SAFETY DATA SHEET

Based upon Regulation (EC) No 1907/2006, as amended by Regulation (EU) No 2020/878

TWINBOND SIP 2K A

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

1.1. Product identifier

Product name : TWINBOND SIP 2K A
Synonyms : 33427
Registration number REACH : Not applicable (mixture)
Product type REACH : Mixture

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

1.2.1 Relevant identified uses

Epoxy resin

1.2.2 Uses advised against

No uses advised against known

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet

Twinbond*
Industrielaan 5B
B-2250 Olen
☎ +32 14 25 76 40
🖷 +32 14 22 02 66
info@novatech.be
* Twinbond is a registered trademark of Novatech International N.V.

Manufacturer of the product

Novatech International N.V.
Industrielaan 5B
B-2250 Olen
☎ +32 14 85 97 37
🖷 +32 14 85 97 38
info@novatech.be

1.4. Emergency telephone number

24h/24h (Telephone advice: English, French, German, Dutch) :
+32 14 58 45 45 (BIG)
24h/24h :
Nederland - Nationaal Vergiftigingen Informatie Centrum (NVIC): +31 88 755 8000
(Uitsluitend bestemd om artsen te informeren bij accidentele vergiftigingen)
(Only for the purpose of informing medical personnel in cases of acute intoxications)

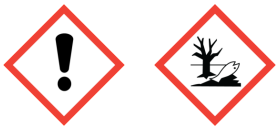
SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
Skin Sens.	category 1	H317: May cause an allergic skin reaction.
Skin Irrit.	category 2	H315: Causes skin irritation.
Eye Irrit.	category 2	H319: Causes serious eye irritation.
Aquatic Chronic	category 2	H411: Toxic to aquatic life with long lasting effects.

2.2. Label elements



Contains: bis-[4-(2,3-epoxipropoxi)phenyl]propane; formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol; oxirane, mono[(C12-14-alkyloxy)methyl] derivs.; 1,6-bis(2,3-epoxypropoxy)hexane.

Signal word Warning
H-statements
H317 May cause an allergic skin reaction.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

H411	Toxic to aquatic life with long lasting effects.

P-statements

P280	Wear protective gloves, protective clothing and eye protection/face protection.
P264	Wash hands thoroughly after handling.
P302 + P352	IF ON SKIN: Wash with plenty of water and soap.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
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.

2.3. Other hazards

No other hazards known

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark	M-factors and ATE
bis-[4-(2,3-epoxipropoxi)phenyl]propane 01-2119456619-26	1675-54-3 216-823-5	25% <C<75%	Skin Sens. 1; H317 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 2; H411 Eye Irrit. 2; H319: C≥5%, (CLP Annex VI (ATP 0)) Skin Irrit. 2; H315: C≥5%, (CLP Annex VI (ATP 0))	(1)(2)(6)(10)	Constituent	
formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	9003-36-5 500-006-8	10% <C<25%	Skin Sens. 1; H317 Skin Irrit. 2; H315 Aquatic Chronic 2; H411	(1)(10)	Constituent	
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 01-2119485289-22	68609-97-2 271-846-8	10% <C<25%	Skin Sens. 1; H317 Skin Irrit. 2; H315	(1)(10)	Constituent	
1,6-bis(2,3-epoxypropoxy)hexane	16096-31-4 240-260-4	5%<C<10%	Skin Sens. 1; H317 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 3; H412	(1)(10)	Constituent	

(1) For H- and EUH-statements in full: see section 16
(2) Substance with a Community workplace exposure limit
(6) Enumerated in Annex VI of Regulation (EC) No. 1272/2008 but the classification has been adapted after evaluation of available test data
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006

SECTION 4: First aid measures

4.1. Description of first aid measures

General:
Observe (own) safety. If possible, approach victim and check vital functions. In case of injury and/or intoxication, call the European emergency number 112. Treat symptoms starting with most life-threatening injuries and disorders. Keep victim under observation, possibility of delayed symptoms.

After inhalation:
Remove victim into fresh air. In case of respiratory problems, consult a doctor/medical service.

After skin contact:
If possible, wipe up/dry remove chemical. Then rinse/shower immediately with (lukewarm) water. If irritation persists, consult a doctor/medical service.

After eye contact:
Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, consult a doctor/medical service.

After ingestion:
Rinse mouth with water. If you feel unwell, consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

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

4.2.1 Acute symptoms

After inhalation:
No effects known.

After skin contact:
Tingling/irritation of the skin.

After eye contact:

Irritation of the eye tissue.

After ingestion:
No effects known.

4.2.2 Delayed symptoms
No effects known.

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

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:
Small fire: Quick-acting ABC powder extinguisher, Quick-acting BC powder extinguisher, Quick-acting class B foam extinguisher, Quick-acting CO2 extinguisher.

Major fire: Class B foam (not alcohol-resistant).

5.1.2 Unsuitable extinguishing media:
Small fire: Water (quick-acting extinguisher, reel); risk of puddle expansion.

Major fire: Water; risk of puddle expansion.

5.2. Special hazards arising from the substance or mixture

On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, carbon monoxide - carbon dioxide).

5.3. Advice for firefighters

5.3.1 Instructions:
Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.

5.3.2 Special protective equipment for fire-fighters:
Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034). Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No naked flames.

6.1.1 Protective equipment for non-emergency personnel
See section 8.2

6.1.2 Protective equipment for emergency responders
Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034).

Suitable protective clothing
See section 8.2

6.2. Environmental precautions

Contain released product. Dam up the liquid spill. Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

Take up liquid spill into absorbent material. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See section 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

7.1. Precautions for safe handling

Keep away from naked flames/heat. Gas/vapour heavier than air at 20°C. Observe very strict hygiene - avoid contact. Remove contaminated clothing immediately. Keep container tightly closed. Do not discharge the waste into the drain.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:
Meet the legal requirements. Store in a cool area. Keep container in a well-ventilated place. Keep out of direct sunlight.

7.2.2 Keep away from:
Heat sources, (strong) acids, (strong) bases.

7.2.3 Suitable packaging material:
No data available

7.2.4 Non suitable packaging material:
No data available

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

Product name	Test	Number
Diglycidyl Ether of Bisphenol A	OSHA	1018

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 Threshold values

DNEL/DMEL - Workers

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	4.93 mg/m³	
	Long-term systemic effects dermal	0.75 mg/kg bw/day	

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	3.6 mg/m³	
	Long-term systemic effects dermal	1 mg/kg bw/day	

1,6-bis(2,3-epoxypropoxy)hexane

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	4.9 mg/m³	
	Acute systemic effects inhalation	4.9 mg/m³	
	Long-term local effects inhalation	0.44 mg/m³	
	Long-term systemic effects dermal	2.8 mg/kg bw/day	
	Long-term local effects dermal	22.6 µg/cm²	
	Acute local effects dermal	22.6 µg/cm²	

DNEL/DMEL - General population

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	0.87 mg/m³	
	Long-term systemic effects dermal	89.3 µg/kg bw/day	
	Long-term systemic effects oral	0.5 mg/kg bw/day	

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	0.87 mg/m³	
	Long-term systemic effects dermal	0.5 mg/kg bw/day	
	Long-term systemic effects oral	0.5 mg/kg bw/day	

1,6-bis(2,3-epoxypropoxy)hexane

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	2.9 mg/m³	
	Acute systemic effects inhalation	2.9 mg/m³	
	Long-term local effects inhalation	0.27 mg/m³	
	Long-term systemic effects dermal	1.7 mg/kg bw/day	
	Long-term local effects dermal	13.6 µg/cm²	
	Acute local effects dermal	13.6 µg/cm²	
	Long-term systemic effects oral	0.83 mg/kg bw/day	
	Acute systemic effects oral	0.83 mg/kg bw/day	

PNEC

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Compartments	Value	Remark
Fresh water	0.006 mg/l	
Marine water	0.001 mg/l	
Fresh water (intermittent releases)	0.018 mg/l	
Marine water (intermittent releases)	0.002 mg/l	
STP	10 mg/l	
Fresh water sediment	0.341 mg/kg sediment dw	
Marine water sediment	0.034 mg/kg sediment dw	
Soil	0.065 mg/kg soil dw	
Oral	11 mg/kg food	

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Compartments	Value	Remark
Fresh water	0.106 mg/l	
Marine water	0.011 mg/l	
Fresh water (intermittent releases)	0.072 mg/l	
STP	10 mg/l	
Fresh water sediment	307.16 mg/kg sediment dw	
Marine water sediment	30.72 mg/kg sediment dw	
Soil	1.234 mg/kg soil dw	

1,6-bis(2,3-epoxypropoxy)hexane

Compartments	Value	Remark
Fresh water	0.011 mg/l	Similar product
Marine water	0.001 mg/l	Similar product
Fresh water (intermittent releases)	0.115 mg/l	Similar product
STP	1 mg/l	Similar product
Fresh water sediment	0.283 mg/kg sediment dw	Similar product
Marine water sediment	0.028 mg/kg sediment dw	Similar product
Soil	0.223 mg/kg soil dw	Similar product

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1 Appropriate engineering controls

Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

8.2.2 Individual protection measures, such as personal protective equipment

Observe very strict hygiene - avoid contact. Do not eat, drink or smoke during work.

a) Respiratory protection:

Full face mask with filter type A at conc. in air > exposure limit.

b) Hand protection:

Protective gloves against chemicals (EN 374).

c) Eye protection:

Face shield (EN 166).

d) Skin protection:

Protective clothing (EN 14605 or EN 13034).

8.2.3 Environmental exposure controls:

See sections 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Liquid
Odour	Characteristic odour
	Mild odour
Odour threshold	No data available in the literature
Colour	Light yellow
Particle size	Not applicable (liquid)
Explosion limits	No data available in the literature
Flammability	Not classified as flammable
Log Kow	Not applicable (mixture)
Dynamic viscosity	700 mPa.s - 1100 mPa.s ; 25 °C
Kinematic viscosity	No data available in the literature
Melting point	No data available in the literature
Boiling point	No data available in the literature
Relative vapour density	No data available in the literature
Vapour pressure	No data available in the literature
Solubility	Water ; insoluble
Relative density	1.12 ; 20 °C
Absolute density	1120 kg/m³ ; 20 °C
Decomposition temperature	No data available in the literature
Auto-ignition temperature	No data available in the literature
Flash point	> 110 °C
pH	Not applicable (non-soluble in water)

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity
No data available.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
Precautionary measures
Keep away from naked flames/heat.

10.5. Incompatible materials
(strong) acids, (strong) bases.

10.6. Hazardous decomposition products
On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, carbon monoxide - carbon dioxide).

SECTION 11: Toxicological information

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

Acute toxicity

TWINBOND SIP 2K A

No (test)data on the mixture available

Judgement is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 420	> 2000 mg/kg bw		Rat (female)	Experimental value	
Dermal	LD50	OECD 402	> 2000 mg/kg bw		Rat (male / female)	Experimental value	
Inhalation (vapours)	LC0		0.000008 ppm	5 h	Rat (male)	Experimental value	

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		26800 mg/kg bw		Rat (male)	Experimental value	
Dermal	LD0		≥ 4000 mg/kg bw	24 h	Rabbit (male)	Experimental value	
Inhalation (saturated vapour)	LC0		0.15 mg/l air	7 h	Rat	Experimental value	

1,6-bis(2,3-epoxypropoxy)hexane

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 401	3741 mg/kg bw		Rat (male / female)	Experimental value	
Dermal	NOEL	OECD 402	> 2000 mg/kg bw	24 h	Rat (male / female)	Experimental value	
Inhalation	NOEC	Equivalent to OECD 433	0.035 mg/l	4 h	Rat (male / female)	Experimental value	

Conclusion

Not classified for acute toxicity

Corrosion/irritation

TWINBOND SIP 2K A

No (test)data on the mixture available

Classification is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405		24; 48; 72 hrs; 7 days	Rabbit	Experimental value	Single exposure
Eye	Irritating; category 2					Annex VI	
Skin	Slightly irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	
Skin	Irritating; category 2					Annex VI	

formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Skin	Irritating; category 2					Literature study	

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Slightly irritating	Equivalent to OECD 405		1; 24; 48; 72 hours	Rabbit	Experimental value	
Skin	Moderately irritating	EPA OTS 798.4470	24 h	24; 72 hours	Rabbit	Experimental value	

1,6-bis(2,3-epoxypropoxy)hexane

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Moderately irritating	Equivalent to OECD 405		24; 48 hours	Rabbit	Experimental value	
Skin	Irritating		24 h	24; 72 hours	Rabbit	Experimental value	

Conclusion

Causes skin irritation.
Causes serious eye irritation.
Not classified as irritating to the respiratory system

Respiratory or skin sensitisation

TWINBOND SIP 2K A

No (test)data on the mixture available
Classification is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Dermal (on the ears)	Sensitizing	OECD 429			Mouse (female)	Experimental value	

formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing; category 1					Literature study	

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	Buehler test		24; 48 hours	Guinea pig	Experimental value	

1,6-bis(2,3-epoxypropoxy)hexane

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	Equivalent to OECD 429			Mouse (female)	Experimental value	

Conclusion

May cause an allergic skin reaction.
Not classified as sensitizing for inhalation

Specific target organ toxicity

TWINBOND SIP 2K A

No (test)data on the mixture available
Judgement is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (stomach tube)	NOAEL	OECD 408	50 mg/kg bw/day		No effect	14 weeks (7 days / week)	Rat (male / female)	Experimental value
Dermal	NOAEL systemic effects	OECD 411	100 mg/kg bw/day		No adverse systemic effects	13 weeks (3 times / week)	Mouse (male)	Experimental value

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Dermal	NOEL	OECD 411	1 mg/kg bw/day			13 weeks (5 days / week)	Rat (male / female)	Experimental value
Dermal	LOEL	OECD 411	10 mg/kg bw/day	Skin	Skin rash/inflammation	13 weeks (5 days / week)	Rat (male / female)	Experimental value

1,6-bis(2,3-epoxypropoxy)hexane

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (stomach tube)	NOAEL	OECD 422	200 mg/kg bw/day		No effect	28 day(s) - 39 day(s)	Rat (male / female)	Experimental value
Dermal								Data waiving
Inhalation	NOAEL	OECD 412	16 mg/m³ air	Nose	No effect	4 weeks (6h / day, 5 days / week)	Rat (male / female)	Experimental value

Conclusion

Not classified for subchronic toxicity

Mutagenicity (in vitro)

TWINBOND SIP 2K A

No (test)data on the mixture available

Judgement is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 472	Escherichia coli		Experimental value	

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Result	Method	Test substrate	Effect	Value determination	Remark
Positive with metabolic activation, positive without metabolic activation	OECD 471	Bacteria (S.typhimurium)		Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 476	Chinese hamster ovary (CHO)		Experimental value	

1,6-bis(2,3-epoxypropoxy)hexane

Result	Method	Test substrate	Effect	Value determination	Remark
Positive	OECD 471	Bacteria (S.typhimurium)		Experimental value	

Mutagenicity (in vivo)

TWINBOND SIP 2K A

No (test)data on the mixture available

Judgement is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Result	Method	Exposure time	Test substrate	Organ	Value determination
Negative (Oral (stomach tube))	OECD 488	4 weeks (daily)	Rat (male)		Experimental value

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Result	Method	Exposure time	Test substrate	Organ	Value determination
Negative	OECD 474		Mouse (male / female)		Experimental value

1,6-bis(2,3-epoxypropoxy)hexane

Result	Method	Exposure time	Test substrate	Organ	Value determination
Negative (Oral)	OECD 486		Rat (male)	Liver	

Conclusion

Not classified for mutagenic or genotoxic toxicity

Carcinogenicity

TWINBOND SIP 2K A

No (test)data on the mixture available

Judgement is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Route of exposure	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Dermal	NOEL	OECD 453	100 mg/kg bw/day	104 weeks (5 days / week)	Rat (female)	No carcinogenic effect		Experimental value
Oral (stomach tube)	NOAEL	OECD 453	15 mg/kg bw/day - 100 mg/kg bw/day	104 week(s)	Rat (male / female)	No carcinogenic effect		Experimental value

1,6-bis(2,3-epoxypropoxy)hexane

Route of exposure	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Unknown								Data waiving

Conclusion

Not classified for carcinogenicity

Reproductive toxicity

TWINBOND SIP 2K A

No (test)data on the mixture available

Judgement is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	180 mg/kg bw/day	13 days (gestation, daily)	Rabbit	No effect		Experimental value
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	60 mg/kg bw/day	13 days (gestation, daily)	Rabbit	No effect		Experimental value
Effects on fertility (Oral (stomach tube))	NOEL	OECD 416	750 mg/kg bw/day	238 day(s)	Rat (male / female)	No effect		Experimental value

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity	NOAEL	OECD 414	200 mg/kg bw/day	10 days (6h / day)	Rat			Experimental value
	NOAEL (F1)		200 mg/kg bw/day	10 days (6h / day)	Rat (male / female)			Experimental value
Effects on fertility	NOAEL	OECD 414	200 mg/kg bw/day	10 days (6h / day)	Rat (female)			Experimental value
	NOAEL (P)		200 mg/kg bw/day	10 days (6h / day)	Rat (female)			Experimental value

1,6-bis(2,3-epoxypropoxy)hexane

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity		OECD 414						Experimental study planned
Maternal toxicity								Data waiving
Effects on fertility		OECD 415						Experimental study planned

Conclusion

Not classified for reprotoxic or developmental toxicity

Toxicity other effects

TWINBOND SIP 2K A

No (test)data on the mixture available

Chronic effects from short and long-term exposure

TWINBOND SIP 2K A

Skin rash/inflammation.

11.2. Information on other hazards

No evidence of endocrine disrupting properties

SECTION 12: Ecological information

12.1. Toxicity

TWINBOND SIP 2K A

No (test)data on the mixture available

Classification is based on the relevant ingredients

bis-[4-(2,3-epoxipropoxi)phenyl]propane

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	1.75 mg/l	96 h	Oncorhynchus mykiss	Static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EC50	Equivalent to OECD 202	1.7 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Locomotor effect
Toxicity algae and other aquatic plants	EC50	EPA 660/3 - 75/009	> 11 mg/l	72 h	Selenastrum capricornutum	Static system	Fresh water	Experimental value; Growth rate
	NOEC	EPA 660/3 - 75/009	4.2 mg/l	72 h	Selenastrum capricornutum	Static system	Fresh water	Experimental value; Growth rate
Long-term toxicity fish								Data waiving
Long-term toxicity aquatic crustacea	NOEC	Equivalent to OECD 211	0.3 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Experimental value; GLP
Toxicity aquatic micro-organisms	IC50		> 100 mg/l	3 h	Activated sludge			Experimental value; Respiration

formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	1.9 mg/l	96 h	Brachydanio rerio	Semi-static system	Fresh water	Weight of evidence
Acute toxicity crustacea	EC50	OECD 202	3.5 mg/l	48 h	Daphnia magna	Static system	Fresh water	Weight of evidence; GLP
Toxicity algae and other aquatic plants	EC50	Equivalent to OECD 201	> 1.8 mg/l	72 h	Selenastrum capricornutum	Static system	Fresh water	Experimental value
Long-term toxicity aquatic crustacea	NOEC	Equivalent to OECD 211	0.3 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Experimental value; GLP

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LL50	OECD 203	> 100 mg/l	96 h	Oncorhynchus mykiss	Semi-static system	Fresh water	Experimental value; GLP
Acute toxicity crustacea	EL50	OECD 202	7.2 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; GLP
Toxicity algae and other aquatic plants	IC50	OECD 201	843.75 mg/l	72 h	Selenastrum capricornutum		Fresh water	Experimental value; GLP
Toxicity aquatic micro-organisms	EC50	OECD 209	> 100 mg/l	3 h	Activated sludge	Static system	Fresh water	Read-across; GLP

Classification of this substance is debatable as it does not correspond to the conclusion from the test

1,6-bis(2,3-epoxypropoxy)hexane

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	30 mg/l	96 h	Oncorhynchus mykiss	Semi-static system	Fresh water	Experimental value; Similar product
Acute toxicity crustacea	EC50	OECD 202	39 mg/l - 57 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Similar product
Toxicity algae and other aquatic plants	EC50		23.1 mg/l	48 h	Pseudokirchneriella subcapitata			QSAR; Similar product
Long-term toxicity fish								Data waiving
Long-term toxicity aquatic crustacea								Data waiving
Toxicity aquatic micro-organisms	IC50	OECD 209	> 100 mg/l	180 minutes	Activated sludge	Static system	Fresh water	Experimental value; Similar product

Conclusion

Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Biodegradation water

Method	Value	Duration	Value determination
OECD 301F	5 %; Oxygen consumption	28 day(s)	Experimental value

formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Biodegradation water

Method	Value	Duration	Value determination
EU Method C.4	0 %	28 day(s)	Experimental value

Half-life water (t1/2 water)

Method	Value	Primary degradation/mineralisation	Value determination
OECD 111	86 h; pH = 7		Read-across

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Biodegradation water

Method	Value	Duration	Value determination
OECD 301F	87 %; GLP	28 day(s)	Experimental value

1,6-bis(2,3-epoxypropoxy)hexane

Biodegradation water

Method	Value	Duration	Value determination
OECD 301D	47 %; Similar product	28 day(s)	Experimental value

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
AOPWIN v1.92	3.217 h	1.5E6 /cm³	Calculated value

Conclusion

Water

Contains non readily biodegradable component(s)

12.3. Bioaccumulative potential

TWINBOND SIP 2K A

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (mixture)			

bis-[4-(2,3-epoxipropoxi)phenyl]propane

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF		31; Fresh weight			QSAR

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 117		2.64 - 3.78	25 °C	Experimental value

formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 117		2.7 - 3.6		Experimental value

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	BCFWIN	160 - 263			Estimated value

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 107		3.77	20 °C	Experimental value

1,6-bis(2,3-epoxypropoxy)hexane

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF		3.57; Similar product		Pisces	QSAR

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 107	Similar product	0.822	20 °C	Experimental value

Conclusion

Does not contain bioaccumulative component(s)

12.4. Mobility in soil

bis-[4-(2,3-epoxipropoxi)phenyl]propane

(log) Koc

Parameter	Method	Value	Value determination
log Koc	SRC PCKOCWIN v2.0	2.65	QSAR

formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

(log) Koc

Parameter	Method	Value	Value determination
log Koc	OECD 121	3.65	Experimental value

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

(log) Koc

Parameter	Method	Value	Value determination
log Koc	OECD 121	> 5.63	Experimental value

1,6-bis(2,3-epoxypropoxy)hexane

(log) Koc

Parameter	Method	Value	Value determination
log Koc	OECD 121	2.98	Experimental value

Conclusion

Contains component(s) that adsorb(s) into the soil
Contains component(s) with potential for mobility in the soil

12.5. Results of PBT and vPvB assessment

Does not contain component(s) that meet(s) the criteria of PBT and/or vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006.

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties

12.7. Other adverse effects

TWINBOND SIP 2K A

Greenhouse gases

None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

bis-[4-(2,3-epoxipropoxi)phenyl]propane

Groundwater

Groundwater pollutant

1,6-bis(2,3-epoxypropoxy)hexane

Groundwater

Groundwater pollutant

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).
20 01 27* (separately collected fractions (except 15 01): paint, inks, adhesives and resins containing hazardous substances). Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2 Disposal methods

Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

13.1.3 Packaging/Container

European Union

Waste material code packaging (Directive 2008/98/EC).
15 01 10* (packaging containing residues of or contaminated by dangerous substances).

SECTION 14: Transport information

Road (ADR)

14.1. UN number

UN number	3082

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi)phenyl]propane)

14.3. Transport hazard class(es)

Hazard identification number	90
Class	9
Classification code	M6

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	375
Special provisions	601
Limited quantities	Combination packagings: not more than 5 liters per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Rail (RID)

14.1. UN number

UN number	3082

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi)phenyl]propane)

14.3. Transport hazard class(es)

Hazard identification number	90
Class	9
Classification code	M6

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	375
Special provisions	601
Limited quantities	Combination packagings: not more than 5 liters per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Inland waterways (ADN)

14.1. UN number

UN number	3082

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi)phenyl]propane)

14.3. Transport hazard class(es)

Class	9
Classification code	M6

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	375
Special provisions	601
Limited quantities	Combination packagings: not more than 5 liters per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Sea (IMDG/IMSBC)

14.1. UN number

UN number	3082

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi)phenyl]propane)

14.3. Transport hazard class(es)

Class	9

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Marine pollutant	P

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	969
Limited quantities	Combination packagings: not more than 5 liters per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

14.7. Maritime transport in bulk according to IMO instruments

Annex II of MARPOL 73/78	Not applicable, based on available data

Air (ICAO-TI/IATA-DGR)

14.1. UN number

UN number	3082

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi)phenyl]propane)

14.3. Transport hazard class(es)

Class	9

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	A158
Special provisions	A197
Special provisions	A215
Special provisions	A97

Passenger and cargo transport

Limited quantities: maximum net quantity per packaging	30 kg G

SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
10 % - 25 %	

Directive 2012/18/EU (Seveso III)

Threshold values under normal circumstances

Substance or category	Low tier (tonnes)	Top tier (tonnes)	Group	For this substance or mixture the summation rule has to be applied for:
E2 Hazardous to the Aquatic Environment in Category Chronic 2	200	500	None	Eco-toxicity

REACH Annex XVII - Restriction

Contains component(s) subject to restrictions of Annex XVII of Regulation (EC) No 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
· bis-[4-(2,3-epoxipropoxi)phenyl]propane · formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol · oxirane, mono[(C12-14-alkyloxy)methyl] derivs. · 1,6-bis(2,3-epoxypropoxy)hexane	Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.	1. Shall not be used in: — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects, 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they: — can be used as fuel in decorative oil lamps for supply to the general public, and, — present an aspiration hazard and are labelled with H304, 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN). 5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: “Keep lamps filled with this liquid out of the reach of children”; and, by 1 December 2010, “Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life- threatening lung damage”; b) grill lighter fluids, labelled with H304, intended for supply to the general public are

		legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter may lead to life threatening lung damage"; c) lamp oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
· bis-[4-(2,3-epoxipropoxi)phenyl]propane · oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	Substances falling within one or more of the following points: (a) substances classified as any of the following in Part 3 of Annex VI to Regulation (EC) No 1272/2008: — carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, but excluding any such substances classified due to effects only following exposure by inhalation — reproductive toxicant category 1A, 1B or 2 but excluding any such substances classified due to effects only following exposure by inhalation — skin sensitiser category 1, 1A or 1B — skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2 — serious eye damage category 1 or eye irritant category 2 (b) substances listed in Annex II to Regulation (EC) No 1223/2009 of the European Parliament and of the Council (c) substances listed in Annex IV to Regulation (EC) No 1223/2009 for which a condition is specified in at least one of the columns g, h and i of the table in that Annex (d) substances listed in Appendix 13 to this Annex. The ancillary requirements in paragraphs 7 and 8 of column 2 of this entry apply to all mixtures for use for tattooing purposes, whether or not they contain a substance falling within points (a) to (d) of this column of this entry.	Mixtures for tattooing purposes are subject to the restrictions of Regulation (EU) 2020/2081

National legislation Belgium

TWINBOND SIP 2K A

No data available

National legislation The Netherlands

TWINBOND SIP 2K A

Waterbezwaarlijkheid	A (2); Algemene Beoordelingsmethodiek (ABM)

National legislation France

TWINBOND SIP 2K A

No data available

National legislation Germany

TWINBOND SIP 2K A

WGK	2; Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV) - 18. April 2017

bis-[4-(2,3-epoxipropoxi)phenyl]propane

TA-Luft	5.2.5/I

formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

TA-Luft	5.2.5/I

oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

TA-Luft	5.2.5/I

1,6-bis(2,3-epoxypropoxy)hexane

TA-Luft	5.2.5

National legislation Austria

TWINBOND SIP 2K A

No data available

National legislation United Kingdom

TWINBOND SIP 2K A

No data available

Other relevant data

TWINBOND SIP 2K A

No data available

bis-[4-(2,3-epoxipropoxi)phenyl]propane

IARC - classification	3; Bisphenol a diglycidyl ether

15.2. Chemical safety assessment

No chemical safety assessment has been conducted for the mixture.

SECTION 16: Other information

Full text of any H- and EUH-statements referred to under section 3:

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

(*)	INTERNAL CLASSIFICATION BY BIG
ADI	Acceptable daily intake
AOEL	Acceptable operator exposure level
ATE	Acute Toxicity Estimate
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
NOAEC/NOAEL	No Observed Adverse Effect Concentration/No Observed Adverse Effect Level
NOEC/NOEL	No Observed Effect Concentration/No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration
STP	Sludge Treatment Process
vPvB	very Persistent & very Bioaccumulative

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union, Switzerland, Iceland, Norway and Liechtenstein. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.