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

1.1. Product identifier

OrmoComp®_diluted_XP

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

Use of the substance/mixture

UV-curable Hybrid Polymer for optical applications.
PC 32: Polymer preparations and compounds
SU 16: Manufacture of computer, electronic and optical products, electrical equipment.

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: micro resist technology GmbH
Street: Koepenicker Str. 325
Place: D-12555 Berlin
Telephone: +49 30 641670-100 Telefax: +49 30 641670-200
e-mail: safety@microresist.de
Internet: www.microresist.de

1.4. Emergency telephone number:

Chemtrec (International - 24 h): +1 703 527 3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Flammable liquid: Flam. Liq. 3
Acute toxicity: Acute Tox. 4
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Respiratory or skin sensitisation: Skin Sens. 1
Specific target organ toxicity - single exposure: STOT SE 3
Hazardous to the aquatic environment: Aquatic Chronic 2
Hazard Statements:
Flammable liquid and vapour.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause respiratory irritation.
Toxic to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

Anisole
2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate

Signal word: Warning

Pictograms:

Hazard statements

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H411	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.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P391	Collect spillage.
P403+P235	Store in a well-ventilated place. Keep cool.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
100-66-3	Anisole			<98 %
	202-876-1			
	Flam. Liq. 3, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H226 H332 H315 H319 H335			
15625-89-5	2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate			< 20 %
	239-701-3	607-111-00-9	01-2119489896-11	
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Acute 1, Aquatic Chronic 1; H315 H319 H317 H400 H410			
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide			< 1 %
	278-355-8	015-203-00-X		
	Repr. 2, Aquatic Chronic 3; H361f H412			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove contaminated, saturated clothing immediately.

After inhalation

If breathing is irregular or stopped, administer artificial respiration. Medical treatment necessary. Provide fresh

air. In case of breathing difficulties administer oxygen. If victim is at risk of losing consciousness, position and transport on their side. Call a physician immediately.

After contact with skin

After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary. After contact with skin, wash immediately with plenty of water and soap.

After contact with eyes

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

After ingestion

Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink plenty of water. Rinse mouth thoroughly with water. Let water be drunken in little sips (dilution effect). Call a physician immediately.

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

Irritating to eyes and skin. Prolonged or repeated contact with skin or mucous membrane result in irritation symptoms such as redness, blistering, dermatitis, etc. Conjunctival redness.
May cause an allergic skin reaction.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2), Foam, Extinguishing powder. Carbon dioxide (CO2). Dry extinguishing powder. Foam.

Unsuitable extinguishing media

Water.

5.2. Special hazards arising from the substance or mixture

Flammable. Vapours can form explosive mixtures with air. In case of fire and/or explosion do not breathe fumes.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Danger of explosion

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Do not rinse down with water. Collect in closed containers for disposal. Clean contaminated articles and floor according to the environmental legislation.

6.4. Reference to other sections

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

Treat the recovered material as prescribed in the section on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Contact with the skin and inhalation of aerosols/vapors from the preparation must be avoided.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air. Take precautionary measures against static discharges. Keep away from sources of ignition - No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed in a cool, well-ventilated place.
Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.

Advice on storage compatibility

Do not store together with: Oxidizing agent. Pyrophoric or self-heating substances.

Further information on storage conditions

Protect against: heat. UV-radiation/sunlight.

7.3. Specific end use(s)

No data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values

No data available

8.2. Exposure controls




Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection

Suitable eye protection: goggles.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four

control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Tested protective gloves are to be worn: Single-use gloves.
German Industry Norms (DIN) / European Norms (EN): DIN EN 374

Wearing time with occasional contact (splashes):
Suitable material: NR (Natural rubber (Caoutchouc), Natural latex).
Thickness of glove material: 0.5 mm
penetration time (maximum wearing period): > 480 min
Recommended protective gloves brand: KCL 740 Dermatril, Manufacturer: KCL GmbH, D-36124 Eichenzell, Source of supply: www.kcl.de

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
Breakthrough times and swelling properties of the material must be taken into consideration. Before using check leak tightness / impermeability.

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. Respiratory protection necessary at: aerosol or mist generation. Filtering device (full mask or mouthpiece) with filter: A

Environmental exposure controls

Do not allow uncontrolled leakage of product into the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	colourless
Odour:	characteristic

		Test method
pH-Value:	No data available	
Changes in the physical state		
Melting point:	No data available	
Initial boiling point and boiling range:	154 °C	Anisole
Sublimation point:	No data available	
Softening point:	No data available	
Pour point:	No data available	
Flash point:	> 43 °C	Anisole
Flammability		
Solid:	No data available	
Gas:	No data available	
Explosive properties		
No data available		
Lower explosion limits:	No data available	
Upper explosion limits:	No data available	

Ignition temperature:	No data available
Auto-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not determined
Oxidizing properties	
No data available	
Vapour pressure: (at 20 °C)	No data available
Vapour pressure: (at 50 °C)	21 hPa
Density (at 25 °C):	1 g/cm³
Water solubility:	No data available
Solubility in other solvents	
No data available	
Partition coefficient:	No data available
Viscosity / dynamic: (at 25 °C)	No data available
Viscosity / kinematic: (at 40 °C)	No data available
Flow time: (at 40 °C)	No data available
Vapour density:	No data available
Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available

9.2. Other information

Solid content:	No data available

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable. No data available

10.2. Chemical stability

No data available

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air. UV-radiation/sunlight. heat. Remove all sources of ignition. Take precautionary measures against static discharges.

10.5. Incompatible materials

Oxidizing agents, strong. Reducing agents, strong. Acid, concentrated. Alkalis (alkalis), concentrated.

10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Acute toxicity, oral LD50: >2000 mg/kg species: Rat (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)
Acute toxicity, dermal LD50: >2000 mg/kg species: Rabbit. (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)

Acute toxicity, oral LD50: >2000 mg/kg species: Rat (Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide)

ATEmix calculated

ATE (inhalative vapour) 11,22 mg/l; ATE (inhalative aerosol) 1,531 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
100-66-3	Anisole				
	oral	LD50 3700 mg/kg	Rat		
	inhalative vapour	ATE 11 mg/l			
	inhalative aerosol	ATE 1,5 mg/l			
15625-89-5	2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate				
	oral	LD50 3680 mg/kg	Rat		
	dermal	LD50 >2000 mg/kg	Rat		

Irritation and corrosivity

Causes skin irritation. Causes serious eye irritation. Method: Calculation method.

Sensitising effects

May cause an allergic skin reaction.
Method: Calculation method.

Carcinogenic/mutagenic/toxic effects for reproduction

No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Aspiration hazard

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

SECTION 12: Ecological information

12.1. Toxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Acute fish toxicity LC50: 1,47 mg/l 96h (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)
Acute Daphnia toxicity EC50: 19,9 mg/l 48h (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
15625-89-5	2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate						
	Acute fish toxicity	LC50	0,87 mg/l	96 h	Brachydanio rerio (zebra-fish)		
	Acute algae toxicity	ErC50	18,8 mg/l	72 h			
	Acute crustacea toxicity	EC50	19,9 mg/l	48 h	Daphnia magna		
	Fish toxicity	NOEC	0,1 mg/l				

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

Distribution coefficient (n-octanol / water) (log P O/W): 0,67 (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
100-66-3	Anisole	2,11
15625-89-5	2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate	4,35

BCF

CAS No	Chemical name	BCF	Species	Source
15625-89-5	2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate	344		

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Other adverse effects

No data available

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Do not allow uncontrolled leakage of product into the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.
Consult the local waste disposal expert about waste disposal.

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself. Dispose of waste according to applicable legislation.
Consult the local waste disposal expert about waste disposal.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: UN 2222

14.2. UN proper shipping name: ANISOLE

14.3. Transport hazard class(es): 3

14.4. Packing group: III

Hazard label: 3

Classification code: F1
Limited quantity: 5 L
Excepted quantity: E1
Transport category: 3
Hazard No: 30
Tunnel restriction code: D/E

Marine transport (IMDG)

14.1. UN number: UN 2222

14.2. UN proper shipping name: ANISOLE

14.3. Transport hazard class(es): 3

14.4. Packing group: III

Hazard label: 3

Special Provisions: -
Limited quantity: 5 L
Excepted quantity: E1
EmS: F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 2222

14.2. UN proper shipping name: ANISOLE

14.3. Transport hazard class(es): 3

14.4. Packing group: III

Hazard label: 3

Limited quantity Passenger: 10 L
Passenger LQ: Y344
Excepted quantity: E1
IATA-packing instructions - Passenger: 355
IATA-max. quantity - Passenger: 60 L
IATA-packing instructions - Cargo: 366
IATA-max. quantity - Cargo: 220 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: yes

Danger releasing substance: 2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate

14.6. Special precautions for user

Warning: Combustible liquid. See protective measures under point 7 and 8.

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

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

2010/75/EU (VOC):	98 % (980 g/l)
2004/42/EC (VOC):	100 % (1000 g/l)
Information according to 2012/18/EU (SEVESO III):	E2 Hazardous to the Aquatic Environment
Additional information:	P5c

National regulatory information

Employment restrictions:	Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).
Water contaminating class (D):	2 - clearly water contaminating
Skin resorption/Sensitization:	Causes allergic hypersensitivity reactions.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Flam. Liq. 3; H226	On basis of test data
Acute Tox. 4; H332	Calculation method
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Skin Sens. 1; H317	Calculation method
STOT SE 3; H335	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

H335	May cause respiratory irritation.
H361f	Suspected of damaging fertility.
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.
H412	Harmful to aquatic life with long lasting effects.

Further Information

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights. The receiver of our product is singulary responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)