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

Product name:
LOCTITE AA 330 CR315ML EGFD

Other means of identification:
LOCTITE AA 330 CR315ML EGFD

Product code:
IDH135407

Recommended use of the chemical and restrictions on use

Intended use:
Acrylic Adhesive

Manufacturer/Importer/Distributor Representative Company

Henkel Thailand Ltd. The Offices at Centralworld,
35th Floor, 999/9 Rama 1 Rd.,
Kwang Patumwan, Khet Patumwan,
10330 Bangkok

Thailand

Phone: +66 (2209) 8000
Fax-no.: +66 (2209) 8008

E-mail address of person responsible for Safety Data Sheet:
ap-ua-psra.sea@henkel.com

Emergency Telephone for Chemical Accidents:
FOR EMERGENCIES ONLY (Spill, major leak, Fire, Exposure, or Accident). Call: +662 209 8008

Section 2. Hazards identification

GHS Classification:

Hazard Class	Hazard Category	Target organ
Skin corrosion/irritation	Category 2	
Serious eye damage/eye irritation	Category 1	
Skin sensitizer	Category 1	
Toxic to reproduction	Category 1B	
Specific target organ toxicity - single exposure	Category 3	respiratory tract irritation
Chronic hazards to the aquatic environment	Category 3	

GHS label elements:

Hazard pictogram:



Signal word:
Danger

Hazard statement:
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H360 May damage fertility or the unborn child.
H412 Harmful to aquatic life with long lasting effects.

Precaution:

Prevention:
P201 Obtain special instructions before use.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response:
P302+P352 IF ON SKIN: Wash with plenty of water.
P304+P340+P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
Storage:
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Section 3. Composition / information on ingredients

Substance or Mixture:
Mixture

Declaration of hazardous chemical:

Hazard component CAS-No.	Content	GHS Classification
Tetrahydrofurfuryl methacrylate 2455-24-5	30- 60 %	Acute toxicity 5; Oral H303 Skin sensitizer 1A H317 Toxic to reproduction 1B H360 Acute hazards to the aquatic environment 3 H402 Chronic hazards to the aquatic environment 3 H412
methacrylic acid 79-41-4	1- 10 %	Flammable liquids 4 H227 Acute toxicity 4; Oral H302 Acute toxicity 4; Inhalation H332 Acute toxicity 3; Dermal H311 Skin corrosion/irritation 1 H314 Serious eye damage/eye irritation 1 H318 Specific target organ toxicity - single exposure 3 H335 Acute hazards to the aquatic environment 3 H402
2-Ethylhexyl methacrylate 688-84-6	1- 10 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin sensitizer 1B H317 Specific target organ toxicity - single exposure 3 H335 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 3 H412
1-Methyltrimethylene dimethacrylate 1189-08-8	1- 10 %	Skin sensitizer 1B H317 Acute hazards to the aquatic environment 2 H401
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	0.1- 1 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin sensitizer 1 H317 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
2,6-Di-tert-butyl-p-cresol 128-37-0	0.1- 1 %	Acute hazards to the aquatic environment 1 H400 Chronic hazards to the aquatic environment 1 H410
methyl methacrylate 80-62-6	0.1- 1 %	Flammable liquids 2 H225 Acute toxicity 5; Inhalation H333 Skin corrosion/irritation 2 H315 Skin sensitizer 1B H317 Specific target organ toxicity - single exposure 3 H335 Acute hazards to the aquatic environment 3

		H402
α, α-dimethylbenzyl hydroperoxide 80-15-9	0.1- 1 %	Flammable liquids 4 H227 Organic peroxides E H242 Acute toxicity 4; Oral H302 Acute toxicity 2; Inhalation H330 Acute toxicity 4; Dermal H312 Skin corrosion/irritation 1 H314 Specific target organ toxicity - single exposure 3 H335 Specific target organ toxicity - repeated exposure 2 H373 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
Tetrahydrofurfuryl alcohol 97-99-4	0.1- 1 %	Flammable liquids 4 H227 Serious eye damage/eye irritation 2A H319 Toxic to reproduction 1B H360

Section 4. First aid measures

Inhalation:
Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:
Rinse with running water and soap.
Obtain medical attention if irritation persists.

Eye contact:
Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

Indication of immediate medical attention and special treatment needed:
See section: Description of first aid measures

Section 5. Fire fighting measures

Suitable extinguishing media:
Carbon dioxide, foam, powder

Specific hazards arising from the chemical:
In the event of a fire, carbon monoxide (CO), carbon dioxide (CO2) and nitrogen oxides (NOx) can be released.

Special protection equipment and precautions for firefighters:
Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Additional fire fighting advice:
In case of fire, keep containers cool with water spray.

Section 6. Accidental release measures

Personal precautions:
Ensure adequate ventilation.
Avoid contact with skin and eyes.
Wear protective equipment.
See advice in section 8

Environmental precautions:
Do not empty into drains / surface water / ground water.

Clean-up methods:
For small spills wipe up with paper towel and place in container for disposal.
For large spills absorb onto inert absorbent material and place in sealed container for disposal.
Wash spillage site thoroughly with soap and water or detergent solution.
Dispose of contaminated material as waste according to Section 13.

Section 7. Handling and storage

Handling:
Use only in well-ventilated areas.
Avoid skin and eye contact.
Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.
See advice in section 8

Storage:
Store in tightly closed containers. In a cool/well-ventilated area.
Keep away from sources of ignition.

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

METHACRYLIC ACID 79-41-4	**Value type**	Time Weighted Average (TWA):
	ppm	20
	Remarks	ACGIH
BUTYLATED HYDROXYTOLUENE (BHT), INHALABLE FRACTION AND VAPOR 128-37-0	**Value type**	Time Weighted Average (TWA):
	mg/m^3	2
	Remarks	ACGIH
METHYL METHACRYLATE 80-62-6	**Value type**	Time Weighted Average (TWA):
	ppm	50
	Remarks	ACGIH
METHYL METHACRYLATE 80-62-6	**Value type**	Time Weighted Average (TWA):
	ppm	100
	Remarks	TH OEL
METHYL METHACRYLATE 80-62-6	**Value type**	Short Term Exposure Limit (STEL):
	ppm	100
	Remarks	ACGIH

Respiratory protection:
Ensure adequate ventilation.
An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area
Filter type: A (EN 14387)

Hand protection:
Chemical-resistant protective gloves (EN 374).
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.
Protective eye equipment should conform to EN166.

Body protection:
Wear suitable protective clothing.
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Engineering controls:
Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.

General protection and hygiene measures:
The workplace should be equipped with an emergency shower and eye-rinsing facility.

Hygienic measures:
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke while working.
Take off contaminated clothing and wash before reuse.

Section 9. Physical and chemical properties

Appearance:	Yellow liquid
Odor:	Acrylic
Odor threshold (CA):	No data available.
pH:(Concentration: 100 % product)	10
Melting point / freezing point:	Not applicable, Product is a liquid
Specific gravity:	1.16
Boiling point:	> 148.9 °C (> 300 °F)
Flash point: (Tagliabue closed cup)	83 °C (181.4 °F)
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Lower explosive limit:	No data available.
Upper explosive limit:	No data available.
Vapor pressure: (; 26.6 °C (79.9 °F))	< 10 mm hg
Vapor density:	Heavier than air
Density:	1.05 g/cm3
Solubility:	Slight (20 °C)
Partition coefficient: n-octanol/water:	No data available.
Auto ignition:	No data available.
Decomposition temperature:	No data available.
Viscosity:	50,000 - 80,000 mPa.s (Brookfield; Instrument: RVT; 25.0 °C (77 °F); speed of rotation: 20.0 min-1; Spindle No: 7; Method: ;; LCT STM 10; Viscosity Brookfield)
VOC content: (2010/75/EC)	< 3 %

Section 10. Stability and reactivity

Reactivity/Incompatible materials:
Reaction with strong oxidants.
Chemical stability:
Stable under recommended storage conditions.
Conditions to avoid:
Stable under normal conditions of storage and use.
Hazardous decomposition products:
carbon oxides.

Section 11. Toxicological information

Oral toxicity:	Acute toxicity estimate (ATE) : > 2,000 mg/kg Method: Calculation method

Inhalative toxicity: Acute toxicity estimate (ATE) : > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Dermal toxicity: Acute toxicity estimate (ATE) : > 2,000 mg/kg
Method: Calculation method

Skin irritation: Result: Category 2 (irritant)

Health Effects:

Skin: Causes skin irritation.
May cause allergic skin reaction.
Non corrosive to skin in accordance with the in vitro test method, B40 Skin Corrosion - Human skin model assay, specified in Part B of Annex V to Directive 67/548/EEC.

Eyes: Causes serious eye damage.

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system.
May cause irritation to nose and throat.

Symptoms of Overexposure**:** May impair fertility.
After eye contact: Corrosive, may cause permanent damage to eyes (impairment of vision).

Acute oral toxicity:

Tetrahydrofurfuryl methacrylate 2455-24-5	Value type	LD50
	Value	3,945 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
methacrylic acid 79-41-4	Value type	LD50
	Value	1,320 mg/kg
	Species	rat
	Method	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)
2-Ethylhexyl methacrylate 688-84-6	Value type	LD0
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
2-Ethylhexyl methacrylate 688-84-6	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
1-Methyltrimethylene dimethacrylate 1189-08-8	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	not specified
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 420 (Acute Oral Toxicity)
2,6-Di-tert-butyl-p-cresol 128-37-0	Value type	LD50
	Value	> 6,000 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
methyl methacrylate 80-62-6	Value type	LD50
	Value	9,400 mg/kg
	Species	rat
	Method	not specified
α, α-dimethylbenzyl hydroperoxide 80-15-9	Value type	LD50
	Value	382 mg/kg
	Species	rat
	Method	other guideline:
Tetrahydrofurfuryl alcohol 97-99-4	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 423 (Acute Oral toxicity)

Acute inhalative toxicity:

methacrylic acid 79-41-4	Value type	LC50
	Value	3.19 - 6.5 mg/l
	Exposure time	4 h
	Species	rat
	Method	equivalent or similar to OECD Guideline 403 (Acute Inhalation Toxicity)
methacrylic acid 79-41-4	Value type	Acute toxicity estimate (ATE)
	Value	3.19 mg/l
	Exposure time	
	Species	
	Method	Expert judgement
methyl methacrylate 80-62-6	Value type	LC50
	Value	29.8 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified
α, α-dimethylbenzyl hydroperoxide 80-15-9	Value type	LC50
	Value	1.370 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified

Acute dermal toxicity:

methacrylic acid 79-41-4	Value type	LD50
	Value	500 - 1,000 mg/kg
	Species	rabbit
	Method	Dermal Toxicity Screening
methacrylic acid 79-41-4	Value type	Acute toxicity estimate (ATE)
	Value	500 mg/kg
	Species	
	Method	Expert judgement
2-Ethylhexyl methacrylate 688-84-6	Value type	LD50
	Value	> 20,000 mg/kg
	Species	rat
	Method	not specified
1-Methyltrimethylene dimethacrylate 1189-08-8	Value type	LD50
	Value	> 3,000 mg/kg
	Species	rabbit
	Method	not specified
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
2,6-Di-tert-butyl-p-cresol 128-37-0	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
methyl methacrylate 80-62-6	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rabbit
	Method	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
α, α-dimethylbenzyl hydroperoxide 80-15-9	Value type	Acute toxicity estimate (ATE)
	Value	1,100 mg/kg
	Species	
	Method	Expert judgement

Skin corrosion/irritation:

Tetrahydrofurfuryl methacrylate 2455-24-5	Result	not irritating
	Exposure time	24 h
	Species	rabbit

	Method	Draize Test
methacrylic acid 79-41-4	Result	corrosive
	Exposure time	3 min
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	irritating
	Exposure time	
	Species	
	Method	Weight of evidence
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	not irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
α, α-dimethylbenzyl hydroperoxide 80-15-9	Result	corrosive
	Exposure time	
	Species	rabbit
	Method	Draize Test
Tetrahydrofurfuryl alcohol 97-99-4	Result	not irritating
	Exposure time	4 h
	Species	rabbit
	Method	EPA OPP 81-5 (Acute Dermal Irritation)

Serious eye damage/irritation:

Tetrahydrofurfuryl methacrylate 2455-24-5	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	Draize Test
methacrylic acid 79-41-4	Result	corrosive
	Exposure time	
	Species	rabbit
	Method	Draize Test
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	irritating
	Exposure time	
	Species	
	Method	Weight of evidence
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	Draize Test
Tetrahydrofurfuryl alcohol 97-99-4	Result	irritating
	Exposure time	
	Species	rabbit
	Method	EPA OPP 81-4 (Acute Eye Irritation)

Respiratory or skin sensitization:

Tetrahydrofurfuryl methacrylate 2455-24-5	Result	sensitising
	Test type	Patch-Test
	Species	human
	Method	not specified
Tetrahydrofurfuryl methacrylate 2455-24-5	Result	positive
	Test type	Direct peptide reactivity assay (DPRA)
	Species	cysteine and lysine, in chemico test
	Method	not specified
Tetrahydrofurfuryl methacrylate 2455-24-5	Result	positive
	Test type	Activation of keratinocytes
	Species	human keratinocytes, in vitro test
	Method	not specified
Tetrahydrofurfuryl methacrylate 2455-24-5	Result	positive
	Test type	activation of dendritic cells
	Species	human monocytes, in vitro test
	Method	not specified
methacrylic acid 79-41-4	Result	not sensitising
	Test type	Buehler test
	Species	guinea pig
	Method	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
2-Ethylhexyl methacrylate 688-84-6	Result	sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	Magnusson and Kligman Method
1-Methyltrimethylene dimethacrylate 1189-08-8	Result	sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	not sensitising
	Test type	Draize Test
	Species	guinea pig
	Method	Draize Test
methyl methacrylate 80-62-6	Result	sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Tetrahydrofurfuryl alcohol 97-99-4	Result	not sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Germ cell mutagenicity:

methacrylic acid 79-41-4	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)
methacrylic acid 79-41-4	Result	negative
	Type of study / Route of administration	inhalation
	Metabolic activation / Exposure time	
	Species	mouse
	Method	equivalent or similar to OECD Guideline 478 (Genetic Toxicology: Rodent Dominant Lethal Test)
methacrylic acid 79-41-4	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	equivalent or similar to OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
2-Ethylhexyl methacrylate 688-84-6	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 472 (Genetic Toxicology: Escherichia coli, Reverse Mutation Assay)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	not specified
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	with and without
	Method	not specified
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with
	Method	not specified
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	negative
	Type of study / Route of administration	oral: feed
	Metabolic activation / Exposure time	
	Species	rat
	Method	not specified
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	negative
	Type of study / Route of administration	intraperitoneal
	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified
methyl methacrylate 80-62-6	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	not specified
α, α-dimethylbenzyl hydroperoxide 80-15-9	Result	positive
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	without
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
α, α-dimethylbenzyl hydroperoxide 80-15-9	Result	negative
	Type of study / Route of administration	dermal
	Metabolic activation / Exposure time	
	Species	mouse

	Method	not specified
Tetrahydrofurfuryl alcohol 97-99-4	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Tetrahydrofurfuryl alcohol 97-99-4	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Tetrahydrofurfuryl alcohol 97-99-4	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)

Repeated dose toxicity:

Tetrahydrofurfuryl methacrylate 2455-24-5	Result	NOAEL=300 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	29 dyes, concurrent vehicle
	Species	rat
	Method	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
methacrylic acid 79-41-4	Result	
	Route of application	inhalation
	Exposure time / Frequency of treatment	90 d6 h/d, 5 d/w
	Species	rat
	Method	OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	NOAEL=50 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	14 wdaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	NOAEL=25 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	22 monthsdaily
	Species	rat
	Method	not specified
methyl methacrylate 80-62-6	Result	LOAEL=2000 ppm
	Route of application	inhalation
	Exposure time / Frequency of treatment	14 weeks6 hrs/day, 5 days/wk
	Species	mouse
	Method	Dose Range Finding Study
methyl methacrylate 80-62-6	Result	NOAEL=1000 ppm
	Route of application	inhalation
	Exposure time / Frequency of treatment	14 weeks6 hrs/day, 5 days/wk
	Species	mouse
	Method	Dose Range Finding Study
α, α-dimethylbenzyl hydroperoxide 80-15-9	Result	
	Route of application	inhalation: aerosol
	Exposure time / Frequency of treatment	6 h/d5 d/w
	Species	rat
	Method	not specified
Tetrahydrofurfuryl alcohol 97-99-4	Result	NOAEL=500 ppm
	Route of application	oral: feed
	Exposure time / Frequency of treatment	91-93 ddaily
	Species	rat
	Method	not specified
Tetrahydrofurfuryl alcohol 97-99-4	Result	NOAEL=1000 ppm
	Route of application	oral: feed
	Exposure time / Frequency of treatment	91-93 ddaily
	Species	rat
	Method	not specified

Section 12. Ecological information

General ecological information: Do not empty into drains / surface water / ground water.

Ecotoxicity: H412 Harmful to aquatic life with long lasting effects.

Toxicity:

Tetrahydrofurfuryl methacrylate 2455-24-5	Value type	LC50
	Value	34.7 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Tetrahydrofurfuryl methacrylate 2455-24-5	Value type	EC50
	Value	> 100 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	> 100 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
methacrylic acid 79-41-4	Value type	LC50
	Value	85 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Salmo gairdneri (new name: Oncorhynchus mykiss)
	Method	EPA OTS 797.1400 (Fish Acute Toxicity Test)
	Value type	NOEC
	Value	10 mg/l
	Acute Toxicity Study	Fish
	Exposure time	35 d
	Species	Danio rerio
	Method	OECD Guideline 210 (fish early life stage toxicity test)
methacrylic acid 79-41-4	Value type	EC50
	Value	> 130 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	EPA OTS 797.1300 (Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids)
methacrylic acid 79-41-4	Value type	NOEC
	Value	8.2 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	EC50
	Value	45 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
methacrylic acid 79-41-4	Value type	EC10
	Value	100 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	17 h
	Species	Pseudomonas putida

	Method	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)
2-Ethylhexyl methacrylate 688-84-6	Value type	LC50
	Value	2.78 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oryzias latipes
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-Ethylhexyl methacrylate 688-84-6	Value type	EC50
	Value	4.56 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-Ethylhexyl methacrylate 688-84-6	Value type	EC50
	Value	7.68 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	0.28 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
1-Methyltrimethylene dimethacrylate 1189-08-8	Value type	LC50
	Value	32.5 mg/l
	Acute Toxicity Study	Fish
	Exposure time	48 h
	Species	
	Method	DIN 38412-15
1-Methyltrimethylene dimethacrylate 1189-08-8	Value type	EC50
	Value	9.79 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	2.11 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
1-Methyltrimethylene dimethacrylate 1189-08-8	Value type	NOEC
	Value	20 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	28 d
	Species	activated sludge, domestic
	Method	not specified
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	LC50
	Value	1.75 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	EC50
	Value	1.7 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	EC50
	Value	> 11 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Scenedesmus capricornutum
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	4.2 mg/l
	Acute Toxicity Study	Algae

	Exposure time	72 h
	Species	Scenedesmus capricornutum
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	IC50
	Value	> 100 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge, industrial
	Method	other guideline:
2,6-Di-tert-butyl-p-cresol 128-37-0	Value type	NOEC
	Value	0.053 mg/l
	Acute Toxicity Study	Fish
	Exposure time	30 d
	Species	Oryzias latipes
	Method	OECD Guideline 210 (fish early life stage toxicity test)
2,6-Di-tert-butyl-p-cresol 128-37-0	Value type	EC50
	Value	0.48 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2,6-Di-tert-butyl-p-cresol 128-37-0	Value type	EC10
	Value	0.4 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)
	Method	EU Method C.3 (Algal Inhibition test)
methyl methacrylate 80-62-6	Value type	LC50
	Value	350 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Leuciscus idus
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
methyl methacrylate 80-62-6	Value type	EC50
	Value	69 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	EPA OTS 797.1300 (Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids)
methyl methacrylate 80-62-6	Value type	EC50
	Value	170 mg/l
	Acute Toxicity Study	Algae
	Exposure time	96 h
	Species	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	100 mg/l
	Acute Toxicity Study	Algae
	Exposure time	96 h
	Species	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
methyl methacrylate 80-62-6	Value type	EC20
	Value	> 150 - 200 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	activated sludge, domestic
	Method	ISO 8192 (Test for Inhibition of Oxygen Consumption by Activated Sludge)
α, α-dimethylbenzyl hydroperoxide 80-15-9	Value type	LC50
	Value	3.9 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	Value type	EC50
	Value	18.84 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna

	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	Value type	EC50
	Value	3.1 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	1 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	Value type	EC10
	Value	70 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	not specified
	Method	not specified
Tetrahydrofurfuryl alcohol 97-99-4	Value type	LC50
	Value	> 101 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oryzias latipes
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)

Persistence and degradability:

Tetrahydrofurfuryl methacrylate 2455-24-5	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	75 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
methacrylic acid 79-41-4	Result	readily biodegradable
	Route of application	aerobic
	Degradability	86 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
	Result	inherently biodegradable
	Route of application	aerobic
	Degradability	100 %
	Method	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
2-Ethylhexyl methacrylate 688-84-6	Result	readily biodegradable
	Route of application	aerobic
	Degradability	88 %
	Method	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
1-Methyltrimethylene dimethacrylate 1189-08-8	Result	readily biodegradable
	Route of application	aerobic
	Degradability	84 %
	Method	OECD Guideline 310 (Ready BiodegradabilityCO2 in Sealed Vessels (Headspace Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	5 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
2,6-Di-tert-butyl-p-cresol 128-37-0	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	4.5 %
	Method	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
	Result	not inherently biodegradable
	Route of application	aerobic
	Degradability	5.2 - 5.6 %
	Method	OECD Guideline 302 C (Inherent Biodegradability: Modified MITI Test (II))
methyl methacrylate 80-62-6	Result	readily biodegradable
	Route of application	aerobic
	Degradability	94 %

	Method	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
α, α-dimethylbenzyl hydroperoxide 80-15-9	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	3 %
	Method	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Tetrahydrofurfuryl alcohol 97-99-4	Result	readily biodegradable
	Route of application	aerobic
	Degradability	92 %
	Method	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))

Bioaccumulative potential / Mobility in soil:

Tetrahydrofurfuryl methacrylate 2455-24-5	LogPow	1.76
	Temperature	
	Method	EU Method A.8 (Partition Coefficient)
methacrylic acid 79-41-4	LogPow	0.93
	Temperature	22 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
2-Ethylhexyl methacrylate 688-84-6	Bioconcentration factor (BCF)	37
	Exposure time	56 h
	Species	Danio rerio
	Temperature	24 °C
	Method	OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
2-Ethylhexyl methacrylate 688-84-6	LogPow	4.95
	Temperature	20 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	LogPow	3.242
	Temperature	25 °C
	Method	EU Method A.8 (Partition Coefficient)
2,6-Di-tert-butyl-p-cresol 128-37-0	Bioconcentration factor (BCF)	330 - 1,800
	Exposure time	56 d
	Species	Cyprinus carpio
	Temperature	
	Method	OECD Guideline 305 C (Bioaccumulation: Test for the Degree of Bioconcentration in Fish)
2,6-Di-tert-butyl-p-cresol 128-37-0	LogPow	5.1
	Temperature	
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
methyl methacrylate 80-62-6	LogPow	1.38
	Temperature	20 °C
	Method	other guideline:
α, α-dimethylbenzyl hydroperoxide 80-15-9	Bioconcentration factor (BCF)	9.1
	Exposure time	
	Species	calculation
	Temperature	
	Method	OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	LogPow	1.6
	Temperature	25 °C
	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Tetrahydrofurfuryl alcohol 97-99-4	LogPow	-0.14
	Temperature	24.7 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

Section 13. Disposal considerations

Product

Method of disposal:
Dispose of in accordance with local and national regulations.

Packaging

Disposal of uncleaned packages:
Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

Section 14. Transport information

Road transport ADR:
Not dangerous goods

Railroad transport RID:
Not dangerous goods

Inland water transport ADN:
Not dangerous goods

Marine transport IMDG:
Not dangerous goods

Air transport IATA:
Not dangerous goods

Section 15. Regulatory information

Regulatory Information:
Ministry of Industry Notice. The system to classify and communicate the hazard of hazardous material, BE. 2555

Global inventory status:

Regulatory list	Notification
TCSI	yes
TSCA	yes
DSL	yes
ENCS (JP)	yes
ISHL (JP)	yes
KECI (KR)	yes
PICCS (PH)	yes
IECSC	yes
NZIOC	yes

Section 16. Other information

Disclaimer:
This Safety Data Sheet has been generated based on Ministry of Industry Notice. The system to classify and communicate the hazard of hazardous material, BE. 2555 only. No warranty or representation of any kind is given with respect to the substantive or export laws of any other jurisdiction or country. Please confirm that the information provided herein conforms to the substantive export or other law of any other jurisdiction prior to export. Please contact Henkel Product Safety and Regulatory Affairs for additional assistance.
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