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

1.1 Product identifier

Trade name/designation EC 50

Unique Formula Identifier UFI: V52D-W8C6-T00V-VH1F

Product category PC-MED-1 Medical devices for cleaning or disinfection

Hazard components
Amines, N-C12-14-alkyltrimethylenedi-, 2-aminoethanol, Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs., N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine

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

Sector of uses [SU]
SU20 Health services
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU3 Industrial uses

Use of the substance/mixture
Liquid concentrate for the disinfection and non protein-fixing cleaning of medical and dental instruments, rotating precision instruments and rigid endoscopes.
For commercial consumers only.
Application only by qualified medical personnel.

Uses advised against
Do not use for injecting or spraying.
Do not use on flexible endoscopes.

1.3 Details of the supplier of the safety data sheet

Supplier
Elma Schmidbauer GmbH
Gottlieb-Daimler-Str. 17
D-78224 Singen (Htwl.)
Telephone +49 7731 882-0
Telefax +49 7731 882-266
E-mail info@elma-ultrasonic.com
Website www.elma-ultrasonic.com

Department responsible for information:
Chemie/Labor: Email: chemlab@elma-ultrasonic.com

1.4 Emergency telephone number

Vergiftungs-Informations-Zentrale Freiburg (Sprache/Language: DE, EN) +49 761 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]	Classification procedure
Flam. Liq. 3, H226	On basis of test data.
Met. Corr. 1, H290	Expert judgement and weight of evidence determination.
Acute Tox. 4, H302	Calculation method.
Skin Corr. 1B, H314	Calculation method.
Eye Dam. 1, H318	Calculation method.
STOT RE 2, H373	Calculation method.
Aquatic Acute 1, H400	Calculation method.
Aquatic Chronic 2, H411	Calculation method.

Hazard statements for physical hazards
H226 Flammable liquid and vapour.
H290 May be corrosive to metals.

Hazard statements for health hazards
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H373 May cause damage to organs through prolonged or repeated exposure.

Hazard statements for environmental hazards
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Hazard components
Amines, N-C12-14-alkyltrimethylenedi-, 2-aminoethanol, Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs., N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine

Hazard pictograms

GHS02 GHS05 GHS07 GHS08 GHS09

Signal word
Danger

Hazard statements
H226 Flammable liquid and vapour.
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/protective clothing and eye protection/face protection.
P308 IF exposed or concerned:
P310 Immediately call a POISON CENTER/doctor.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Special rules for supplemental label elements for certain mixtures
EUH208 Contains piperazine, (R)-p-mentha-1,8-diene and N-dodecylpropane-1,3-diamine. May produce an allergic reaction.

Other labelling
Labelling for contents according to regulation (EC) No. 648/2004:
< 5% cationic surfactants
< 5% non-ionic surfactants
<5% EDTA and salts thereof
Disinfectants
perfumes
d-Limonene

2.3 Other hazards

Adverse human health effects and symptoms
Possible risk of irreversible effects in contact with skin and eyes and if swallowed.
This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

Adverse environmental effects
This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

Results of PBT and vPvB assessment
The product does not contain any PBT-/vPvB-substances according to the recipe.

SECTION 3: Composition / information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

Hazardous ingredients

CAS No	EC No	Index No	Substance name	Concentration	Classification according to Regulation (EC) No 1272/2008 [CLP]	SCL/ M/ ATE
67-63-0	200-661-7	603-117-00-0	propan-2-ol	5 - 15 weight-%	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336	
90640-43-0	292-562-0		Amines, N-C12-14-alkyltrimethylenedi-	5 < 10 weight-%	Met. Corr. 1; H290 Acute Tox. 3; H301 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT RE 1; H372 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	M=100 (Aquatic Acute 1) M=1 (Aquatic Chronic 1)
60-00-4	200-449-4	607-429-00-8	edetic acid (EDTA)	< 5 weight-%	Eye Irrit. 2; H319 Acute Tox. 4; H332 STOT RE 2; H373	
112-34-5	203-961-6	603-096-00-8	2-(2-butoxyethoxy)ethanol	< 5 weight-%	Met. Corr. 1; H290 Eye Irrit. 2; H319	
141-43-5	205-483-3	603-030-00-8	2-aminoethanol	< 5 weight-%	Met. Corr. 1 ; H290 Acute Tox. 4; H302 Acute Tox. 4 ; H312 Acute Tox. 4 ; H332 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT SE 3; H335 Aquatic Chronic 3; H412	STOT SE 3;H335: C>=5%
98246-84-5	308-757-1		Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs.	< 5 weight-%	Acute Tox. 4; H302 Skin Corr. 1C; H314 Eye Dam. 1; H318 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	M=10 (Aquatic Acute 1) M=1 (Aquatic Chronic 1)
2372-82-9	219-145-8		N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine	< 5 weight-%	Acute Tox. 3; H301 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	M=10 (Aquatic Acute 1) M=1 (Aquatic Chronic 1)
110-85-0	203-808-3	612-057-00-4	piperazine	< 1 weight-%	Repr. 2; H361fd Skin Corr. 1B; H314 Flam. Sol. 1; H228 Eye Dam. 1; H318 Resp. Sens. 1B; H334 Skin Sens. 1B; H317	
5538-95-4	226-902-6		N-dodecylpropane-1,3-diamine	< 1 weight-%	Met. Corr. 1; H290 Acute Tox. 4; H302 Skin Corr. 1; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400	M=1 (Aquatic Acute 1)

CAS No	EC No	Index No	Substance name	Concentration	Classification according to Regulation (EC) No 1272/2008 [CLP]	SCL/ M/ ATE
5989-27-5	227-813-5	601-096-00-2	(R)-p-mentha-1,8-diene	≤ 0.1 weight-%	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1B; H317 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 3; H412	M=1 (Aquatic Acute 1)

REACH No.	Substance name
01-2119457558-25	propan-2-ol
01-2119957843-25	Amines, N-C12-14-alkyltrimethylenedi-
01-2119486399-18	edetic acid (EDTA)
01-2119475104-44	2-(2-butoxyethoxy)ethanol
01-2119486455-28	2-aminoethanol
01-2120761537-47	Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs.
01-2119980592-29	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine
01-2119480384-35	piperazine
01-2120862678-37	N-dodecylpropane-1,3-diamine
01-2119529223-47	(R)-p-mentha-1,8-diene

Additional information
Aqueous, alkaline mixture from disinfectants, cationic and nonionic surfactants, complexing agents, corrosion inhibitors, amines, cosolvents, perfumes and dyestuff.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Remove contaminated, saturated clothing immediately.
Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.
First aider: Pay attention to self-protection!

Following inhalation
Remove casualty to fresh air and keep warm and at rest.
In case of inhalation remove the casualty into fresh air and seek medical advice.
In the event of symptoms refer for medical treatment.

Following skin contact
After contact with skin, wash immediately with plenty of water and soap.
In case of skin irritation, consult a physician.

After eye contact
After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Following ingestion
Do NOT induce vomiting.
Seek medical advice immediately.
Rinse mouth immediately and drink plenty of water.
Medical treatment necessary.

4.2 Most important symptoms and effects, both acute and delayed

Effects
Risk of stomach perforation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes for the doctor
Treat symptomatically.
First Aid, decontamination, treatment of symptoms.
Keep under medical supervision for at least 48 hours.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Foam
Extinguishing powder
Carbon dioxide (CO2)
Water spray jet

Unsuitable extinguishing media
Full water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products
Pyrolysis products, toxic
In case of fire formation of dangerous gases possible.
In the event of fire the following can be released:
Nitrogen oxides (NOx)
Carbon monoxide

5.3 Advice for firefighters

Special protective equipment for firefighters
Do not inhale explosion and combustion gases.
In case of fire: Wear self-contained breathing apparatus.

Additional information
Co-ordinate fire-fighting measures to the fire surroundings.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Remove all sources of ignition.
Provide adequate ventilation.
Use personal protection equipment.
Special danger of slipping by leaking/spilling product.

For emergency responders
Remove all sources of ignition.
Ensure adequate ventilation.
Personal protection equipment
Use personal protection.
Use breathing apparatus if exposed to vapours/dust/aerosol.
Forms slippery surfaces with water.
Special danger of slipping by leaking/spilling product.

6.2 Environmental precautions

Do not allow to enter into surface water or drains.
Do not allow to enter into soil/subsoil.

6.3 Methods and material for containment and cleaning up

For containment
Suitable material for taking up:
Sand
Sawdust
Universal binder
Kieselguhr
After taking up the material dispose according to regulation.

6.4 Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures
Flammable
Keep away from sources of ignition - No smoking.
Use only in well-ventilated areas.
Handle and open container with care.
Do not inhale gases/vapours/aerosols.
Avoid contact with eyes and skin.
Keep container tightly closed.

Advices on general occupational hygiene
Work in rooms with good ventilation.
Make available sufficient washing facilities
When using do not eat, drink, smoke, sniff.
Remove contaminated, saturated clothing immediately.
Keep away from food and drink.
Wash hands before breaks and after work.
Use protective skin cream before handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep only in unopened original container.

Materials to avoid
Do not store together with:
Food and feedingstuffs
Keep away from:
Strong acid
Oxidising agent

Further information on storage conditions
Keep container tightly closed and in a well-ventilated place.
Keep locked up and out of reach of children.
Keep locked up.
Store in a place accessible by authorized persons only.
Protect from heat and direct solar radiation.
Do not keep at temperatures below 5°C.
Do not keep at temperatures above 30°C.
Transport temperature: -20 °C - +50 °C .
The blue color of the product may become weaker with long storage - this does not change the functional properties of the product.
Storage time: 3 years.

7.3 Specific end use(s)

Recommendation
Care for thoroughly room ventilation for higher bath temperatures.
See section 1.2
see section 8.

Industrial sector specific solutions
DE: TRGS 525 "Hazardous Substances in medical care facilities", section 7 working with disinfectants.
DE: DGUV Regel 107-002 (BGR 206) "Disinfection working in health service".

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

CAS No	EC No	Substance name	occupational exposure limit value
110-85-0	203-808-3	Piperazine	0,1 [mg/m³] Short-term(mg/m³) 0,3 2000/39/EC
112-34-5	203-961-6	2-(2-Butoxyethoxy)ethanol	10 [ml/m³(ppm)] 67,5 [mg/m³] Short-term(ml/m³) 15 Short-term(mg/m³) 101,2 2006/15/EC
141-43-5	205-483-3	2-Aminoethanol	1 [ml/m³(ppm)] 2,5 [mg/m³] Short-term(ml/m³) 3 Short-term(mg/m³) 7,6 skin resorptive 2006/15/EC
112-34-5	203-961-6	Diethylene glycol monobutyl ether	10 [ml/m³(ppm)] 67,5 [mg/m³] Short-term(ml/m³) 15 (1) Short-term(mg/m³) 101,2 (1) (1) 15 minutes reference period (IE)
141-43-5	205-483-3	2-Aminoethanol	1 [ml/m³(ppm)] 2,5 [mg/m³] Short-term(ml/m³) 3 (1) Short-term(mg/m³) 7,6 (1) (1) 15 minutes reference period (IE)
110-85-0	203-808-3	Piperazine	0,1 [mg/m³] Short-term(mg/m³) 0,3 (1) (1) 15 minutes reference period (IE)
67-63-0	200-661-7	Propan-2-ol	200 [ml/m³(ppm)] Short-term(ml/m³) 400 (1) (1) 15 minutes reference period (IE)
112-34-5	203-961-6	Diethylene glycol monobutyl ether	10 [ml/m³(ppm)] 67,5 [mg/m³] Short-term(ml/m³) 15 Short-term(mg/m³) 101,2 (UK)
141-43-5	205-483-3	2-Aminoethanol	1 [ml/m³(ppm)] 2,5 [mg/m³] Short-term(ml/m³) 3 (1) Short-term(mg/m³) 7,6 (1) (1) 15 minutes average value (UK)
110-85-0	203-808-3	Piperazine	0,1 [mg/m³] Short-term(mg/m³) 0,3 (UK)
67-63-0	200-661-7	Propan-2-ol	400 [ml/m³(ppm)] 999 [mg/m³] Short-term(ml/m³) 500 Short-term(mg/m³) 1250 (UK)

DNEL worker

CAS No	Substance name	DNEL value	DNEL type	Remark
	2-(2-butoxyethoxy)ethanol	67.5 mg/m³	long-term inhalative (local)	
141-43-5	2-aminoethanol	3 mg/kg bw/day	long-term dermal (systemic)	Assessment factor 100
141-43-5	2-aminoethanol	0.51 mg/m³	long-term inhalative (local)	

CAS No	Substance name	DNEL value	DNEL type	Remark
141-43-5	2-aminoethanol	1 mg/m³	long-term inhalative (systemic)	Assessment factor 75
2372-82-9	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine	8.96 mg/kg bw/day	long-term dermal (systemic)	Assessment factor 50
2372-82-9	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine	0.789 mg/m³	long-term inhalative (systemic)	Assessment factor 12.5
67-63-0	propan-2-ol	888 mg/kg bw/day	long-term dermal (systemic)	Assessment factor 1
67-63-0	propan-2-ol	500 mg/m³	long-term inhalative (systemic)	Assessment factor 1
90640-43-0	Amines, N-C12-14-alkyltrimethylenedi-	5.6 µg/kg	long-term dermal (systemic)	Assessment factor 100
90640-43-0	Amines, N-C12-14-alkyltrimethylenedi-	39.5 µg/m³	long-term inhalative (systemic)	Assessment factor 25

PNEC

CAS No	Substance name	PNEC Value	PNEC type	Remark
	2-(2-butoxyethoxy)ethanol	1.1 mg/L	aquatic, freshwater	Assessment factor 1000
141-43-5	2-aminoethanol	0.07 mg/L	aquatic, freshwater	Assessment factor 10
141-43-5	2-aminoethanol	100 mg/L	sewage treatment plant (STP)	Assessment factor 10
2372-82-9	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine	0.001 mg/L	aquatic, freshwater	Assessment factor 10
2372-82-9	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine	0.18 mg/L	sewage treatment plant (STP)	Assessment factor 100
90640-43-0	Amines, N-C12-14-alkyltrimethylenedi-	3.2 µg/L	aquatic, freshwater	Assessment factor 10
90640-43-0	Amines, N-C12-14-alkyltrimethylenedi-	0.205 mg/L	sewage treatment plant (STP)	Assessment factor 100
98246-84-5	Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs.	0.4 µg/L	aquatic, freshwater	Assessment factor 10
98246-84-5	Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs.	1 mg/L	sewage treatment plant (STP)	Assessment factor 10

8.2 Exposure controls

Appropriate engineering controls

Technical measures to prevent exposure
Technical exhaustion for long-term expositions or higher bath temperatures.

Personal protection equipment

Eye/face protection
tightly fitting goggles

Hand protection
chemical-resistant gloves
Glove material specification [make/type, thickness]: FKM, 0.4mm.
Glove material specification [make/type, thickness]: Butyl, 0.5mm.

Body protection:
Light protective clothing.

Respiratory protection
Respiratory protection necessary at:
insufficient exhaust
prolonged exposure
Suitable respiratory protection apparatus:
Multi-purpose filter ABEK/P3

Environmental exposure controls

Technical measures to prevent exposure
Avoid penetration into the subsoil/soil.
Do not discharge into surface waters.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state
liquid

Colour
blue

Odour
characteristic
like:
Amines

Safety relevant basis data

	Value	Method	Source, Remark
Odour threshold:			propan-2-ol: 2.5 - 490 mg/m3 (1 - 196 ppm). 2-aminoethanol: 5.3 - 11 mg/m3 (2.1 - 4.3 ppm).
Melting point/freezing point	< -18 °C		
Boiling point or initial boiling point and boiling range	> 82 °C		
flammability	solid		not applicable
flammability	gaseous		not applicable
Lower and upper explosion limit	Upper explosion limit 13 Vol-%		Value of propan-2-ol.
Lower and upper explosion limit	Lower explosion limit 2 Vol-%		Value of propan-2-ol.
Flash point	32 °C	EN ISO 2719	
Auto-ignition temperature	> 350 °C		
Decomposition temperature	> 82 °C		
pH	in delivery state 10- 11 (20°C)		
Viscosity			not determined
Solubility(ies)	Water solubility		miscible
Partition coefficient n-octanol/water (log value)	3.6		Value of Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. .
Vapour pressure	43 hPa (20°C)		
Density and/or relative density	0.97- 0.99 g/cm³ (20°C)		
Relative vapour density	2.07		Value of propan-2-ol.
particle characteristics			not applicable (liquid).

9.2 Other information

Information with regard to physical hazard classes

Explosives

Assessment/classification
The mixture does not contain any explosive substances.

flammable gases

Assessment/classification
not applicable (liquid).

Aerosols

Assessment/classification
not relevant - no aerosol.
The classification criteria for this hazard class are not met by definition.

Oxidising gas

Assessment/classification
not applicable (liquid).

Gases under pressure

Assessment/classification
not applicable (liquid - no dissolved gas).

flammable liquids

Safety characteristics

	Value	Method, Result	Source, Remark
Flash point (°C)	32 °C		

Assessment/classification
Flam. Liq. 3 H226: Flash point ≥ 23 °C and ≤ 60 °C.
Flammable liquid and vapour.

flammable solids

Assessment/classification
not applicable (liquid).

Self-reactive substances and mixtures

Assessment/classification
The mixture does not contain any self-reactive substances (CLP I 2.8.4.2 a).
CLP I 2.8.4.2 a: There are no chemical groups present in the molecule associated with explosive or self reactive properties.

Pyrophoric liquids

Assessment/classification
The mixture does not contain any pyrophoric substances - not spontaneously flammable (CLP I 2.9.4.1).
CLP I 2.9.4.1: The classification procedure for pyrophoric liquids need not be applied when experience in manufacture or handling shows that the substance or mixture does not ignite spontaneously on coming into contact with air at normal temperatures (i.e. the substance is known to be stable at room temperature for prolonged periods of time (days)).

Pyrophoric solids

Assessment/classification
not applicable (liquid).

self-heating substances and mixtures

Assessment/classification
The mixture does not contain any self-heating substances.

Substances or mixtures which, in contact with water, emit flammable gases

Assessment/classification
not relevant - in contact with water releases no flammable gases (CLP I 2.12.4.1).
CLP I 2.12.4.1: The classification procedure for this class need not be applied if: (a) the chemical structure of the substance or mixture does not contain metals or metalloids; or (b) experience in production or handling shows that the substance or mixture does not react with water, e.g. the substance is manufactured with water or washed with water; or (c) the substance or mixture is known to be soluble in water to form a stable mixture.

Oxidising liquids

Assessment/classification
The mixture does not contain any oxidising substances.

Oxidising solids

Assessment/classification
not applicable (liquid).

Organic peroxides

Assessment/classification
The mixture does not contain any organic peroxides.

Corrosive to metals

Safety characteristics

	Value	Method, Result	Source, Remark
Corrosion rate (mm aluminium/year)	> 6.25 mm/a	Expert judgement and weight of evidence determination.	
Corrosion rate (mm steel/year)			not available

Assessment/classification
The mixture is classified as corrosive to metals (Met. Corr. 1 H290).

Desensitised explosives

Assessment/classification
The mixture does not contain any desensitised explosive substances.

Other safety characteristics

	Value	Method	Source, Remark
Evaporation rate			Water: 0.36 (ASTM D3539). propan-2-ol: 1.5 (ASTM D3539) / 11 (DIN 53170) . 2-(2-butoxyethoxy)ethanol: 0.01 (ASTM D3539) / 1 200 (DIN 53170).
Solvent content	< 16 %		
Explosive properties			Not classified as explosive. Vapours can form an explosive mixture with air.
Oxidising properties			none

Other information
No further relevant informations available.

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapours can form an explosive mixture with air.
Exothermic reaction with:
Acid
No further hazardous reactions known if used as directed.

10.2 Chemical stability

Stable at ambient temperature.

10.3 Possibility of hazardous reactions

Reactions with oxidising agents.
Reactions with strong acids.
Reaction with nitric acid
Reactions with light metals, with evolution of hydrogen.

10.4 Conditions to avoid

Heat and direct solar radiation.

10.5 Incompatible materials

Reactions with strong acids.
Oxidising agent
Nitric acid
Acid
aldehydes
Corrodes aluminium.
Not suitable for PVC-P, polycarbonate, aluminium, light metal alloys, brass and colour markings in ultrasonic baths. Limited material compatibility with NBR (acrylonitrile butadiene rubber), silicone and PET (polyethylene terephthalate).

10.6 Hazardous decomposition products

No decomposition if used as directed.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Animal data

	Effective dose	Method,Evaluation	Source, Remark
Acute oral toxicity	1000- 2000 mg/kg	ATE: Acute Toxicity Estimate	
	CAS No2372-82-9 N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine LD50: 261 mg/kg Species Rat	OECD 401	
	CAS No141-43-5 2-aminoethanol LD50: 1089 mg/kg Species Rat		
	CAS No90640-43-0 Amines, N-C12-14-alkyltrimethylenedi- LD50: 200 mg/kg Species Rat	OECD 423	
	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. LD50: 500- 2000 mg/kg Species Rat	OECD 401	

	Effective dose	Method,Evaluation	Source, Remark
Acute dermal toxicity	>2000- 4000 mg/kg	ATE: Acute Toxicity Estimate	
	CAS No141-43-5 2-aminoethanol LD50: 1025 mg/kg Species Rabbit		
Acute inhalation toxicity	Acute inhalation toxicity (vapour) > 50 mg/L	ATE: Acute Toxicity Estimate	
	CAS No141-43-5 2-aminoethanol Acute inhalation toxicity (vapour) 11 mg/L	ATE: Acute Toxicity Estimate	

Assessment/classification
Harmful if swallowed.
May be harmful in contact with skin.

Skin corrosion/irritation

Animal data

Result / Evaluation	Method	Source, Remark
corrosive	Calculation method.	

Serious eye damage/irritation

Animal data

Result / Evaluation	Method	Source, Remark
strongly corrosive.	Calculation method.	

Sensitisation to the respiratory tract

Other information
Contains piperazine. May produce an allergic reaction.

Assessment/classification
Based on available data, the classification criteria are not met.

Skin sensitisation

Animal data

Result / Evaluation	Dose / Concentration	Method	Source, Remark
The mixture is not classified as skin sensitiser.		Calculation method.	Contains piperazine, (R)-p-mentha-1,8-diene and N-dodecylpropane-1,3-diamine. May produce an allergic reaction.

Germ cell mutagenicity

Assessment/classification
Based on available data, the classification criteria are not met.

Carcinogenicity

Assessment/classification
Based on available data, the classification criteria are not met.

Reproductive toxicity

Assessment/classification
Based on available data, the classification criteria are not met.

Overall Assessment on CMR properties

The mixture is not classified as mutagen / not classified as carcinogen / not classified as reproductive toxicant.

STOT-single exposure

STOT SE 1 and 2

Assessment/classification
The mixture is not classified as specific target organ toxicant (single exposure).
Based on available data, the classification criteria are not met.

STOT SE 3

Irritation to respiratory tract

Assessment/classification
Based on available data, the classification criteria are not met.

Narcotic effects

Assessment/classification
Based on available data, the classification criteria are not met.

STOT-repeated exposure

Assessment/classification
STOT RE 2 H373: May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Assessment/classification
The mixture is not classified as aspiration hazardous.
Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Information on other hazards

	Effective dose	Method,Evaluation	Source, Remark
Endocrine disrupting properties			This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

Other information

Causes burns.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity

	Effective dose	Method,Evaluation	Source, Remark
Acute (short-term) fish toxicity	CAS No2372-82-9 N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine LC50: 0.431 mg/L Species Danio rerio (zebrafish) Test duration 96 h	OECD 203	

	Effective dose	Method,Evaluation	Source, Remark
	CAS No141-43-5 2-aminoethanol LC50: 150 mg/L Species Oncorhynchus mykiss (Rainbow trout) Test duration 96 h		
	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. LC50: 0.707 mg/L Species Danio rerio (zebrafish) Test duration 96 h	OECD 203	
	CAS No90640-43-0 Amines, N-C12-14-alkyltrimethylenedi- LC50: 0.148 mg/L Species Danio rerio (zebrafish) Test duration 96 h	OECD 203	
	LC50: 0.15 mg/L	calculated.	
Chronic (long-term) fish toxicity	CAS No141-43-5 2-aminoethanol NOEC 1.24 mg/L Species Oryzias latipes (Ricefish) Test duration 41 d	OECD 210	
	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. NOEC 0.125 mg/L Species Danio rerio (zebrafish) Test duration 9 d	OECD 212	
Acute (short-term) toxicity to crustacea	CAS No2372-82-9 N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine EC50 0.073 mg/L Species Daphnia magna (Big water flea) Test duration 48 h		
	CAS No141-43-5 2-aminoethanol EC50 65 mg/L Species Daphnia magna (Big water flea) Test duration 48 h		
	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. EC50 0.058 mg/L Species Daphnia magna (Big water flea) Test duration 48 h	OECD 202	
	CAS No90640-43-0 Amines, N-C12-14-alkyltrimethylenedi- EC50 0.179 mg/L Species Daphnia magna (Big water flea) Test duration 21 d	OECD 211	
	EC50 0.15 mg/L	calculated.	

	Effective dose	Method,Evaluation	Source, Remark
Chronic (long-term) toxicity to aquatic invertebrate	CAS No2372-82-9 N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine NOEC 0.024 mg/L Species Daphnia magna (Big water flea) Test duration 21 d	OECD 211	
	CAS No141-43-5 2-aminoethanol NOEC 0.85 mg/L Species Daphnia magna (Big water flea) Test duration 21 d		
	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. NOEC 0.025 mg/L Species Daphnia magna (Big water flea) Test duration 21 d	OECD 211	
	CAS No90640-43-0 Amines, N-C12-14-alkyltrimethylenedi- NOEC 0.032 mg/L Species Daphnia magna (Big water flea) Test duration 21 d	OECD 211	
Acute (short-term) toxicity to algae and cyanobacteria	CAS No2372-82-9 N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine ErC50: 0.015 mg/L Species Selenastrum capricornutum Test duration 72 h	OECD 201	
	CAS No141-43-5 2-aminoethanol EC50 2.8 mg/L Species Pseudokirchneriella subcapitata Test duration 72 h		
	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. EC50 0.0197 mg/L Species Scenedesmus subspicatus Test duration 72 h	OECD 201	
	CAS No90640-43-0 Amines, N-C12-14-alkyltrimethylenedi- ErC50: 0.0652 mg/L Species Pseudokirchneriella subcapitata Test duration 72 h	OECD 201	
	EC50 0.05 mg/L	calculated.	
Chronic (long-term) toxicity to aquatic algae and cyanobacteria	CAS No2372-82-9 N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine EC10: 0.0095 mg/L Species Selenastrum capricornutum Test duration 72 h	OECD 201	

	Effective dose	Method,Evaluation	Source, Remark
	CAS No141-43-5 2-aminoethanol NOEC: 1 mg/L Species Selenastrum capricornutum Test duration 72 h		
	CAS No141-43-5 2-aminoethanol EC5: 0.75 mg/L Species Scenedesmus quadricauda Test duration 8 d		
	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs. EC10: 0.0036 mg/L Species Desmodesmus subspicatus Test duration 72 h	OECD 201	
	CAS No90640-43-0 Amines, N-C12-14-alkyltrimethylenedi- EC10: 0.0406 mg/L Species Pseudokirchneriella subcapitata Test duration 72 h	OECD 201	
Toxicity to other aquatic plants/organisms	not determined		
Toxicity to microorganisms	not determined		

Assessment/classification
Very toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

	Value	Method	Source, Remark
Biodegradation	Degradation rate 95 % Test duration 21 d	OECD 301E/ EEC 92/69/V, C.4-B	CAS No67-63-0 propan-2-ol
Biodegradation	Degradation rate approx. 85 % Test duration 28 d	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	CAS No112-34-5 2-(2-butoxyethoxy)ethanol
Biodegradation	Degradation rate 94 % Test duration 14 d	OECD 301E/ EEC 92/69/V, C.4-B	CAS No112-34-5 2-(2-butoxyethoxy)ethanol
Biodegradation	Degradation rate 79 % Test duration 28 d	OECD 301D/ EEC 92/69/V, C.4-E	CAS No2372-82-9 N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine
Biodegradation	Degradation rate > 90 % Test duration 21 d	OECD 301A/ ISO 7827/ EEC 92/69/V, C.4-A	CAS No141-43-5 2-aminoethanol
Biodegradation	Degradation rate 90- 100 % Test duration 28 d	OECD 301F/ ISO 9408/ EEC 92/69/V, C.4-D	CAS No141-43-5 2-aminoethanol
Biodegradation	Degradation rate 66 % Test duration 28 d	OECD 301D/ EEC 92/69/V, C.4-E	CAS No90640-43-0 Amines, N-C12-14-alkyltrimethylenedi-

	Value	Method	Source, Remark
Biodegradation	Degradation rate > 60 % Test duration 29 d	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	CAS No98246-84-5 Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs.
Biodegradation	Degradation rate < 60 % Test duration 28 d	OECD 301D/ EEC 92/69/V, C.4-E	CAS No60-00-4 edetic acid (EDTA) Moderately/partially biodegradable. Evidence for inherent biodegradability.
Biodegradation	Degradation rate 65 % Test duration 28 d	OECD 301F/ ISO 9408/ EEC 92/69/V, C.4-D	CAS No110-85-0 piperazine BOD (% of ThOD). Evidence for inherent biodegradability.
Biodegradation	Degradation rate 71.4 % Test duration 28 d	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	CAS No5989-27-5 (R)-p-mentha-1,8-diene
Biodegradation			Biodegradable.

12.3 Bioaccumulative potential

Assessment/classification
propan-2-ol: Accumulation in organisms is not expected (log Pow: 0.05).
Amines, N-C12-14-alkyltrimethylenedi-: low potential for bioaccumulation (BCF: 3.2 L/kg).
edetic acid (EDTA): Accumulation in organisms is not expected (log Pow: -3.86).
2-(2-butoxyethoxy)ethanol: Significant accumulation in organisms is not expected (log Pow: 1.0).
2-aminoethanol: Accumulation in organisms is not expected (log Pow: -1.3).
Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs.: Because of the n-octanol/water partition coefficient (log Pow) accumulation in organisms is possible (log Pow: 3.6).
N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine: low potential for bioaccumulation (log Pow: 0.34).
piperazine: Significant accumulation in organisms is not expected.
N-dodecylpropane-1,3-diamine: not available.
(R)-p-mentha-1,8-diene: Has the potential to bioaccumulate.

12.4 Mobility in soil

Assessment/classification
propan-2-ol: Dissolves in water. Highly mobile in soil.
Amines, N-C12-14-alkyltrimethylenedi-: Slightly mobile in soil.
edetic acid (EDTA): Moderate adsorption on soil (Koc: 312,7).
2-(2-butoxyethoxy)ethanol: not available.
2-aminoethanol: Adsorption on soil is not expected.
Guanidine, N,N'''-1,3-propanediylbis-, N-coco alkyl derivs.: not available.
N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine: immobile, strong adsorption on soil.
piperazine: Slightly mobile in soil (Koc: 507).
N-dodecylpropane-1,3-diamine: not available.
(R)-p-mentha-1,8-diene: Adsorption on soil is possible.

12.5 Results of PBT and vPvB assessment

The product does not contain any PBT-/vPvB-substances according to the recipe.

12.6 Endocrine disrupting properties

	Effective dose	Method,Evaluation	Source, Remark
Endocrine disrupting properties			This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7 Other adverse effects

	Value	Method	Source, Remark
Ozone depletion potential (ODP):			Based on available data, the classification criteria are not met.

Additional ecotoxicological information

	Value	Method	Source, Remark
Chemical oyxgen demand (COD)			not determined
AOX			The product does not contain any organically bound halogens according to the recipe.

Additional information
The surfactants in our product meet the criteria for biodegradation as laid down in Annex III of the Regulation (EC) No 648/2004 on detergents.
Acute aquatic environmental hazards: Aquatic Acute 1 H400: Very toxic to aquatic life.
Chronic aquatic environmental hazards: Aquatic Chronic 2 H411: Toxic to aquatic life with long lasting effects.
Do not allow uncontrolled discharge of product into the environment.
Product is not allowed to be discharged into the ground water or aquatic environment.
No further relevant informations available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste codes/waste designations according to EWC/AVV

Waste code product	Waste name
070601 *	aqueous washing liquids and mother liquors

Waste code packaging	Waste name
150110 *	packaging containing residues of or contaminated by hazardous substances

Appropriate disposal / Product
Do not dispose with household waste.
In accordance with regulations for special waste, must be taken to a special waste disposal.
Dispose of waste according to "Kreislaufwirtschaftsgesetz (KrWG)".

Appropriate disposal / Package
Non-contaminated packages may be recycled.
Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

	Land transport (ADR/RID)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN number or ID number	UN 2920	UN 2920	UN 2920
14.2 UN proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (propan-2-ol, Amines, N-C12-14-alkyltrimethylenedi-)	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (propan-2-ol, Amines, N-C12-14-alkyltrimethylenedi-)	Corrosive liquid, flammable, n.o.s. (propan-2-ol, Amines, N-C12-14-alkyltrimethylenedi-)
14.3 Transport hazard class(es)	8 (3)	8 (3)	8 (3)
14.4 Packing group	II	II	II
14.5 Environmental hazards	ENVIRONMENTALLY HAZARDOUS	ENVIRONMENTALLY HAZARDOUS Marine pollutant	ENVIRONMENTALLY HAZARDOUS

14.6 Special precautions for user

none

14.7 Maritime transport in bulk according to IMO instruments

not relevant

All transport carriers

Regulations concerning free quantities are to be observed.

Land transport (ADR/RID)

UN number or ID number	UN 2920
UN proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (propan-2-ol, Amines, N-C12-14-alkyltrimethylenedi-)
Transport hazard class(es)	8 (3)
Hazard label(s)	8+3
Classification code	CF1
Packing group	II
Environmental hazards	ENVIRONMENTALLY HAZARDOUS
Limited quantity (LQ)	1 L
Special provisions	274
Tunnel restriction code	D/E

Remark
Environmentally Hazardous: not require labeling according to ADR 3.3 SP 375 for containers up to 5 litre.
Transport temperature: -20 °C - +50 °C .

Sea transport (IMDG)

UN number or ID number	UN 2920
UN proper shipping name	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (propan-2-ol, Amines, N-C12-14-alkyltrimethylenedi-)
Transport hazard class(es)	8 (3)
Packing group	II
Environmental hazards	ENVIRONMENTALLY HAZARDOUS
Limited quantity (LQ)	1 L
Marine pollutant	Yes.
EmS	F-E, S-C

Remark
Marine pollutant (Environmentally Hazardous): not require labeling according to IMDG-Code, 2.10.2.7 for containers up to 5 litre.
Transport temperature: -20 °C - +50 °C .

Air transport (ICAO-TI / IATA-DGR)

UN number or ID number	UN 2920
UN proper shipping name	Corrosive liquid, flammable, n.o.s. (propan-2-ol, Amines, N-C12-14-alkyltrimethylenedi-)
Transport hazard class(es)	8 (3)
Packing group	II
Environmental hazards	ENVIRONMENTALLY HAZARDOUS

Remark
Environmentally Hazardous: not require labeling according to IATA, A197 for containers up to 5 litre.
Transport temperature: -20 °C - +50 °C .

SECTION 15: Regulatory information

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

EU legislation

Authorisations
not relevant

Restrictions on use
Regulation (EC) No 1907/2006 (REACH), Annex XVII No 3 - not relevant if used as directed.
Regulation (EC) No 1907/2006 (REACH), Annex XVII No 40 - not relevant if used as directed.
Regulation (EC) No 1907/2006 (REACH), Annex XVII No 75 - not relevant if used as directed.

Restrictions of occupation
Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).
Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Other regulations (EU)

To follow:
Regulation (EC) No. 648/2004 (Detergents regulation)
Directive 2012/18/EU, Annex I: P5c + E1.

Directive 2010/75/EU on industrial emissions [Industrial Emissions Directive] VOC
VOC content, delivery state < 16 %

15.2 Chemical Safety Assessment

National regulations

For this mixture a chemical safety assessment were not carried out.

SECTION 16: Other information

Abbreviations and acronyms
For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
AOX: Adsorbable Organic halogen compounds
ASTM: American Society for Testing and Materials
ATE: Acute Toxicity Estimate
AVV: Waste Shipment Ordinance (DE)
DGR: Dangerous Goods Regulations (IATA)
DNEL: derived no-effect level
EmS: emergency procedures
ErC50: Effective Concentration 50 % reduction in growth rate
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods
IMO: International Maritime Organization
JArbSchG: Youth Labor Protection Act (DE)
LDL0: Lowest Lethal (fatal) Dose
OECD: Organisation for Economic Cooperation and Development
PBT: persistent and bioaccumulative and toxic
PNEC: Predicted No Effect Concentration
RID: Dangerous goods regulations for transport by rail
SCL: Specific concentration limit
TI: Technical Instruction
TRGS: Technical Rules for Hazardous Substances
VOC: Volatile organic compounds
vPvB: very persistent, very bioaccumulative
Flam. Liq. 2: Flammable Liquids, Category 2
Flam. Liq. 3: Flammable Liquids, Category 3
Met. Corr. 1: Corrosive to metals, Category 1
Acute Tox. 3, H301: Acute Toxicity (oral), Category 3
Acute Tox. 4, H302: Acute Toxicity (oral), Category 4
Acute Tox. 4, H312: Acute toxicity (dermal), Category 4
Skin Corr. 1: Skin corrosion, Category 1
Skin Corr. 1B: Skin corrosion, Sub-category 1B
Skin Corr. 1C: Skin corrosion, Sub-category 1C
Skin Irrit. 2: Skin irritation, Category 2
Eye Dam. 1: Serious eye damage, Category 1
Eye Irrit. 2: Eye irritation, Category 2
Resp. Sens. 1B: Respiratory sensitizer, Sub-category 1B
Skin Sens. 1: Skin sensitizer, Category 1
Skin Sens. 1B: Skin sensitizer, Sub-category 1B
Repr. 2: Reproductive toxicant, Category 2
STOT SE 3, H335: Specific target organ toxicity (single exposure), Category 3
STOT SE 3, H336: Specific target organ toxicity (single exposure), Category 3 (narcotic effects)
STOT RE 1: Specific target organ toxicity (repeated exposure), Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure), Category 2
Asp. Tox. 1: Aspiration toxicity, Category 1
Aquatic Acute 1: Short-term (acute) aquatic hazard, Category 1
Aquatic Chronic 1: Long-term (chronic) aquatic hazard, Category 1
Aquatic Chronic 2: Long-term (chronic) aquatic hazard, Category 2
Aquatic Chronic 3: Long-term (chronic) aquatic hazard, Category 3
Acute Tox. 4, H332: Acute Toxicity (inhalation), Category 4
Flam. Sol. 1: Flammable solids, Category 1

Key literature references and sources for data
European Chemicals Agency, http://echa.europa.eu/.
Informations from our suppliers.

Additional information
National and local regulations concerning chemicals shall be observed.
These data are given according to our actual knowledge about this product.This data sheet does not correspond to an assurance by virtue of a contract for properties of the product.

Relevant H- and EUH-phrases (Number and full text)

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H228	Flammable solid.
H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful 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.
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.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.