Safety Data Sheet

LOCTITE LB 8191 400ML EGFD

SDS No. : 283258
V001.1
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Section 1. Identification of the substance/preparation and of the company/undertaking

Product name:
LOCTITE LB 8191 400ML EGFD

Other means of identification:
LOCTITE LB 8191 400ML EGFD

Product code:
IDH2473617

Recommended use of the chemical and restrictions on use

Intended use:
Lubricant

Manufacturer/Importer/Distributor Representative Company

Henkel Thailand Ltd. The Offices at Centralworld,
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E-mail address of person responsible for Safety Data Sheet:
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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
Flammable aerosols	Category 1	
Serious eye damage/eye irritation	Category 2	
Specific target organ toxicity - single exposure	Category 3	Central nervous system

GHS label elements:

Hazard pictogram:



Signal word:
Danger

Hazard statement:
H222 Extremely flammable aerosol.
H229 Pressurized container: May burst if heated.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precaution:

Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response:
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.
P337+P313 If eye irritation persists: Get medical advice/attention.
Storage:
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
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
butane 106-97-8	30- 60 %	Flammable gases 1 H220 Gases under pressure Compr. Gas H280
acetone 67-64-1	30- 60 %	Flammable liquids 2 H225 Serious eye damage/eye irritation 2A H319 Specific target organ toxicity - single exposure 3 H336
Ethanol 64-17-5	10- 30 %	Flammable liquids 2 H225 Serious eye damage/eye irritation 2A H319
propane 74-98-6	1- 10 %	Flammable gases 1 H220 Gases under pressure
Butanone 78-93-3	1- 10 %	Flammable liquids 2 H225 Acute toxicity 5; Oral H303 Acute toxicity 5; Inhalation H333 Serious eye damage/eye irritation 2A H319 Specific target organ toxicity - single exposure 3 H336 Aspiration hazard 2 H305
Isobutane 75-28-5	1- 10 %	Flammable gases 1 H220 Gases under pressure H280
(2-Methoxymethylethoxy)propanol 34590-94-8	1- 10 %	Flammable liquids 4 H227
methanol 67-56-1	0.1- 1 %	Flammable liquids 2 H225 Acute toxicity 3; Oral H301 Acute toxicity 3; Inhalation H331 Acute toxicity 3; Dermal H311 Specific target organ toxicity - single exposure 1 H370
2-butoxyethanol 111-76-2	0.1- 1 %	Flammable liquids 4 H227 Acute toxicity 4; Oral H302 Acute toxicity 3; Inhalation H331 Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319

Section 4. First aid measures

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

Skin contact:
Rinse with running water and soap.
Seek medical advice.

Eye contact:
Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

Ingestion:
Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.
Seek medical advice.

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

Improper extinguishing media:
Water spray jet

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

Hazardous combustion products:
Oxides of carbon, oxides of nitrogen, irritating organic vapors.

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

Section 6. Accidental release measures

Personal precautions:
Avoid skin and eye contact.
Wear protective equipment.
Ensure adequate ventilation.
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.
Dispose of contaminated material as waste according to Section 13.

Section 7. Handling and storage

Handling:
Keep away from sources of ignition - no smoking.
Vapours should be extracted to avoid inhalation.
Avoid skin and eye contact.
See advice in section 8

Storage:
Store in a cool, dry place.
Do not store near sources of heat or ignition, or reactive materials.

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

Butane, all isomers 106-97-8	**Value type**	Short Term Exposure Limit (STEL):
	ppm	1,000
	Remarks	ACGIH EX: Explosion hazard
ACETONE 67-64-1	**Value type**	Time Weighted Average (TWA):
	ppm	250
	Remarks	ACGIH
ACETONE 67-64-1	**Value type**	Time Weighted Average (TWA):
	ppm	1,000
	Remarks	TH OEL
ACETONE 67-64-1	**Value type**	Short Term Exposure Limit (STEL):
	ppm	500
	Remarks	ACGIH
ETHANOL 64-17-5	**Value type**	Short Term Exposure Limit (STEL):
	ppm	1,000
	Remarks	ACGIH
ETHANOL (ETHYL ALCOHOL) 64-17-5	**Value type**	Time Weighted Average (TWA):
	ppm	1,000
	Remarks	TH OEL
METHYL ETHYL KETONE (MEK) 78-93-3	**Value type**	Time Weighted Average (TWA):
	ppm	200
	Remarks	TH OEL
Methyl ethyl ketone (MEK) 78-93-3	**Value type**	Skin designation:
	Remarks	ACGIH Danger of cutaneous absorption
Methyl ethyl ketone (MEK) 78-93-3	**Value type**	Time Weighted Average (TWA):
	ppm	75
	Remarks	ACGIH
Methyl ethyl ketone (MEK) 78-93-3	**Value type**	Short Term Exposure Limit (STEL):
	ppm	150
	Remarks	ACGIH
Dipropylene glycol methyl ether (DPGME) 34590-94-8	**Value type**	Time Weighted Average (TWA):
	ppm	50
	Remarks	ACGIH
Methanol 67-56-1	**Value type**	Time Weighted Average (TWA):
	ppm	200
	Remarks	ACGIH
Methanol 67-56-1	**Value type**	Skin designation:
	Remarks	ACGIH Danger of cutaneous absorption
Methanol 67-56-1	**Value type**	Short Term Exposure Limit (STEL):
	ppm	250
	Remarks	ACGIH
2-BUTOXYETHANOL (EGBE) 111-76-2	**Value type**	Time Weighted Average (TWA):
	ppm	20
	Remarks	ACGIH
2-BUTOXYETHANOL 111-76-2	**Value type**	Time Weighted Average (TWA):
	ppm	50
	Remarks	TH OEL

Respiratory protection:

Do not inhale vapors and fumes.
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
Filtertype: AX
Filter type FFP2 for organic gas and vapour.

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:
Wear protective glasses.
Protective eye equipment should conform to EN166.

Body protection:
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:	Black aerosol
Odor:	characteristic
Odor threshold (CA):	No data available.
pH:	Not applicable, Product is non-polar/aprotic.
Melting point / freezing point:	Not applicable, Product is a liquid
Specific gravity:	No data available.
Boiling point:	-44.5 °C (-48.1 °F)
Flash point:	-97 °C (-142.6 °F)
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Lower explosive limit:	1.1 %(V)1.5 %(V)
Upper explosive limit:	15 %(V)15 %(V)
Vapor pressure:	3800 hPa
(; 20 °C (68 °F); 50 °C (122 °F))	7000 hPa
Vapor density:	Not available.
Density:	0.702 g/cm3
Solubility:	Not miscible
Partition coefficient: n-octanol/water:	No data available.

Auto ignition: No data available.
Decomposition temperature: No data available.
Viscosity: No data available.

VOC content: 92.75 %
(2010/75/EC)

Section 10. Stability and reactivity

Reactivity/Incompatible materials:
None if used properly.
Conditions to avoid:
Stable under normal conditions of storage and use.

Section 11. Toxicological information

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

Inhalative toxicity: Acute toxicity estimate (ATE) : > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

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

Symptoms of Overexposure**:** EYE: Irritation, conjunctivitis.
Repeated exposure may cause skin dryness or cracking.
Vapors may cause drowsiness and dizziness.

Acute oral toxicity:

acetone 67-64-1	Value type	LD50
	Value	5,800 mg/kg
	Species	rat
	Method	not specified
Ethanol 64-17-5	Value type	LD50
	Value	10,470 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
Butanone 78-93-3	Value type	LD50
	Value	2,193 mg/kg
	Species	rat
	Method	OECD Guideline 423 (Acute Oral toxicity)
(2-Methoxymethylethoxy)propanol 34590-94-8	Value type	LD50
	Value	8,740 mg/kg
	Species	rat
	Method	not specified
methanol 67-56-1	Value type	Acute toxicity estimate (ATE)
	Value	300 mg/kg
	Species	
	Method	Expert judgement
2-butoxyethanol 111-76-2	Value type	Acute toxicity estimate (ATE)
	Value	1,200 mg/kg
	Species	
	Method	Expert judgement

Acute inhalative toxicity:

butane 106-97-8	Value type	LC50
	Value	274200 ppm
	Exposure time	4 h
	Species	rat
	Method	not specified
acetone 67-64-1	Value type	LC50
	Value	76 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified
Ethanol 64-17-5	Value type	LC50
	Value	124.7 mg/l
	Exposure time	4 h
	Species	rat
	Method	OECD Guideline 403 (Acute Inhalation Toxicity)
propane 74-98-6	Value type	LC50
	Value	> 800000 ppm
	Exposure time	15 min
	Species	rat
	Method	not specified
Butanone 78-93-3	Value type	LC50
	Value	34.5 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified
Isobutane 75-28-5	Value type	LC50
	Value	260200 ppm
	Exposure time	4 h
	Species	mouse
	Method	not specified
(2-Methoxymethylethoxy)propanol 34590-94-8	Value type	LC50
	Value	55 - 60 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified
2-butoxyethanol 111-76-2	Value type	Acute toxicity estimate (ATE)
	Value	3 mg/l
	Exposure time	4 h
	Species	
	Method	Expert judgement

Acute dermal toxicity:

acetone 67-64-1	Value type	LD50
	Value	> 15,688 mg/kg
	Species	rabbit
	Method	Draize Test
Ethanol 64-17-5	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rabbit
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
Butanone 78-93-3	Value type	LD50
	Value	> 6,400 mg/kg
	Species	rabbit
	Method	not specified
(2-Methoxymethylethoxy)propanol 34590-94-8	Value type	LD50
	Value	9,510 mg/kg
	Species	rabbit
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
methanol 67-56-1	Value type	Acute toxicity estimate (ATE)
	Value	300 mg/kg
	Species	
	Method	Expert judgement
2-butoxyethanol 111-76-2	Value type	Acute toxicity estimate (ATE)
	Value	> 5,000 mg/kg

	Species	
	Method	Expert judgement
2-butoxyethanol 111-76-2	Value type	LD50
	Value	> 2,000 mg/kg
	Species	guinea pig
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
2-butoxyethanol 111-76-2	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)

Skin corrosion/irritation:

acetone 67-64-1	Result	not irritating
	Exposure time	
	Species	guinea pig
	Method	not specified
Ethanol 64-17-5	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Butanone 78-93-3	Result	not irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	not irritating
	Exposure time	2 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	not irritating
	Exposure time	
	Species	human
	Method	not specified
methanol 67-56-1	Result	not irritating
	Exposure time	20 h
	Species	rabbit
	Method	BASF Test
2-butoxyethanol 111-76-2	Result	irritating
	Exposure time	4 h
	Species	rabbit
	Method	EU Method B.4 (Acute Toxicity: Dermal Irritation / Corrosion)

Serious eye damage/irritation:

acetone 67-64-1	Result	irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Ethanol 64-17-5	Result	irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Butanone 78-93-3	Result	irritating
	Exposure time	
	Species	rabbit
	Method	equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	not irritating
	Exposure time	
	Species	human
	Method	not specified
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	Draize Test
methanol 67-56-1	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
2-butoxyethanol 111-76-2	Result	irritating
	Exposure time	24 h
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

acetone 67-64-1	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	not specified
Ethanol 64-17-5	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	OECD Guideline 406 (Skin Sensitisation)
Ethanol 64-17-5	Result	not sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Butanone 78-93-3	Result	not sensitising
	Test type	Buehler test
	Species	guinea pig
	Method	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	not sensitising
	Test type	Patch-Test
	Species	human
	Method	human repeat insult patch test
methanol 67-56-1	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
2-butoxyethanol 111-76-2	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	OECD Guideline 406 (Skin Sensitisation)

Germ cell mutagenicity:

butane 106-97-8	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)
butane 106-97-8	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)
butane 106-97-8	Result	negative
	Type of study / Route of administration	inhalation: gas
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
acetone 67-64-1	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)
acetone 67-64-1	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)
acetone 67-64-1	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	without
	Method	OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
acetone 67-64-1	Result	negative
	Type of study / Route of administration	oral: drinking water
	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified
Ethanol 64-17-5	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Ethanol 64-17-5	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	without
	Method	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Ethanol 64-17-5	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)
Ethanol 64-17-5	Result	negative
	Type of study / Route of administration	
	Metabolic activation / Exposure time	
	Species	
	Method	OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)
propane 74-98-6	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)
propane 74-98-6	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)
propane 74-98-6	Result	negative
	Type of study / Route of administration	
	Metabolic activation / Exposure time	
	Species	Drosophila melanogaster
	Method	not specified

propane 74-98-6	Result	negative
	Type of study / Route of administration	inhalation: gas
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Butanone 78-93-3	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)
Butanone 78-93-3	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	not applicable
	Method	equivalent or similar to OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Butanone 78-93-3	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
	Method	equivalent or similar to OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Butanone 78-93-3	Result	negative
	Type of study / Route of administration	intraperitoneal
	Metabolic activation / Exposure time	
	Species	mouse
	Method	equivalent or similar to OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Isobutane 75-28-5	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)
Isobutane 75-28-5	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)
Isobutane 75-28-5	Result	negative
	Type of study / Route of administration	oral: feed
	Metabolic activation / Exposure time	
	Species	Drosophila melanogaster
	Method	not specified
Isobutane 75-28-5	Result	negative
	Type of study / Route of administration	inhalation: gas
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	Ames Test
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	negative
	Type of study / Route of administration	yeast cytogenetic assay
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 481 (Genetic Toxicology: Saccharomyces cerevisiae, Mitotic Recombination Assay)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	with and without
	Method	JAPAN: Guidelines for Screening Mutagenicity Testing Of Chemicals
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	negative
	Type of study / Route of administration	DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro
	Metabolic activation / Exposure time	not applicable
	Method	OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	without

	Method	OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
(2-Methoxymethylethoxy)propanol 34590-94-8	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)
methanol 67-56-1	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)
methanol 67-56-1	Result	negative
	Type of study / Route of administration	in vitro mammalian cell micronucleus test
	Metabolic activation / Exposure time	without
	Method	not specified
methanol 67-56-1	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
	Method	equivalent or similar to OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
methanol 67-56-1	Result	negative
	Type of study / Route of administration	intraperitoneal
	Metabolic activation / Exposure time	
	Species	mouse
	Method	equivalent or similar to OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
2-butoxyethanol 111-76-2	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)
2-butoxyethanol 111-76-2	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)
2-butoxyethanol 111-76-2	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)
2-butoxyethanol 111-76-2	Result	negative
	Type of study / Route of administration	intraperitoneal
	Metabolic activation / Exposure time	
	Species	mouse
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Repeated dose toxicity:

butane 106-97-8	Result	
	Route of application	inhalation: gas
	Exposure time / Frequency of treatment	28 d6 h/d
	Species	rat
	Method	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
acetone 67-64-1	Result	NOAEL=900 mg/kg
	Route of application	oral: drinking water
	Exposure time / Frequency of treatment	13 wdaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
propane 74-98-6	Result	
	Route of application	inhalation: gas
	Exposure time / Frequency of treatment	28 d6 h/d, 7 d/w
	Species	rat
	Method	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Butanone 78-93-3	Result	NOAEL=2500 ppm
	Route of application	inhalation
	Exposure time / Frequency of treatment	90 days6 hours/day, 5 days/week
	Species	rat
	Method	not specified
Butanone 78-93-3	Result	LOAEL=5000 ppm
	Route of application	inhalation
	Exposure time / Frequency of treatment	90 days6 hours/day, 5 days/week
	Species	rat
	Method	not specified
Isobutane 75-28-5	Result	NOAEL=9000 ppm
	Route of application	inhalation: gas
	Exposure time / Frequency of treatment	28 d6 h/d, 7 d/w
	Species	rat
	Method	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	NOAEL=> 50 mg/l
	Route of application	inhalation
	Exposure time / Frequency of treatment	2 weeks (9 exposures)6 hours/day; 5 days/week
	Species	rabbit
	Method	not specified
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	LOAEL=140 ppm
	Route of application	inhalation
	Exposure time / Frequency of treatment	2 weeks (9 exposures)6 hours/day; 5 days/week
	Species	rabbit
	Method	not specified
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	NOAEL=1,000 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	4 weeksdaily
	Species	rat
	Method	not specified
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	NOAEL=200 ppm
	Route of application	inhalation: vapour
	Exposure time / Frequency of treatment	13 weeks6 hours/day; 5 days/week
	Species	rat
	Method	OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	NOAEL=2,850 mg/kg
	Route of application	dermal
	Exposure time / Frequency of treatment	90 d5 days/week
	Species	rabbit
	Method	OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	NOAEL=> 1,000 mg/kg
	Route of application	dermal
	Exposure time / Frequency of treatment	4 weeks4 hours/day; 5 days/week
	Species	rat

	Method	OECD Guideline 410 (Repeated Dose Dermal Toxicity: 21/28-Day Study)
methanol 67-56-1	Result	NOAEL=6.63 mg/l
	Route of application	inhalation: vapour
	Exposure time / Frequency of treatment	4 weeks6 h/d, 5 d/w
	Species	rat
	Method	equivalent or similar to OECD Guideline 412 (Repeated Dose Inhalation Toxicity: 28/14-Day)
methanol 67-56-1	Result	NOAEL=0.13 mg/l
	Route of application	inhalation: vapour
	Exposure time / Frequency of treatment	12 m20 h/d
	Species	rat
	Method	equivalent or similar to OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
2-butoxyethanol 111-76-2	Result	NOAEL=0.121 mg/l
	Route of application	inhalation
	Exposure time / Frequency of treatment	42 or 90 days6 hours/day, 5 days/week
	Species	rat
	Method	not specified
2-butoxyethanol 111-76-2	Result	NOAEL=< 69 mg/kg
	Route of application	oral: drinking water
	Exposure time / Frequency of treatment	90 dcontinous
	Species	rat
	Method	equivalent or similar to OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Section 12. Ecological information

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

Ecotoxicity:

Toxicity:

butane 106-97-8	Value type	LC50
	Value	27.98 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	
	Method	QSAR (Quantitative Structure Activity Relationship)
butane 106-97-8	Value type	EC50
	Value	14.22 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	
	Method	QSAR (Quantitative Structure Activity Relationship)
butane 106-97-8	Value type	EC50
	Value	7.71 mg/l
	Acute Toxicity Study	Algae
	Exposure time	96 h
	Species	
	Method	QSAR (Quantitative Structure Activity Relationship)
acetone 67-64-1	Value type	LC50
	Value	8,120 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
acetone 67-64-1	Value type	EC50
	Value	8,800 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia pulex
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

acetone 67-64-1	Value type	NOEC
	Value	530 mg/l
	Acute Toxicity Study	Algae
	Exposure time	8 d
	Species	Microcystis aeruginosa
	Method	DIN 38412-09
acetone 67-64-1	Value type	EC10
	Value	1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	Pseudomonas putida
	Method	DIN 38412, part 27 (Bacterial oxygen consumption test)
Ethanol 64-17-5	Value type	LC50
	Value	14,200 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	EPA-660 (Methods for Acute Toxicity Tests with Fish, Macroinvertebrates and Amphibians)
	Value type	NOEC
	Value	250 mg/l
	Acute Toxicity Study	Fish
	Exposure time	120 h
	Species	Danio rerio
	Method	OECD Guideline 212 (Fish, Short-term Toxicity Test on Embryo and Sac-Fry Stages)
Ethanol 64-17-5	Value type	EC50
	Value	5,012 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Ceriodaphnia dubia
	Method	other guideline:
Ethanol 64-17-5	Value type	EC50
	Value	275 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Chlorella vulgaris
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	EC10
	Value	11.5 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Chlorella vulgaris
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Ethanol 64-17-5	Value type	IC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge
	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Butanone 78-93-3	Value type	LC50
	Value	3,220 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Butanone 78-93-3	Value type	EC50
	Value	5,091 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Butanone 78-93-3	Value type	EC50
	Value	1,240 mg/l
	Acute Toxicity Study	Algae
	Exposure time	96 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	EC10
	Value	1,010 mg/l
	Acute Toxicity Study	Algae

	Exposure time	96 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Butanone 78-93-3	Value type	EC50
	Value	1,150 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	16 h
	Species	Pseudomonas putida
	Method	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)
(2-Methoxymethylethoxy)propanol 34590-94-8	Value type	LC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Poecilia reticulata
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
(2-Methoxymethylethoxy)propanol 34590-94-8	Value type	EC50
	Value	1,919 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
(2-Methoxymethylethoxy)propanol 34590-94-8	Value type	EC50
	Value	> 969 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	969 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
(2-Methoxymethylethoxy)propanol 34590-94-8	Value type	EC10
	Value	4,168 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	18 h
	Species	Pseudomonas putida
	Method	other guideline:
methanol 67-56-1	Value type	LC50
	Value	15,400 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Lepomis macrochirus
	Method	EPA-660 (Methods for Acute Toxicity Tests with Fish, Macroinvertebrates and Amphibians)
	Value type	NOEC
	Value	7,900 mg/l
	Acute Toxicity Study	Fish
	Exposure time	200 h
	Species	Oryzias latipes
	Method	OECD Guideline 210 (fish early lite stage toxicity test)
methanol 67-56-1	Value type	EC50
	Value	18,260 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	96 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
methanol 67-56-1	Value type	EC50
	Value	22,000 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)
methanol 67-56-1	Value type	IC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge of a predominantly domestic sewage
	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)

2-butoxyethanol 111-76-2	Value type	LC50
	Value	1,474 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
	Value type	NOEC
	Value	> 100 mg/l
	Acute Toxicity Study	Fish
	Exposure time	21 d
	Species	Brachydanio rerio (new name: Danio rerio)
	Method	OECD Guideline 204 (Fish, Prolonged Toxicity Test: 14-day Study)
2-butoxyethanol 111-76-2	Value type	EC50
	Value	1,550 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-butoxyethanol 111-76-2	Value type	EC50
	Value	1,840 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	286 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-butoxyethanol 111-76-2	Value type	EC0
	Value	1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	
	Method	not specified

Persistence and degradability:

butane 106-97-8	Result	readily biodegradable
	Route of application	aerobic
	Degradability	> 60 %
	Method	OECD 301 A - F
acetone 67-64-1	Result	readily biodegradable
	Route of application	aerobic
	Degradability	81 - 92 %
	Method	EU Method C.4-E (Determination of the "Ready" BiodegradabilityClosed Bottle Test)
Ethanol 64-17-5	Result	readily biodegradable
	Route of application	aerobic
	Degradability	80 - 85 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
propane 74-98-6	Result	readily biodegradable
	Route of application	aerobic
	Degradability	> 60 %
	Method	OECD 301 A - F
Butanone 78-93-3	Result	readily biodegradable
	Route of application	aerobic
	Degradability	98 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Isobutane 75-28-5	Result	readily biodegradable
	Route of application	aerobic
	Degradability	> 60 %
	Method	OECD 301 A - F
(2-Methoxymethylethoxy)propanol 34590-94-8	Result	readily biodegradable
	Route of application	aerobic
	Degradability	76 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)

	Result	inherently biodegradable
	Route of application	aerobic
	Degradability	94 %
	Method	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
methanol 67-56-1	Result	readily biodegradable
	Route of application	aerobic
	Degradability	82 - 92 %
	Method	EU Method C.4-E (Determination of the "Ready" BiodegradabilityClosed Bottle Test)
2-butoxyethanol 111-76-2	Result	readily biodegradable
	Route of application	aerobic
	Degradability	73 %
	Method	EU Method C.4-E (Determination of the "Ready" BiodegradabilityClosed Bottle Test)

Bioaccumulative potential / Mobility in soil:

butane 106-97-8	LogPow	2.31
	Temperature	20 °C
	Method	other (measured)
acetone 67-64-1	LogPow	-0.24
	Temperature	
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Ethanol 64-17-5	LogPow	-0.35
	Temperature	24 °C
	Method	not specified
Butanone 78-93-3	LogPow	0.3
	Temperature	40 °C
	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Isobutane 75-28-5	LogPow	2.88
	Temperature	20 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
(2-Methoxymethylethoxy)propanol 34590-94-8	LogPow	0.004
	Temperature	25 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
methanol 67-56-1	Bioconcentration factor (BCF)	< 10
	Exposure time	72 h
	Species	Leuciscus idus melanotus
	Temperature	
	Method	not specified
methanol 67-56-1	LogPow	-0.77
	Temperature	
	Method	other guideline:
2-butoxyethanol 111-76-2	LogPow	0.81
	Temperature	25 °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:

Class:	2
Packing group:	
Classification code:	5F
Hazard ident. number:	
UN no.:	1950
Label:	2.1
Technical name:	AEROSOLS

Railroad transport RID:

Class:	2
Packing group:	
Classification code:	5F
Hazard ident. number:	23
UN no.:	1950
Label:	2.1
Technical name:	AEROSOLS

Inland water transport ADN:

Class:	2
Packing group:	
Classification code:	5F
Hazard ident. number:	
UN no.:	1950
Label:	2.1
Technical name:	AEROSOLS

Marine transport IMDG:

Class:	2.1
Packing group:	
UN no.:	1950
Label:	2.1
EmS:	F-D ,S-U
Seawater pollutant:	-
Proper shipping name:	AEROSOLS

Air transport IATA:

Class:	2.1
Packing group:	
Packaging instructions (passenger):	203
Packaging instructions (cargo):	203
UN no.:	1950
Label:	2.1
Proper shipping name:	Aerosols, flammable

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
TSCA	yes
DSL	yes
KECI (KR)	yes
ENCS (JP)	yes
ISHL (JP)	yes
AIIC	yes
IECSC	yes
TCSI	yes
PICCS (PH)	yes
INSQ	yes
EINECS	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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