oncorhynchus mykiss (rainbow trout)	EC50	96 h	9.22 mg/l	
203-604-4	mesitylene	Carassius auratus (goldfish)	LC50	96 h	12.5 mg/l	
201-039-8	dibutylbis((1-oxododecyl)oxy)stannane	Leuciscus idus (Golden orfe)	LC50	48 h	2 mg/l	
201-039-8	dibutylbis((1-oxododecyl)oxy)stannane	Danio rerio (zebra fish)	LC50	96 h	3.1 mg/l	

Toxicity with aquatic plants

EINECS-No.	Chemical name	Species	Type	Exposure time	Value	Method
265-199-0	solvent naphtha (petroleum), light arom. (<0,1% benzene)	Algae	EC50	72 h	10 mg/l	

Contains 0.0% of components with unknown hazards to the aquatic environment.

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

Based on available data no ingredient is classified for this hazard property (please see section 3).

12.6. Other adverse effects

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1272/2008/EC and is classified for eco-toxicological properties accordingly. See sections 2 and 3 for details.

Adsorbed organic bound halogens (AOX)

Product does not contain organic linked halogens contributing to AOX.

Section 13. Disposal considerations

13.1. Waste treatment methods

Dispose of in accordance with local regulations.

Product

Recommendation:
A disposal process that converts the waste into energy is recommended. If this is not possible the hazardous waste must be disposed of by incineration.

Waste Key Number	Description
08 01 11	waste paint and varnish containing organic solvents or other dangerous substances

Uncleaned packaging

Recommendation:
Properly emptied containers are to be scrap processed or reconditioned. Improperly emptied containers are considered hazardous waste (waste key number 150110). Waste, including emptied containers, is controlled waste. Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. If fully drained containers are compacted they can be regarded as Controlled Waste and disposed of in accordance with the requirements of the Control of Pollution Act 1974 and the Environmental Protection Act 1990 (GB), the Pollution Control and Local Government (NI) Order 1978 (NI) or of the EC (Waste) Regulations 1979 and the EC (Toxic & Dangerous Waste) Regulations 1982 (IRL).

Section 14. Transport information

Transport only in accordance with the requirements of the Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labeling), ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport.

14.1. UN number

ADR/RID; IMDG; ICAO/IATA: 1263

14.2. UN proper shipping name

ADR/RID; IMDG; ICAO/IATA: PAINT RELATED MATERIAL

14.3. Transport hazard class(es)

Hazard class

ADR/RID; IMDG; ICAO/IATA: 3

Subsidiary hazard class

ADR/RID; IMDG; ICAO/IATA: Not applicable.

Labels

Tunnel restriction code

ADR/RID: D/E

Special Provisions

ADR/RID: 640E

Kemler Code

ADR/RID: 30

Hazchem Code

ADR/RID: 3Y

EmS

IMDG: F-E,S-E

14.4. Packaging group

ADR/RID; IMDG; ICAO/IATA: III

14.5. Environmental hazards

ADR/RID; IMDG; ICAO/IATA: yes

Marine pollutant

IMDG: yes [bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate]

14.6. Special precautions for user

please see section 6 - 8

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

Deliveries shall only be made based on appropriate packaging and in compliance with traffic laws.

Section 15. Regulatory information

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

National legislation

This safety datasheet has been prepared according to British legislation.

The product is labeled according to the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 as amended (CHIP Regulations). The risk associated with the use of this product must be assessed in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations and the Dangerous Substances and Explosive Atmospheres Regulations.

Restricted to professional users.

15.2. Chemical safety assessment

No safety checks were carried out on the mixture.

Section 16. Other information

Full text of H phrases with no. appearing in section 3

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
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.
H330	Fatal if inhaled.
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.
H341	Suspected of causing genetic defects.
H360FD	May damage fertility. May damage the unborn child.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.
Note 2	The concentration of isocyanate stated is the percentage by weight of the free monomer calculated with reference to the total weight of the mixture.
Note H (Table 3.1)	The classification and labelling shown for this substance applies to the hazardous property(ies) indicated by the hazard statement(s) in combination with the hazard class(es) and category(ies) shown. The requirements of Article 4 for manufacturers, importers or downstream users of this substance apply to all other hazard classes and categories. For hazard classes where the route of exposure or the nature of the effects leads to a differentiation of the classification of the hazard class, the manufacturer, importer or downstream user is required to consider the routes of exposure or the nature of the effects not already considered. The final label shall follow the requirements of Article 17 and of section 1.2 of Annex I.
Note P	The classification as a carcinogen or mutagen need not apply if it can be shown that the substance contains less than 0,1 % w/w benzene (EINECS No 200-753-7). When the substance is not classified as a carcinogen at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 (Table 3.1) or the S-phrases (2-)23-24-62 (Table 3.2) shall apply. This note applies only to certain complex oil-derived substances in Part 3.

Labelling according to European Directive 1999/45/EC.

Symbol and indication of hazard.

Xn | Harmful

	N	Dangerous for the environment
Contains		Hexamethylene diisocyanate, oligomers bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

R-phrase(s)

R10	Flammable.
R20	Harmful by inhalation.
R37	Irritating to respiratory system.
R42/43	May cause sensitisation by inhalation and skin contact.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)

S23	Do not breathe vapour.
S24	Avoid contact with skin.
S37	Wear suitable gloves.
S38	In case of insufficient ventilation, wear suitable respiratory equipment.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S61	Avoid release to the environment. Refer to special instructions/ Safety data sheets.

Special labelling of certain mixtures

Contains isocyanates. See information supplied by the manufacturer. Contains: hexamethylene-di-isocyanate; dibutylbis((1-oxododecyl)oxy)stannane. May produce an allergic reaction.

Information taken from reference works and the literature.

Substance No.	CAS no: www.cas.org./EO/regsys.html http://echa.europa.eu/
Substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC.	http://echa.europa.eu/search-for-chemicals http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB http://www.cdc.gov/niosh/ipcs/icstart.html
Other directives, limitations and prohibitory regulations	Regulation (EC) No. 1907/2006 Directive 98/24/EC Directive 2004/37/EC REGULATION (EC) No 1272/2008 EUR-LEX: http://europa.eu.int/eur-lex/lex
Exposure limit for the pure substance	http://osha.europa.eu/OSHA

Training advice

Regulation (EC) No. 1907/2006
Directive 98/24/EC

Further information

The information of this SDS is based on the present state of our knowledge and meets the requirements of EU and national laws. The user's working conditions however, are beyond our knowledge and control. The product is not to be used for purposes other than those specified under section 1 without a written permission. It remains the responsibility of the user to ensure that the necessary steps are taken to meet the laws and regulations. Handling of the product may only be done by people above 18 years of age, who are satisfactorily informed of how to do the work, the hazardous properties and necessary safety precautions. The information given in this SDS is to describe the product only in terms of health and safety requirements and should not, therefore, be construed as guaranteeing specific properties.

Report version

Version	Changes
4.1	Annex

Revision Date: 2017-01-05

Annex - Exposure scenarios

Consolidated exposure assessment for industrial and professional use of coating material

The consolidated exposure assessment provides specific information on how a hazardous substance (in a mixture) is to be managed and controlled. It considers specific conditions of use, in order to ensure that a use is safe to humans and the environment. Compliance with operational conditions and risk management measures is required if the exposure assessment is annexed to a mandatory safety data sheet. In this case, identified risk management measures are to be implemented unless the downstream user is able to ensure safe use in a diverging way.

1. Consolidated exposure assessment (type 1) for spray application of activators

Free short title:

Industrial or professional application of activators for 2K spray coating material (professional use in close to industrial setting)

Systematic title based on use descriptors:

Sector of use	SU 22, SU 3
Product category	PC9a, PC9b
Process category	PROC4 (covering PROC2), PROC5 (covering PROC3), PROC8a (covering PROC8b), PROC7 or PROC11
Environmental release category	ERC4, ERC5, ERC6d

Activities covered:

Preparing (adding activator), transferring/loading, application by spraying, drying and curing of coating material

Contributing scenarios:

spERC x1	Spray coating including purge loss
PROC4 (covering PROC2)	
PROC5 (covering PROC3)	Applicable for: Adding of activator
PROC8a (covering PROC8b)	Transfer of substance or preparation (charging/discharging)
PROC7	Industrial spraying
PROC11	Non industrial spraying

2. Operational conditions and risk management measures

2.1. Contributing environmental scenario

Preparing, transferring/loading, application by spraying, drying and curing of coating material

Process conditions:

Potential transfer to process waste water stream when using Venturi wet scrubber for collecting overspray

	M(sperc)	Transfer to process waste water	Release after on-site WWTP	Municipal STP
spERC x1	Solids in paint	40%	10%	
spERC x1	Volatiles in paint	100%	100%	

2.2. Contributing worker scenarios

Preparing, transferring/loading, application by spraying, drying and curing of coating material

	PROC	DOA	LEV/TRV	RPE	DPE
Mixing	5 (covering 3)	> 4 h	TRV	no	yes level 2
Transferring	8a (covering 8b)	> 4 h	TRV	no	yes level 2
Non-industrial spraying	11	> 4 h	LEV	yes due to aerosol	yes level 2
Industrial spraying	7	> 4 h	LEV	yes due to aerosol	yes level 2
Curing	4 (covering 2)	> 4 h	TRV	no	yes level 2

Further specification:

Above parameters represent standard (default) assumptions according to CEPE mapping of operational conditions Valid information on risk management measures for specific formulation is provided in part 3. Deviation options are explained in part 4 (scaling).

3. Exposure estimation and reference to its source

Exposure assessment bases on initial scenarios for the used chemicals in this preparation as provided by manufactuters and importers. Identification of a lead substance indicator per route is based on the DPD+ methodology, taking into account content, dustiness and hazard characteristics. Use of the mixture is considered safe when conditions for safe use of the lead substance indicator are respected. Risk assessment is not applicable as long as no initial exposure scenarios are available.

3.1. Environmental assessment

Assessment method:

ACEA spERC concept

Potential transfer to process waste water stream when using Venturi wet scrubber for collecting overspray

	LSI (aquatic)	LSI % range	M(sperc)	Transfer to process waste water	Release after on-site WWTP	Release after municipal STP	Dilution factor	Receiving body	PNEC surface water
spERC x1b (solids)	bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	> 5%	–	70%	10%	10%	5	18,000 m^3/d	–
spERC x1a (solids)	bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	> 5%	–	40%	10%	10%	5	18,000 m^3/d	–
spERC x1b (volatiles)	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 1%	–	100%	100%	10%	1	18,000 m^3/d	–
spERC x1a (volatiles)	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 1%	–	100%	100%	10%	1	18,000 m^3/d	–

3.2. Worker assessment

Assessment method:

ECETOC TRA version 3.0

Advice on respiratory protection equipment for PROC 7, 11 and on dermal protection equipment is based on Axalta expert judgement Reactive compounds are released in range < 1 % only.
Preparing, transferring/loading, application by spraying, drying and curing of coating material - professional setting

	PROC	Route	LSI	LSI % range	DOA	LEV / TRV	RPE	DPE	DNEL	RCR
Mixing	5 (covering 3)	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Technical room ventilation	none	–	30	1.00
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Technical room ventilation	none	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy) stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–

	PROC	Route	LSI	LSI % range	DOA	LEV / TRV	RPE	DPE	DNEL	RCR
Transferring	8a (covering 8b)	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Technical room ventilation	none	–	30	1.00
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Technical room ventilation	none	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy)stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–
Non-industrial spraying	11	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Local exhaust ventilation	Filter mask (90% efficient)	–	30	0.33
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Local exhaust ventilation	Filter mask (90% efficient)	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy)stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–
Curing	4 (covering 2)	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Technical room ventilation	none	–	30	0.50
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Technical room ventilation	none	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy)stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–

Preparing, transferring/loading, application by spraying, drying and curing of coating material - industrial setting

	PROC	Route	LSI	LSI % range	DOA	LEV / TRV	RPE	DPE	DNEL	RCR
Mixing	5 (covering 3)	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Technical room ventilation	none	–	30	1.00
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Technical room ventilation	none	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy)stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–

	PROC	Route	LSI	LSI % range	DOA	LEV / TRV	RPE	DPE	DNEL	RCR
Transferring	8a (covering 8b)	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Technical room ventilation	none	–	30	1.00
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Technical room ventilation	none	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy) stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–
Industrial spraying	7	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Local exhaust ventilation	Air-fed mask (95% efficient)	–	30	–
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Local exhaust ventilation	Air-fed mask (95% efficient)	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy) stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–
Curing	4 (covering 2)	Inhalation	solvent naphtha (petroleum), light arom. (<0,1% benzene)	> 25%	> 4hr	Technical room ventilation	none	–	30	0.50
		Inhalation	hexamethylene-di-isocyanate	> 0%	> 4hr	Technical room ventilation	none	–	–	–
		Skin	dibutylbis((1-oxododecyl)oxy) stannane	> 0%	> 4hr	–	–	Resistant gloves, training	–	–
		Skin	Hexamethylene diisocyanate, oligomers	> 25%	> 4hr	–	–	Resistant gloves, training	–	–

Further specification:

Above exposure assessment is performed for coating material as supplied. Exposure assessment requires adaptation to ready for use mixture (review paint and/or diluant) Hazards of activator compounds are obsolete after film formation of 2K coating

4. Guidance to downstream user to evaluate whether he works inside the boundaries set by the exposure scenario

By variation of operational conditions and risk management measures (scaling), a downstream user can check whether he works inside the exposure scenario boundaries.
Standard scaling can be based on exposure modifying factors as used by ECETOC TRA which are listed below.
RCR(s) = RCR(o) * EMF(s)/EMF(o)
RCR(s) shall be < 1
RCR(s) = scaled risk characterisation ratio; RCR(o) = original risk characterisation ratio (in part 3)
EMF(s) = exposure modifying factor selected for scaling; EMF(o) = original exposure modyfing factor (in part 3)
Scaling may be used consecutively for multiple determinants.
Example: No technical room ventilation for mixing of tints (EMF(o) = 0.3), duration of activity restricted to 1 h/d (EMF(s) = 0.2)

Specific scaling may be based on measured values at the individual site.

Content % range	Content Factor	DOA h	DOA Factor
> 25	1	> 4	1
5 - 25	0.6	1 - 4	0,6
1 - 5	0.2	0,25-1	0,2
< 1	0.1	<0,25	0,1

Respiratory protection equipment	Factor	
No RPE	1	
Filter mask	0,1	Level 1
Air-fed mask	0,05	Level 2

Skin protection equipment	Factor	
No gloves	1	
Suitable gloves	0,2	Level 1
Resistant gloves, training	0,1	Level 2
Resistant gloves, specific training	0,05	Level 3

PROC	Factor for TRV	Factor for LEV Industrial setting	Factor for LEV Professional setting	Factor for LEV Dermal impact
2	0.3	0.1	0.2	0.1
3	0.3	0.1	0.2	0.1
4	0.3	0.1	0.2	0.1
5	0.3	0.1	0.2	0.005
7		0.05	n.a.	0.05
8a	0.3	0.1	0.2	0.01
8b	0.3	Sol 0.05	Sol 0.2	0.1
8b	0.3	Vol 0.03	Vol 0.1	0.1
11		n.a.	0.2	0.02

PROC	Factor	PROC	Adjusted factor Professional	Adjusted factor Industrial
4 (high volatility)	1	2 (high volatility)	0.2	0.5
5 (high volatility)	1	3 (high volatility)	0.2	0.4
8a (high volatility)	1	8b (high volatility)	0.5	0.6
4 (medium volatility)	1	2 (medium volatility)	0.4	0.5
5 (medium volatility)	1	3 (medium volatility)	0.25	0.5
8a (medium volatility)	1	8b (medium volatility)	0.5	1
4 (low volatility)	1	2 (low volatility)	0.5	0.2
5 (low volatility)	1	3 (low volatility)	0.3	0.6
8a (low volatility)	1	8b (low volatility)	0.4	0.5

Additional explanation

Use by private end consumers (SU 21) not considered as product is assigned for professional use only
Wide dispersive use (ERC 8a-8f) not assessed as professional use in paintshops is considered as non dispersive (point source)
No relevant substance transfer expected to marine water, sediment, or soil due to use in dedicated installations.
Environmental assessment only relevant in case of substance transfer into a waste water stream
Environmental assessment based on ACEA sector specific ERC approach (spERC factors for solids and volatiles)
The spERC approach is only applicable to demonstrate safe use of a substance for environmental aspects under REACH.
It is not suitable to demonstrate compliance with applicable local waste water regulations.
Ingestion (oral route) not assessed as not considered to occur in case of industrial / professioonal use
Worker exposure assessment based on DNELs is only applicable to demonstrate safe use of substances under REACH.
It is not suitable to demonstrate compliance with applicable occupational exposure limits (as displayed in section 8 of SDS).
Occupational exposure limits may apply for residual monomers (e.g. formaldehyde, monomeric isocyanates) which are not assessed under REACH.
Exposure assessment is performed for coating material as supplied.
Adaptation may be required for ready for use mixture.
Exposure assessment is performed for application of coating material at ambient temperature.
Adaptation may be required for application at elevated temperature (e.g. hot spraying).
No service life relevance for reactive compounds.
Waste stage not assessed as incineration / biological treatment of waste and safe deposition of inert residues is assumed
Use for coating of toys, articles designed for prolonged skin contact or indirect food contact needs further assessment
No SVHC above declaration threshold contained unless disclosed in section 3 of SDS

Good practice advice

Following advice shall be pursued as long as exposure assessment in part 3 does not contain sufficient information

Recommendation to use technical room ventilation.
Advice to wear skin/eye protection as standard RMM due to risk of splashes/droplets.
Advice on respiratory protection equipment for PROC 7, 11 is based on Axalta expert judgement
Advice to use spray-booth or efficient exhaust ventilation.
Advice to wear respiratory protection equipment as standard RMM due to aerosol formation, even in ventilated booth.
Advice to provide spill retention system according to applicable regulation.

Standardised use descriptors according European Chemical Agency (EChA) Guidance on information requirements and chemical safety assessment, chapter R.12

SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
PC9a	Coatings and paints, thinners, paint removers
PC9b	Fillers, putties, plasters, modelling clay
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)
PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/ or significant contact)
PROC7	Industrial spraying
PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC11	Non industrial spraying
ERC4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC5	Industrial use resulting in inclusion into or onto a matrix
ERC6d	Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Glossary

SU	Sector of use
PC	Product category
PROC	Process category
ERC	Environmental release category
AC	Article category
spERC	Sector specific environmental release category (for ACEA uses)
ACEA	European automobile manufacturers association
CEPE	European council of producers and importers of paints, printing inks and artists' colours
OC	Operational condition
DOA	Duration of activity
LEV	Local exhaust ventilation
TRV	Technical room ventilation
RMM	Risk Management Measures
RPE	Respiratory protection equipment
DPE	Dermal protection equipment
WWTP	Waste water treatment plant (on-site)
STP	Sewage treatment plant (municipal)
SVHC	Substance of very high concern
LSI	Lead substance indicator
M(sperc)	Maximum volume of lead substance which can be used safely under conditions described by CEPE spERC
DNEL	Derived No Effect Level
DMEL	Derived minimum effect level
PNEC	Predicted No Effect Concentration
ECETOC TRA	Targeted risk assessment as proposed by European center for ecotoxicology and toxicology of chemicals
RCR	Risk characterisation ratio