



Safety Data Sheet

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Loctite Epoxy Putty FCB

SDS No. : 534291

V001.0

Henkel Japan Ltd.

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

Product code: 2009426
Product name: Loctite Epoxy Putty FCB
Recommended use : Epoxy adhesive

Company name:
Henkel Japan Ltd.
Sphere Tower Tennoz 14F 2-2-8
Higashi-Shinagawa, Shinagawa-ku, Tokyo
140-0002
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2. Hazards identification

GHS Classification:

<u>Hazard Class</u>	<u>Hazard Category</u>
Skin irritation	Category 2
Serious eye damage/eye irritation	Category 2
Skin Sensitization	Category 1
Acute hazards to the aquatic environment	Category 3
Chronic hazards to the aquatic environment	Category 3

GHS label elements:

Hazard pictogram:



Signal word:

Warning

Hazard statement:	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H412 Harmful to aquatic life with long lasting effects.
Prevention:	P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P264 Wash skin 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, eye protection, and face protection.
Response:	P302+P352 IF ON SKIN: Wash with plenty of water. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333+P313 If skin irritation or rash occurs: Get medical attention. P337+P313 If eye irritation persists: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse.
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.

The hazard information in product label may be differing with SDS information.

3. Composition / information on ingredients

Single substance/ Mixture: Mixture

Hazardous Components and Concentration

Ingredients	contents
Calcium sulfate (1:1) dihydrate	>= 50 - < 60 %
Poly[oxy(methyl-1,2-ethanediyl)], a-hydro-w-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether	>= 10 - < 20 %
Talc	>= 10 - < 20 %
reaction product: bisphenol-A-(epichlorhydrin)	>= 2.5 - < 10 %
Titanium dioxide < 1% particles with diameter ≤ 10 μm	>= 1 - < 10 %
Poly[oxy(methyl-1,2-ethanediyl)], a-(oxiranylmethyl)-w-(oxiranylmethoxy)-	>= 0.25 - < 1 %
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	>= 0.25 - < 1 %

4. First aid measures

Case of skin contact:	Rinse with running water and soap. Apply replenishing cream. Change all contaminated clothing.
Case of eye contact:	Immediately flush eyes with soft jet of water or eye rinse solution for at least 5 minutes. If pains remain (intensive smarting, sensitivity to light, visual disturbance) continue flushing and contact/seek doctor or hospital.
Case of ingestion:	Rinse mouth and throat. Drink 1-2 glasses of water. Seek medical advice.

Case of inhalation: Move to fresh air, consult doctor if complaint persists.

5. Fire fighting measures

Suitable extinguishing media: carbon dioxide

Extinguishing media that can not be used: High pressure waterjet

Decomposition products in case of fire: Carbon dioxide.

Protective equipment: Wear protective equipment.
Wear self-contained breathing apparatus.

6. Accidental release measures

Personal precautions: Wear protective equipment.
Ensure adequate ventilation.
Avoid contact with skin and eyes.

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

Measures for removal: Remove mechanically.
Dispose of contaminated material as waste according to Section 13.

7. Handling and storage

Handling:
Precautions for safe handling: Ensure that workrooms are adequately ventilated.

Avoid skin and eye contact.

Avoid dust formation.

Storage:
Conditions for safe storage: Keep only in original container.
Store in a cool, dry place.
Temperatures between + 5 °C and + 30 °C
Keep away from heat and direct sunlight.

Storage:
Conditions for safe storage: Keep only in original container.
Keep container tightly sealed.
Store in a cool, dry place.

8. Exposure controls / personal protection

Component exposure limits:
Japan OELs JSOH

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Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
Calcium sulfate [Sandstone, rock, mineral, metal and carbon dust]		0.025	Threshold Limit Value:	The exposure limit is calculated from the equation, $3.0/(1.19*(\% \text{ free silica})+1)$ using a value of 100% free silica. Lower percentages of free silica will yield higher exposure limits.	JPISHL OEL
Calcium sulfate [Inorganic and organic dusts other than Classes 1 and 2, total dust]		8	Time Weighted Average (TWA):		JPISOH OEL
Calcium sulfate [Inorganic and organic dusts other than Classes 1 and 2, respirable dust]		2	Time Weighted Average (TWA):		JPISOH OEL
Calcium sulfate [Mineral Dusts containing less than 3% free silica, respirable dust]		1	Time Weighted Average (TWA):		JPISOH OEL
Calcium sulfate [Mineral Dusts containing less than 3% free silica, total dust]		4	Time Weighted Average (TWA):		JPISOH OEL
Talc (Mg ₃ H ₂ (SiO ₃) ₄) [Talc, respirable dust]		0.5	Time Weighted Average (TWA):		JPISOH OEL
Talc (Mg ₃ H ₂ (SiO ₃) ₄) [Talc, total dust]		2	Time Weighted Average (TWA):		JPISOH OEL
Titanium dioxide [Sandstone, rock, mineral, metal and carbon dust]		0.025	Threshold Limit Value:	The exposure limit is calculated from the equation, $3.0/(1.19*(\% \text{ free silica})+1)$ using a value of 100% free silica. Lower percentages of free silica will yield higher exposure limits.	JPISHL OEL
Titanium dioxide [Titanium dioxide (asTi)]		1.5	Time Weighted Average (TWA):	Provisional value.	JPISOH OEL
Titanium dioxide [Titanium dioxide (asTi)]		2	Time Weighted Average (TWA):	Provisional value.	JPISOH OEL
Titanium dioxide [Titanium dioxide (nanoparticle)]		0.3	Time Weighted Average (TWA):	Provisional value.	JPISOH OEL

Component exposure limits:
REFERENCES

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Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
Calcium sulfate (1:1) dihydrate [CALCIUM SULFATE, INHALABLE FRACTION]		10	Time Weighted Average (TWA):		ACGIH
Talc [TALC, CONTAINING NO ASBESTOS FIBERS, RESPIRABLE FRACTION]		2	Time Weighted Average (TWA):	The value is for particulate matter containing no asbestos and <1% crystalline silica.	ACGIH
Titanium dioxide < 1% particles with diameter ≤ 10 μm [Titanium dioxide, nanoscale particles, respirable fraction]		0.2	Time Weighted Average (TWA):		ACGIH
Titanium dioxide < 1% particles with diameter ≤ 10 μm [Titanium dioxide, finescale particles, respirable fraction]		2.5	Time Weighted Average (TWA):		ACGIH

Indications for system design: Ensure good ventilation/extraction.

Personal Protection Equipment:

Respiratory protection: Do not inhale vapors and fumes.
Ensure adequate ventilation.

Hand protection: Suitable protective gloves.

Eye protection: Wear protective glasses.
Avoid eye contact.

9. Physical and chemical properties

Physical state:	solid	Color:	blue, white
pH:	Not available., Product is non-soluble (in water).Not applicable	Odor:	specific
Boiling point:	> 200 °C (> 392 °F)	Melting point:	< -20 °C (< -4 °F)
Vapor density:	Not applicable, Product is a solid.	Density:	1.77 g/cm ³ - 1.9 g/cm ³
Flash point:	Not applicable	Vapor pressure:	Not applicable or not available
Lower explosive limit:	Not applicable or not available	Upper explosive limit:	Not applicable or not available
Solubility in water:	Not applicable or not available	Viscosity:	Not applicable or not available
Auto-ignition temperature:	Not applicable or not available	Flammability:	The product is not flammable.
Octanol / water distribution coefficient:	Not applicable or not available	Decomposition temperature:	> 375 °C
Particle characteristics	Not applicable or not available		

10. Stability and reactivity**Stability:****Reactivity:** Reacts with amines, alcohols, acids and alkalis.**Chemical stability:** Stable under recommended storage conditions.**Condition to avoid:** None if used for intended purpose.**Incompatible materials:** None if used properly.**Hazardous decomposition products:** None known**11. Toxicological information****General toxicological information:** Cross-reactions with other epoxide compounds possible.
Persons suffering from allergic reactions to epoxides should avoid contact with the product.**11.1. Information on toxicological effects****Acute oral toxicity:**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Species	Method
Calcium sulfate (1:1) dihydrate	LD50	10,000 mg/kg	rat	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)
Poly[oxy(methyl-1,2-ethanediyl)], a-hydro-w-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether	LD50	2,600 mg/kg	rat	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)
Talc	LD50	> 5,000 mg/kg	rat	OECD Guideline 423 (Acute Oral toxicity)
reaction product: bisphenol-A-(epichlorhydrin)	LD50	> 2,000 mg/kg	rat	OECD Guideline 420 (Acute Oral Toxicity)
Titanium dioxide < 1% particles with diameter ≤ 10 μm	LD50	> 5,000 mg/kg	rat	OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure)
Poly[oxy(methyl-1,2-ethanediyl)], a-(oxiranylmethyl)-w-(oxiranylmethoxy)-	LD50	> 4,000 mg/kg	rat	not specified
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	LD50	> 5,000 mg/kg	rat	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)

Acute dermal toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Species	Method
Poly[oxy(methyl-1,2-ethanediyl)], a-hydro-w-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether	LD50	> 10,200 mg/kg	rabbit	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
Talc	LD50	> 2,000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
reaction product: bisphenol-A-(epichlorhydrin)	LD50	> 2,000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Titanium dioxide < 1% particles with diameter ≤ 10 μm	LD50	≥ 10,000 mg/kg	hamster	not specified
Poly[oxy(methyl-1,2-ethanediyl)], a-(oxiranylmethyl)-w-(oxiranylmethoxy)-	LD50	> 2,000 mg/kg	rabbit	not specified
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	LD50	> 2,000 mg/kg	rat	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)

Acute inhalative toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Test atmosphere	Exposure time	Species	Method
Talc	LC50	> 2.1 mg/l	dust/mist	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	LC50	> 6.82 mg/l	dust	4 h	rat	not specified

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Result	Exposure time	Species	Method
Calcium sulfate (1:1) dihydrate	not irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Poly[oxy(methyl-1,2-ethanediyl)], a-hydro-w-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether	not irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Talc	slightly irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
reaction product: bisphenol-A-(epichlorhydrin)	not irritating	4 h	rabbit	not specified
Titanium dioxide < 1% particles with diameter ≤ 10 µm	not irritating	4 h	rabbit	equivalent or similar to OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	irritating	4 h	rabbit	equivalent or similar to OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Result	Exposure time	Species	Method
Calcium sulfate (1:1) dihydrate	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Poly[oxy(methyl-1,2-ethanediyl)], a-hydro-w-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether	not irritating		rabbit	equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Talc	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
reaction product: bisphenol-A-(epichlorhydrin)	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	not irritating		rabbit	equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances	Result	Test type	Species	Method
Calcium sulfate (1:1) dihydrate	not sensitising	Buehler test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
Poly[oxy(methyl-1,2-ethanediyl)], a-hydro-w-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Talc	not sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
reaction product: bisphenol-A-(epichlorhydrin)	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	not sensitising	Mouse local lymphnode assay (LLNA)	mouse	equivalent or similar to OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Calcium sulfate (1:1) dihydrate	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Calcium sulfate (1:1) dihydrate	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Talc	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Talc	negative	in vitro mammalian cell transformation assay	without		equivalent or similar to OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
reaction product: bisphenol-A-(epichlorhydrin)	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 472 (Genetic Toxicology: Escherichia coli, Reverse Mutation Assay)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	positive	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Calcium sulfate (1:1) dihydrate	negative	oral: feed		mouse	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Talc	negative	oral: gavage		rat	equivalent or similar to OECD Guideline 478 (Genetic Toxicology: Rodent Dominant Lethal Test)
reaction product: bisphenol-A-(epichlorhydrin)	negative	oral: gavage		mouse	not specified
Titanium dioxide < 1% particles with diameter ≤ 10 µm	negative	oral: gavage		mouse	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	negative	oral: gavage		mouse	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	negative	oral: gavage		rat	OECD Guideline 486 (Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells in vivo)

Carcinogenicity

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous components	Result	Route of application	Exposure time / Frequency of treatment	Species	Sex	Method
reaction product: bisphenol-A- (epichlorhydrin)	not carcinogenic	dermal	2 y daily	mouse	male	OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
reaction product: bisphenol-A- (epichlorhydrin)	not carcinogenic	oral: gavage	2 y daily	rat	male/female	OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	not carcinogenic	inhalation	24 m 6 h/d; 5 d/w	rat	male/female	OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)

Reproductive toxicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances	Result / Value	Test type	Route of application	Species	Method
Calcium sulfate (1:1) dihydrate	NOAEL P 1,000 mg/kg NOAEL F1 1,000 mg/kg	screening	oral: gavage	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Talc	NOAEL P > 900 mg/kg NOAEL F1 > 900 mg/kg	two-generation study	oral: gavage	rabbit	equivalent or similar to OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)
reaction product: bisphenol-A- (epichlorhydrin)	NOAEL P >= 50 mg/kg NOAEL F1 >= 750 mg/kg NOAEL F2 >= 750 mg/kg	Two generation study	oral: gavage	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)
Titanium dioxide < 1% particles with diameter ≤ 10 µm	NOAEL P > 1,000 mg/kg NOAEL F1 > 1,000 mg/kg		oral: gavage	rat	OECD Guideline 421 (Reproduction / Developmental Toxicity Screening Test)
Reaction product: bisphenol-F- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	NOAEL P > 750 mg/kg NOAEL F1 750 mg/kg NOAEL F2 750 mg/kg	two-generation study	oral: gavage	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)

STOT-single exposure:

No data available.

STOT-repeated exposure:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
Calcium sulfate (1:1) dihydrate	NOAEL 100 mg/kg	oral: gavage	35-45 d daily	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Talc	NOAEL 100 mg/kg	oral: feed	101 d 7 d/w	rat	equivalent or similar to OECD Guideline 452 (Chronic Toxicity Studies)
reaction product: bisphenol-A-(epichlorhydrin)	NOAEL 50 mg/kg	oral: gavage	14 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Titanium dioxide < 1% particles with diameter ≤ 10 μm	NOAEL 1,000 mg/kg	oral: gavage	90 d daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)	NOAEL 250 mg/kg	oral: gavage	13 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Aspiration hazard:

No data available.

12. Ecological information

General ecological information:

Harmful to aquatic organisms.

Do not empty into drains / surface water / ground water.

12.1. Toxicity**Toxicity (Fish):**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Exposure time	Species	Method
Calcium sulfate (1:1) dihydrate	LC50	> 100 mg/l	96 h	Oryzias latipes	OECD Guideline 203 (Fish, Acute Toxicity Test)
Pentaerythritol-PO-mercaptoglycerol	LC50	87 mg/l	96 h	Danio rerio	OECD Guideline 203 (Fish, Acute Toxicity Test)
Talc	LC50	Toxicity > Water solubility	96 h	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 203 (Fish, Acute Toxicity Test)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	LC50	1.75 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Titanium dioxide < 1% particles with diameter ≤ 10 μm	LC50	Toxicity > Water solubility	48 h	Danio rerio	other guideline:
Titanium dioxide < 1% particles with diameter ≤ 10 μm	NOEC	Toxicity > Water solubility	8 d	Danio rerio	OECD Guideline 212 (Fish, Short-term Toxicity Test on Embryo and Sac-Fry Stages)
Bisphenol-F epichlorhydrin resin; MW<700	LC50	5.7 mg/l	96 h	Leuciscus idus	OECD Guideline 203 (Fish, Acute Toxicity Test)

Toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Exposure time	Species	Method
Calcium sulfate (1:1) dihydrate	EC50	> 100 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Pentaerythritol-PO-mercaptoglycerol	EC50	12 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	EC50	1.7 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Titanium dioxide < 1% particles with diameter ≤ 10 μm	EC50	Toxicity > Water solubility	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Bisphenol-F epichlorhydrin resin; MW<700	EC50	2.55 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Exposure time	Species	Method
Pentaerythritol-PO-mercaptoglycerol	NOEC	3.5 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	NOEC	0.3 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

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Bisphenol-F epichlorhydrin resin; MW<700	NOEC	0.3 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
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Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Exposure time	Species	Method
Calcium sulfate (1:1) dihydrate	EC50	> 100 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Pentaerythritol-PO-mercaptoglycerol	EC50	> 733 mg/l	72 h	Desmodesmus subspicatus	OECD Guideline 201 (Alga, Growth Inhibition Test)
Pentaerythritol-PO-mercaptoglycerol	NOEC	338 mg/l	72 h	Desmodesmus subspicatus	OECD Guideline 201 (Alga, Growth Inhibition Test)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	EC50	> 11 mg/l	72 h	Scenedesmus capricornutum	OECD Guideline 201 (Alga, Growth Inhibition Test)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	NOEC	4.2 mg/l	72 h	Scenedesmus capricornutum	OECD Guideline 201 (Alga, Growth Inhibition Test)
Titanium dioxide < 1% particles with diameter ≤ 10 μm	EC50	Toxicity > Water solubility	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Titanium dioxide < 1% particles with diameter ≤ 10 μm	NOEC	Toxicity > Water solubility	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Bisphenol-F epichlorhydrin resin; MW<700	EC50	1.8 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity (microorganisms):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value type	Value	Exposure time	Species	Method
Calcium sulfate (1:1) dihydrate	EC0	Toxicity > Water solubility	30 min	Pseudomonas putida	DIN 38412, part 27 (Bacterial oxygen consumption test)
Pentaerythritol-PO-mercaptoglycerol	EC50	> 1,000 mg/l	3 h	activated sludge of a predominantly domestic sewage	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	IC50	> 100 mg/l	3 h	activated sludge, industrial	other guideline:
Titanium dioxide < 1% particles with diameter ≤ 10 μm	EC50	Toxicity > Water solubility	3 h	activated sludge	ISO 8192 (Test for Inhibition of Oxygen Consumption by Activated Sludge)
Bisphenol-F epichlorhydrin resin; MW<700	IC50	> 100 mg/l	3 h	activated sludge, industrial	other guideline:

12.2. Persistence and degradability

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Hazardous substances	Result	Test type	Degradability	Exposure time	Method
Pentaerythritol-PO-mercaptoglycerol	not readily biodegradable.	aerobic	5 %	28 d	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	not readily biodegradable.	aerobic	5 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Bisphenol-F epichlorhydrin resin; MW<700	not readily biodegradable.	aerobic	0 %	28 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

Hazardous substances	LogPow	Temperature	Method
Pentaerythritol-PO-mercaptoglycerol	1.2	20 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Talc	-9.4	25 °C	QSAR (Quantitative Structure Activity Relationship)
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)	3.242	25 °C	EU Method A.8 (Partition Coefficient)
Bisphenol-F epichlorhydrin resin; MW<700	2.7 - 3.6		OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)

12.5. Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or vPvB.

12.6. Other adverse effects

No data available.

13. Disposal considerations

Recommended method of disposal:

Dispose of waste and residues in accordance with local authority requirements.

Waste disposal of packaging not cleansed:

Disposal must be made according to official regulations.

Waste disposal of packaging not cleansed:

14. Transport information

Marine transport IMDG:

Not dangerous goods

Air transport IATA:
Not dangerous goods

Local transport information

Land transportation: If it falls under the Fire Service Act, the Industrial Safety and Health Act, the Poisonous and Deleterious Substances Act, etc., follow the prescribed transportation method.

Maritime transportation: Follow the transportation law stipulated in the Ship Safety Act.

Air transportation: Follow the transportation method stipulated in the Civil Aeronautics Act.

15. Regulatory information

Labor Safety and Health Law:

MSDS Required Substances

Titanium dioxide < 1% particles with diameter ≤ 10 μm

Mutagens, Existing Chemicals:

reaction product: bisphenol-A-(epichlorhydrin)

Fire services law:

Designated Flammable Substances

Poisonous and Deleterious substances control Law:

Does not apply.

**Law concerning Pollutant Release and Transfer Register / PRTR:(content value is typical value)
(If unit is %O: %O=1/10%)**

Does not apply.

16. Other information

Issue date:

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