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SEC	TION 1	. IDENTIFICATION				
	Product name		: EPIBOND® 1	: EPIBOND® 1534 B US		
I	Manufacturer or supplier's details					
Company name of supplier Address		 P.O. Box 4980 The Woodlands, TX 77387 United States of America (USA) 				
	Telephone		: Non-Emergen	: Non-Emergency: (800) 257-5547		
	E-mail address of person responsible for the SDS		: Global_Produc	: Global_Product_EHS_AdMat@huntsman.com		
	Emerge	ency telephone number	: Chemtrec: (80	00) 424-9300 or (703) 527-3887		
-	Recommended use of the chem Recommended use :		nemical and restric : Hardener	ctions on use		

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200				
Skin irritation	: Category 2			
Serious eye damage	: Category 1			
Skin sensitisation	: Category 1			
Short-term (acute) aquatic hazard	: Category 2			
Long-term (chronic) aquatic hazard	: Category 2			
GHS label elements				
Hazard pictograms				
Signal word	: Danger			
Hazard statements	 H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H411 Toxic to aquatic life with long lasting effects. 			
Precautionary statements	: Prevention:			





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		P264 Wash s P272 Contam the workplace P273 Avoid re P280 Wear pr Response: P302 + P352 P305 + P351 water for seve and easy to d CENTER/doct P333 + P313 attention. P362 Take off P391 Collect s Storage: Not available Disposal: P501 Dispose	elease to the environment. rotective gloves/ eye protection/ face protection. IF ON SKIN: Wash with plenty of soap and water. + P338 + P310 IF IN EYES: Rinse cautiously with eral minutes. Remove contact lenses, if present to. Continue rinsing. Immediately call a POISON for. If skin irritation or rash occurs: Get medical advice.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	68082-29-1	30 - 50
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	68410-23-1	30 - 50
Triethylenetetramine	112-24-3	2.5 - 3

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice	: Move out of dangerous area.
	Consult a physician.
	Show this safety data sheet to the doctor in attendance.
	Treat symptomatically.
	Get medical attention if symptoms occur.

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lf	inhaled		Print Date 12/10/2019 If inhaled, remove to fresh air. Get medical attention if symptoms occur.	
In	case of skin contact	If on skin, rinse well with w	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.	
In	case of eye contact	: Small amounts splashed in tissue damage and blindner In the case of contact with of water and seek medical Continue rinsing eyes durin Remove contact lenses. Keep eye wide open while If eye irritation persists, cor	ss. eyes, rinse immediately with plenty advice. g transport to hospital. rinsing.	
lf	swallowed	: Keep respiratory tract clear Never give anything by mo If symptoms persist, call a Take victim immediately to	uth to an unconscious person. bhysician.	
ar	ost important symptoms Id effects, both acute and elayed	: None known.		
No	otes to physician	: Treat symptomatically.		

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No hazardous combustion products are known
Specific extinguishing methods	:	No data is available on the product itself.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.



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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling		Do not breathe vapours or spray mist. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
		Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers.
Materials to avoid	:	For incompatible materials please refer to Section 10 of this



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	mmended storage erature	: 36 - 104 °F / 2	- 40 °C
Further information on storage stability		: No decomposi	tion if stored and applied as directed.
		Stable under n	ormal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipme	nt
Respiratory protection	: No personal respiratory protective equipment normally required.
Hand protection	
Remarks	: The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	: Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: amber
Odour	: ammoniacal
Odour Threshold	: No data is available on the product itself.
рН	: No data is available on the product itself.
Melting point/freezing point	: No data available
Boiling point/boiling range	: No information available.
Flash point	: > 559 °F / > 293 °C Method: open cup

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Evap	poration rate	:	< 1		
Flan	nmability (solid, gas)	:	No data is availa	ble on the product itself.	
Flan	nmability (liquids)	:	No data is availa	ble on the product itself.	
	er explosion limit / Upper mability limit	:	No data is availa	ble on the product itself.	
	er explosion limit / Lower mability limit	:	No data is availa	ble on the product itself.	
Vap	our pressure	:	< 1.333 hPa (68	°F / 20 °C)	
Rela	tive vapour density	:	No data is availa	ble on the product itself.	
Rela	ative density	:	No data is availa	ole on the product itself.	
Den	sity	:	ca. 1 g/cm3 (77	°F / 25 °C)	
	ıbility(ies) /ater solubility	:	negligible		
S	olubility in other solvents	:	No data is availa	ble on the product itself.	
	ition coefficient: n-	:	No data is availa	ole on the product itself.	
	nol/water o-ignition temperature	:	No data is availa	ble on the product itself.	
The	mal decomposition	:	No data is availa	ble on the product itself.	
	Accelerating omposition temperature DT)	:	No data is availa	ble on the product itself.	
	cosity iscosity, dynamic	:	2,000 mPa.s		
Exp	losive properties	:	No data is availa	ole on the product itself.	
Oxic	dizing properties	:	No data is availa	ble on the product itself	
Mol	ecular weight	:	No data available		
Part	icle size	:	No data is availa	ble on the product itself.	

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.



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Incom	patible materials	: None known.	
Hazaı produ	rdous decomposition cts	: No hazardous	decomposition products are known.
Hazaı produ	rdous decomposition	: carbon dioxide	
produ		carbon monoxi	de
		Nitrogen oxide	S

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	No data is available on the product itself.
Acute toxicity Acute oral toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	No data available
Acute dermal toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute toxicity (other routes of	:	No data available

administration)

Skin corrosion/irritation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Species: human skin Method: OECD Test Guideline 431 Result: Non-corrosive

Species: human skin Exposure time: 1 h Assessment: Irritating to skin. Method: OECD Test Guideline 439 Result: irritating

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Species: human skin Method: OECD Test Guideline 431 Result: Skin irritation

Triethylenetetramine: Species: Rabbit Assessment: Causes burns.



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Method: OECD Test Guideline 404 Result: Causes burns.

Serious eye damage/eye irritation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Species: Rabbit Result: Severe eye irritation Assessment: Risk of serious damage to eyes. Method: OECD Test Guideline 405

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Species: Rabbit Result: Irreversible effects on the eye Assessment: Corrosive Method: OECD Test Guideline 405

Triethylenetetramine: Species: Rabbit Result: Corrosive Assessment: Corrosive Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Test Type: Local lymph node assay (LLNA) Exposure routes: Skin contact Species: Mouse Method: OECD Test Guideline 429 Result: Probability or evidence of high skin sensitisation rate in humans

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Test Type: Local lymph node assay (LLNA) Exposure routes: Skin Species: Mouse Method: OECD Test Guideline 429 Result: May cause sensitisation by skin contact.

Triethylenetetramine: Exposure routes: Skin Species: Guinea pig Method: OECD Test Guideline 406 Result: May cause sensitisation by skin contact.

Exposure routes: Skin Species: Guinea pig Method: OECD Test Guideline 406 Result: May cause sensitisation by skin contact.

Components:

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Print Date 12/10/201 Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Assessment: May cause an allergic skin reaction. Germ cell mutagenicity Components: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro i test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test system: Human lymphocytes Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 487 Result: negative Test Type: Micronucleus test Test system: Salmonella lyphimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd, dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro i Test Type: Ames test Test system: Salmonella lyphimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd, dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro Components: Triethylenetetramine: Genotoxicity in vitro Components: Triethylenetetramine: Genotoxicity in vitro Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: Fatty acids, C18-unsatd, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: Fatty acids, C18-unsatd, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: Fatty acids, C18-unsatd, dimers, oligomeric reaction products with tall-oil fatty acids and trie	ersion 2	Revision Date: 11/05/2019	SDS Number: 400001012201	Date of last issue: 05/22/2019 Date of first issue: 08/11/2016
Semponents: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro :: Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Micronucleus test Test system: Human lymphocytes Method: OECD Test Guideline 487 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 472 Result: negative <td>triethy</td> <td>lenetetramine:</td> <td>-</td> <td></td>	triethy	lenetetramine:	-	
Semponents: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro :: Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Micronucleus test Test system: Human lymphocytes Method: OECD Test Guideline 487 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 472 Result: negative <td>•</td> <td></td> <td></td> <td></td>	•			
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: : Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Micronucleus test Test system: Muman lymphocytes Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 487 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation Method: OECD Test Guideline 471 Result: negative Triethylenetetramine: : Concentration: 0 - 200 µg/L Metabolic activation: metabolic activation Method: OECD Test Guideline 482 Result: negative Components : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Method: OECD Test Guideline 474 Result: negative Components: : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474				
Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Metabolic activation: negative Method: OECD Test Guideline 471 Result: negative Components: Triethylenetetramine: Genotoxicity in vivo : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474	Fatty triethy	acids, C18-unsatd.,	: Test Type: In v Test system: r Metabolic activ Method: OECE Result: negativ Test Type: Mid Test system: H Metabolic activ Method: OECE	Aitro mammalian cell gene mutation test nouse lymphoma cells vation: with and without metabolic activation D Test Guideline 476 re cronucleus test Human lymphocytes vation: with and without metabolic activation D Test Guideline 487
Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Triethylenetetramine: : Concentration: 0 - 200 µg/L Metabolic activation: negative Method: OECD Test Guideline 482 Result: negative Components: : Concentration: 0 - 200 µg/L Metabolic activation: negative Method: OECD Test Guideline 482 Result: negative Components: : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- Assessment : In vitro tests did not show mutagenic effects	Fatty	acide C18-unsatd	Test system: S Metabolic activ Method: OECI Result: negativ	Salmonella typhimurium ation: with and without metabolic activation D Test Guideline 471 re
Genotoxicity in vitro: Concentration: 0 - 200 μg/L Metabolic activation: negative Method: OECD Test Guideline 482 Result: negativeComponents:Triethylenetetramine: Genotoxicity in vivo: Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negativeComponents:Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- Assessmentin vitro tests did not show mutagenic effects Assessment			: Test Type: Am Test system: S Metabolic activ Method: OECI	hes test Salmonella typhimurium vation: with and without metabolic activation D Test Guideline 471
Triethylenetetramine: Genotoxicity in vivo: Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negativeComponents: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- Assessment: In vitro tests did not show mutagenic effects Assessment	-		Metabolic activ Method: OEC	vation: negative D Test Guideline 482
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- : In vitro tests did not show mutagenic effects Assessment	Trieth	lenetetramine:	Dose: 0 - 600 Method: OEC	mg/kg D Test Guideline 474
Germ cell mutagenicity- : No data available	Fatty triethy Germ	acids, C18-unsatd., lenetetramine: cell mutagenicity-	-	
	Germ	cell mutagenicity-	: No data availal	ble

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Acco	amont		Print Date 12/10/2019
Asse	ssment		
Carci	nogenicity		
Trieth Speci Applic Dose: Frequ Metho	oonents: ylenetetramine: es: Mouse, male cation Route: Dermal 42 mg/kg ency of Treatment: 3 d od: OECD Test Guidelir t: negative		
Applic Expos Dose: Frequ	es: Mouse, male cation Route: Dermal sure time: 104 weeks 16.8 mg/kg ency of Treatment: 3 d od: OECD Test Guidelir	•	
	nogenicity - ssment	: No data availab	le
IARC			his product present at levels greater than or lentified as probable, possible or confirmed by IARC.
ACGI	н		his product present at levels greater than or lentified as a carcinogen or potential GIH.
OSHA	A Contraction of the second seco	No component of t equal to 0.1% is o	this product present at levels greater than or OSHA's list of regulated carcinogens.
NTP			his product present at levels greater than or lentified as a known or anticipated carcinogen
Repro	oductive toxicity		
Comp	oonents:		
Fatty triethy		: Species: Rat, m Application Rou Dose: 0, 100, 3 Frequency of T General Toxicity 1,000 mg/kg bo Method: OECD	ite: Oral 00, 1000 mg/kg bw/d reatment: 7 days/week y - Parent: No observed adverse effect level:
Fatty	acids, C18-unsatd., din	Species: Rat, m Application Rou	

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			Print Date 12/10/2019 body weight D Test Guideline 422 I testing did not show any effects on fertility.
Triethy	onents: lenetetramine: on foetal oment	> 750 mg/kg b Method: OEC Result: No ter Species: Rabb Application Ro General Toxic 125 mg/kg bo Method: OEC	ity Maternal: No observed adverse effect level: oody weight D Test Guideline 414 atogenic effects bit bute: Dermal ity Maternal: No observed adverse effect level:
Reproc Assess	luctive toxicity - sment	: No data availa	ble

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Species: Rat, male and female NOAEL: 1000 mg/kg NOAEL: 1,000 mg/kg Application Route: Oral Exposure time: 14 days Number of exposures: Once daily Dose: 0, 100, 300, 1000 mg/kg bw/d Group: yes Method: OECD Test Guideline 422 Target Organs: Liver

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Species: Rat, male and female NOAEL: 1000 mg/kg Application Route: Ingestion Exposure time: 6 Weeks Number of exposures: 7 d Method: Subchronic toxicity



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Triethylenetetramine: Species: Rat, male and female NOAEL: 50 mg/kg/d Application Route: Ingestion Exposure time: 26 Weeks Number of exposures: 7 d Method: Subchronic toxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and
triethylenetetramine:Repeated dose toxicity -
AssessmentNo adverse effect has been observed in chronic toxicity
tests.

Aspiration toxicity

No data available

Experience with human exposure

General Information:	No data available
Inhalation:	No data available
Skin contact:	No data available
Eye contact:	No data available
Ingestion:	No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:

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Toxic	ity to fish	Exposure time	Print Date 12/10/2019 Janio rerio (zebrafish)): 7.07 mg/l : 96 h) Test Guideline 203
	acids, C18-unsatd., dim ity to fish	: LC50: 7.07 mg Exposure time Test Type: ser Test substance	: 96 h ni-static test
	ylenetetramine: ity to fish	Exposure time Test Type: sta Test substance	tic test
-	oonents:		
triethy Toxic	acids, C18-unsatd., dim ylenetetramine: ity to daphnia and other ic invertebrates	: EC50 (Daphnia Exposure time Test Type: sta	
Toxic	acids, C18-unsatd., dim ity to daphnia and other ic invertebrates	EC50 (Daphnia Exposure time Test Type: sta Test substance	tic test
Toxic	ylenetetramine: ity to daphnia and other ic invertebrates	Exposure time Test Type: sta Test substance	tic test
	oonents:		
triethy	/lenetetramine: ity to algae/aquatic	: EC50 (Selenas Exposure time Test Type: sta Test substance Method: OECE	tic test
		Exposure time Test Type: sta	: 72 h

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:



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Toxici plants	ty to algae/aquatic		ErC50 (Selenastru Exposure time: 72 Test Type: static t Test substance: F Method: OECD Te	test Fresh water
	ylenetetramine: ty to algae/aquatic		ErC50 (Selenastru Exposure time: 72 Test Type: semi-s Test substance: F Method: OECD Te	static test Fresh water
M-Fac toxicit	ctor (Acute aquatic y)	:	No data available	
Toxici toxicit	ty to fish (Chronic y)	:	No data available	
Triethy Toxici aquati	<u>ponents:</u> ylenetetramine: ty to daphnia and other ic invertebrates nic toxicity)		EC10 (Daphnia m Exposure time: 21 Test Type: semi-s Test substance: F Method: OECD Te	static test Fresh water
M-Fac toxicit	ctor (Chronic aquatic ty)	:	No data available	
Fatty a triethy	ponents: acids, C18-unsatd., dime denetetramine: ty to microorganisms	:	EC50 (activated s	
			Exposure time: 3 Test Type: static t Method: OECD Te	test
	acids, C18-unsatd., dime ty to microorganisms	:	eaction products v EC0: > 100 mg/l Method: DIN 3841	with polyethylenepolyamines:
	vlenetetramine: ty to microorganisms		EC50 (activated s Exposure time: 0. Test Type: static t Test substance: F	5 h test
Toxici organi	ty to soil dwelling isms	:	No data available	
Plant	toxicity	:	No data available	
Sedim	nent toxicity	:	No data available	



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	Toxicity organis	y to terrestrial sms	: No data availa	Print Date 12/10/2019 ble
	Ecotox	icology Assessment		
	<u>Compo</u>	onents:		
		cids, C18-unsatd., dim aquatic toxicity		cts with polyethylenepolyamines: las no known ecotoxicological effects.
	Chronic	c aquatic toxicity	: No data availa	ble
	Toxicity	y Data on Soil	: No data availa	ble
		organisms relevant to <i>i</i> ronment	: No data availa	ble
	Persist	ence and degradabi	lity	
	<u>Compo</u>	onents:		
		cids, C18-unsatd., dim enetetramine:	ners, oligomeric read	tion products with tall-oil fatty acids and
	Biodeg	radability	Biodegradatior Exposure time	vated sludge adily biodegradable. n: 0 - 70 %
		cids, C18-unsatd., dim radability	: Inoculum: acti Concentration: Result: Inheren Biodegradation Exposure time	: 9 mg/l htly biodegradable. h: 100 %
		enetetramine: radability	Biodegradatior Exposure time	adily biodegradable. n: 0 %
			Biodegradatior Exposure time	adily biodegradable. n: 20 %
		mical Oxygen d (BOD)	: No data availa	ble
	Chemic (COD)	cal Oxygen Demand	: No data availa	ble

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во	D/COD	: No data available	Print Date 12/10/2019
ThC	DC	: No data available	9
BO	D/ThOD	: No data available	9
Dis (DC	solved organic carbon DC)	: No data available	9
	vsico-chemical novability	: No data available	9
Sta	bility in water	: No data available	9
Pho	otodegradation	: No data available	9
	pact on Sewage atment	: No data available	9
Bio	accumulative potential		
Fat triet Bio	hylenetetramine: accumulation	: Bioconcentration Remarks: Does	on products with tall-oil fatty acids and factor (BCF): 77.4 not bioaccumulate.
	accumulation		factor (BCF): 1.85 - 2.69
	nponents:		
	ty acids, C18-unsatd., dimi	ers, oligomeric reaction	on products with tall-oil fatty acids and
	tition coefficient: n- anol/water	: log Pow: 10.34 Method: OECD	Test Guideline 117
Par	thylenetetramine: tition coefficient: n- anol/water	: log Pow: -2.65 (Method: OECD	68 °F / 20 °C) Test Guideline 117
Мо	bility in soil		
Мо	bility	: No data available	9
<u>Co</u>	<u>nponents:</u>		
Dis	thylenetetramine: tribution among ironmental compartments	: Koc: 1584.9 - 50 Method: OECD	12 Test Guideline 106
Sta	bility in soil	: No data available	9
Oth	er adverse effects		
Env	ironmental fate and	: No data available	9



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D	bathway	/S				Print Date 12/10/2019
	Results of PBT and vPvB assessment		: No	data available		
	Endocri ootentia	ne disrupting I	: No	data available		
	Adsorbed organic bound halogens (AOX)		: No	data available		
н	lazard	ous to the ozone lay	ər			
C	Dzone-I	Depletion Potential	Pr Su Re ma	otection of Strat bstances marks: This pro anufactured with S. Clean Air Ac	R Protection of Enviror cospheric Ozone - CAA oduct neither contains, n a Class I or Class II C t Section 602 (40 CFR	Section 602 Class I nor was DDS as defined by the
		al ecological ion - Product	un	professional ha	hazard cannot be excl ndling or disposal. e with long lasting effe	
	Global warming potential (GWP)		: No	data available		

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	 The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of contents/ container to an approved waste disposal plant.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA UN/ID No.

: UN 3082





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Prop	per shipping name		Print Date 12/10/2019 ally hazardous substance, liquid, n.o.s. TTY ACID (C18) POLYAMIDOAMINE RESIN)
Clas	S	: 9	· · · · · · · · · · · · · · · · · · ·
Pac	king group	: III	
Labe	els	: Class 9 - Mi	scellaneous dangerous substances and articles
Pacl aircr	king instruction (cargo aft)	: 964	
	king instruction senger aircraft)	: 964	
IMD	G		
UN I	number	: UN 3082	
Prop	per shipping name	: ENVIRONMI N.O.S.	ENTALLY HAZARDOUS SUBSTANCE, LIQUID,
-		· ·	TY ACID (C18) POLYAMIDOAMINE RESIN)
Clas	-	: 9	
	king group	: 111	
Labe	eis S Code	: 9 : F-A, S-F	
	ne pollutant	: r-A, S-F : yes	
Ivian		. yes	

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

DOT	Classification
	olassinoution

UN/ID/NA number	: UN 3082
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
	(DIMER FATTY ACID (C18) POLYAMIDOAMINE RESIN)
Class	: 9
Packing group	: III
Labels	: Class 9 - Miscellaneous dangerous substances and articles
ERG Code	: 171
Marine pollutant	: yes(DIMER FATTY ACID (C18) POLYAMIDOAMINE RESIN)

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 311/312 Hazards	:	Skin corrosion or irritation
		Serious eye damage or eye irritation
		Respiratory or skin sensitisation



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SARA	A 313		Print Date 12/10/2019 loes not contain any chemical components with mbers that exceed the threshold (De Minimis)

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

CH INV	: The formulation contains substances listed on the Swiss Inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIOC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.



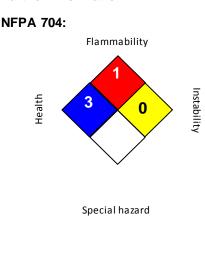
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SECTION 16. OTHER INFORMATION

Further information



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

Revision Date

: 11/05/2019

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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SEC	TION 1	. IDENTIFICATION				
	Produc	t name	:	EPIBOND® 153	4 A US	
	Manufa	acturer or supplier's o	deta	ils		
	Compa Addres	iny name of supplier s	 Huntsman Advanced Materials Americas LLC P.O. Box 4980 The Woodlands, TX 77387 United States of America (USA) 			
	Teleph	one	: Non-Emergency: (800) 257-5547			
		address of person sible for the SDS	:	: Global_Product_EHS_AdMat@huntsman.com		
	Emerge	ency telephone numbe	r :	: Chemtrec: (800) 424-9300 or (703) 527-3887		
	Recom	mended use of the c	hem	ical and restriction	ons on use	
	Recom	mended use	:	: Epoxy constituents		

SECTION 2. HAZARDS IDENTIFICATION

Skin irritation

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

: Category 2

Eye irritation	: Category 2A
Skin sensitisation	: Category 1
Short-term (acute) aquatic hazard	: Category 2
Chronic aquatic toxicity	: Category 2
GHS label elements Hazard pictograms	
Signal word	: Warning
Hazard statements	 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.
Precautionary statements	: Prevention:



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/ersion I.2	Revision Date: 07/21/2021	SDS Number: 400001012200	Date of last issue: 01/11/2017 Date of first issue: 01/09/2017
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		P261 Avoid bre	eathing mist or vapours.
			in thoroughly after handling.
		P272 Contami	nated work clothing must not be allowed out of
		the workplace.	
		P273 Avoid rel	ease to the environment.
		P280 Wear pro	otective gloves/ eye protection/ face protection.
		Response:	
			F ON SKIN: Wash with plenty of soap and water.
			- P338 IF IN EYES: Rinse cautiously with water
			utes. Remove contact lenses, if present and eas
		to do. Continue	
		P333 + P313 li attention.	f skin irritation or rash occurs: Get medical advice
		P337 + P313 li attention.	f eye irritation persists: Get medical advice/
			contaminated clothing and wash before reuse.
		P391 Collect s	
		Storage:	F
		Not available	
		Disposal:	
		P501 Dispose	of contents/container to an approved facility in the local, regional, national and international

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1- phenyleneoxymethylene)]bisoxirane	1675-54-3	70 - 90
1,3-bis(2,3-epoxypropoxy)-2,2- dimethylpropane	17557-23-2	20 - 30

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

SECTION 4. FIRST AID MEASURES

General advice	: Move out of dangerous area. Show this safety data sheet to the doctor in attendance.
	Treat symptomatically.
	Get medical attention if symptoms occur.

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lf i	haled	:	If inhaled, remove Get medical atter	e to fresh air. ntion if symptoms occur.
In	case of skin contact	:	If skin irritation pe If on skin, rinse w If on clothes, rem	
In	case of eye contact	:	Remove contact Keep eye wide op	
lf s	If swallowed		Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.	
an	st important symptoms d effects, both acute and ayed	:	None known.	
Pro	otection of first-aiders	:	and use the record If potential for exp personal protection Avoid inhalation, No action shall be suitable training.	ingestion and contact with skin and eyes. a taken involving any personal risk or without ous to the person providing aid to give
No	tes to physician	:	Treat symptomat	cally.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	Exercise caution when using a high volume water jet as it may scatter and spread fire
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides Halogenated compounds
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.



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	Special protective equipment or firefighters	:	Wear self-contair necessary.	ed breathing apparatus for firefighting if

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers.
Materials to avoid	:	For incompatible materials please refer to Section 10 of this SDS.
Recommended storage temperature	:	36 - 104 °F / 2 - 40 °C

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	er information on ge stability	: Stable under n	ormal conditions.	Print Date 02/08/2022
SECTION	8. EXPOSURE CON	TROLS/PERSONAL P	ROTECTION	
Com	ponents with workpl	ace control paramete	ers	
Conta	ains no substances wi	th occupational exposu	ure limit values.	
Perso	onal protective equip	oment		

Personal protective equip	nent
Respiratory protection	: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
Hand protection	
Material	: butyl-rubber
Break through time	: >8h
Material	: Solvent-resistant gloves (butyl-rubber)
Material	: Nitrile rubber
Break through time	: 10 - 480 min
Remarks	 Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	 Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	 When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

: liquid

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Colour		:	amber		
Odour		:	No data is availa	able on the product itsel	f.
Odour ⁻	Threshold	:	No data is availa	able on the product itsel	f.
pН		:	No data is availa	able on the product itsel	f.
Melting	point/freezing point	:	No data availabl	е	
Boiling	point	:	> 392 °F / > 200	°C	
Flash p	point	:	259 °F / 126 °C Method: closed	cup	
Evapor	ation rate	:	< 1		
Flamma	ability (solid, gas)	:	No data is availa	able on the product itsel	f.
Flamma	ability (liquids)	:	No data is availa	able on the product itsel	f.
	explosion limit / Upper bility limit	:	No data is availa	able on the product itsel	f.
	explosion limit / Lower bility limit	:	No data is availa	able on the product itsel	f.
Vapour	pressure	:	: < 1.333 hPa (68 °F / 20 °C)		
Relative	e vapour density	:	No data is availa	able on the product itsel	f.
Relative	e density	:	1		
Density	1	:	ca. 1 g/cm3 (77	°F / 25 °C)	
Solubili Wate	ity(ies) er solubility	:	slightly soluble		
Solu	bility in other solvents	:	No data is availa	able on the product itsel	f.
Partitio octanol	n coefficient: n-	:	No data is availa	able on the product itsel	f.
	nition temperature	:	No data is availa	able on the product itsel	f.
Therma	al decomposition	:	No data is availa	able on the product itsel	f.
	celerating position temperature)	:	No data is availa	able on the product itsel	f.
Viscosi Visco	ty osity, dynamic	:	1,000 mPa.s		



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Explo	sive properties	: No data is av	ailable on the product itself.
Oxidi	zing properties	: No data is av	ailable on the product itself.
Moleo	cular weight	: No data avail	able
Partic	cle size	: No data is av	ailable on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	carbon dioxide carbon monoxide Halogenated compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of : No data is available on the product itself. exposure

Acute toxicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:				
Acute oral	: LD50 (Rat, female): > 2,000 mg/kg			
toxicityComponents	Method: OECD Test Guideline 420			
	Assessment: The substance or mixture has no acute oral			
	toxicity			
	Remarks: No mortality observed at this dose.			

1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane:			
Acute oral : LD50 (Rat): 4,500 mg/kg			
toxicityComponents	Assessment: The substance or mixture has no acute oral toxicity		

Acute inhalation toxicity : No data available

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg



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		Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute derma toxicity	
	Acute toxicity (other routes of administration)	: No data available	e

Skin corrosion/irritation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Species: Rabbit Exposure time: 4 h Assessment: Irritating to skin. Method: OECD Test Guideline 404 Result: Irritating to skin.

1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane: Species: Rabbit Result: Irritating to skin.

Serious eye damage/eye irritation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Species: Rabbit Result: Irritating to eyes. Assessment: Irritating to eyes. Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Test Type: Local lymph node assay (LLNA) Exposure routes: Skin Species: Mouse Method: OECD Test Guideline 429 Result: The product is a skin sensitiser, sub-category 1B.

1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane: Exposure routes: Skin Result: May cause sensitisation by skin contact.

Assessment:

No data available

Germ cell mutagenicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:				
Genotoxicity in vitro	: Test Type: In vitro mammalian cell gene mutation test			
	Test system: mouse lymphoma cells			
	Metabolic activation: without metabolic activation			
	Result: positive			
	•			

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		Test system: Sa Metabolic active	
Com	ponents:		
		s(4,1-phenyleneoxyme	
Geno	toxicity in vivo	: Test Type: in vi Species: Mouse Cell type: Germ Application Rou Dose: 3333, 10 Result: negative	e (male) ute: Oral 000 mg/kg
			nale) atic ute: Oral 00,1000 mg/kg bw/day Test Guideline 488
	cell mutagenicity- ssment	: No data availat	le
Carci	nogenicity		
Com	ponents:		
Speci Applio Expose Dose Frequ	(1-methylethylidene)bi ies: Rat, male cation Route: Oral sure time: 24 month(s : 0, 2, 15, or 100 mg/k uency of Treatment: 7 EL: 15 mg/kg bw/day	g bw/day	ethylene)]bisoxirane:
Resu	od: OECD Test Guide lt: negative et Organs: Digestive o		
Applio Expos Dose Frequ	ies: Mouse, male cation Route: Dermal sure time: 24 month(s : 0, 0.1, 10, 100 mg/kg uency of Treatment: 3 _: 0.1 mg/kg body wei	g bw/day days/week	
Resu	od: OECD Test Guide lt: negative et Organs: Digestive o		
Speci	ies: Rat, female		

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Application Route: Dermal Exposure time: 24 month(s)

Dose: 0.1, 100, 1000 mg/kg bw/day

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Frequency of Treatment: 5 days/week NOEL: 100 mg/kg body weight Method: OECD Test Guideline 453 **Result:** negative Species: Rat, female **Application Route: Oral** Exposure time: 24 month(s) Dose: 0, 2, 15, or 100 mg/kg bw/day Frequency of Treatment: 7 days/week NOAEL: 100 mg/kg bw/day Method: OECD Test Guideline 453 **Result:** negative Target Organs: Digestive organs Species: Rat. females Application Route: Oral Exposure time: 24 month(s) Dose: 0, 2, 15, or 100 mg/kg bw/day Frequency of Treatment: 7 days/week NOEL: 2 mg/kg bw/day Method: OECD Test Guideline 453 **Result:** negative Target Organs: Digestive organs Carcinogenicity -: No data available Assessment IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. No component of this product present at levels greater than or **OSHA** equal to 0.1% is on OSHA's list of regulated carcinogens. NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. **Reproductive toxicity**

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Effects on fertility : Test Type: Two-generation study Species: Rat, male and female Application Route: Oral

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ersion 2	Revision Date:	SDS Number:	Data af last is a 04/44/0047
_	07/21/2021	400001012200	Date of last issue: 01/11/2017 Date of first issue: 01/09/2017
		Duration of Sin Frequency of T General Toxicit mg/kg body we General Toxicit body weight Symptoms: No	Print Date 02/08/20 30, 540 or 750 milligram per kilogram gle Treatment: 238 d reatment: 1 daily ty - Parent: No-observed-effect level: 540 ight ty F1: No-observed-effect level: 750 mg/kg adverse effects 0 Test Guideline 416
2,2'-[(1		Result: No effe development w s(4,1-phenyleneoxyme	cts on fertility and early embryonic ere detected. ethylene)]bisoxirane:
	s on foetal opment	Duration of Sin Frequency of T General Toxicit 30 mg/kg body	ute: Dermal 0 or 300 milligram per kilogram gle Treatment: 28 d reatment: 1 daily ry Maternal: No observed adverse effect level: weight Toxicity: No observed adverse effect level: y weight guidelines
		Duration of Sin Frequency of T General Toxicit 60 mg/kg body Developmental 180 mg/kg bod	it, female ute: Oral 0 or 180 milligram per kilogram gle Treatment: 13 d reatment: 1 daily ry Maternal: No observed adverse effect level: weight Toxicity: No observed adverse effect level: y weight Test Guideline 414
		Duration of Sin Frequency of T General Toxicit 180 mg/kg bod Developmental 540 mg/kg bod	emale ute: Oral 30 and 540 milligram per kilogram gle Treatment: 10 d Treatment: 1 daily ty Maternal: No observed adverse effect level: y weight Toxicity: No observed adverse effect level: > y weight Test Guideline 414



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STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Species: Rat, male and female NOAEL: 50 mg/kg Application Route: oral (gavage) Exposure time: 14 Weeks Number of exposures: 7 d Dose: 0, 50, 250, 1000 mg/kg/day Method: OECD Test Guideline 408

Species: Rat, male and female NOAEL: >= 10 mg/kg Application Route: Skin contact Exposure time: 13 Weeks Number of exposures: 5 d Dose: 0, 10, 100, 1000 mg/kg/day Method: OECD Test Guideline 411

Species: Mouse, male NOAEL: 100 mg/kg Application Route: Skin contact Exposure time: 13 Weeks Number of exposures: 3 d Dose: 0, 1, 10, 100 mg/kg/day Method: OECD Test Guideline 411

Repeated dose toxicity - : No data available Assessment

Aspiration toxicity

No data available

Experience with human exposure

General Information:	No data available
Inhalation:	No data available
Skin contact:	No data available
Eye contact:	No data available
Ingestion:	No data available

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Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion:

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

<u>Components:</u>	
2,2'-[(1-methylethylidene)bis(4,1-	phenyleneoxymethylene)]bisoxirane:
Toxicity to fish :	LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l Exposure time: 96 h Method: OECD Test Guideline 203

Method: OECD Test Guideline 202

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Toxicity to daphnia and other aquatic invertebrates EC50 (Daphnia magna (Water flea)): 1.8 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water

Components:

	 -phenyleneoxymethylene)]bisoxirane: EC50: 11 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009 NOEC: 4.2 mg/l Exposure time: 72 h Test Type: static test Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009
M-Factor (Acute aquatic : toxicity)	No data available
Toxicity to fish (Chronic : toxicity)	No data available

Components:

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Toxic aqua	(1-methylethylidene)bis(city to daphnia and other tic invertebrates onic toxicity)	: NOEC (Daphnia Exposure time: Test Type: sem Test substance	a magna (Water flea)): 0.3 mg/l 21 d i-static test
M-Fa toxici	actor (Chronic aquatic ity)	: No data availab	le
2,2'-[ponents: (1-methylethylidene)bis(city to microorganisms		sludge): > 100 mg/l 3 h c test
	city to soil dwelling nisms	: No data availab	le
Plant	toxicity	: No data availab	le
Sedir	ment toxicity	: No data availab	le
	city to terrestrial nisms	: No data availab	le
	oxicology Assessment e aquatic toxicity	: No data availab	le
	ponents:		
	(1-methylethylidene)bis(nic aquatic toxicity		thylene)]bisoxirane: life with long lasting effects.
Toxic	city Data on Soil	: No data availab	le
	r organisms relevant to nvironment	: No data availab	le
Pers	istence and degradabil	ity	
<u>Com</u>	ponents:		
	(1-methylethylidene)bis(egradability	: Test Type: aero Inoculum: activa Concentration: a Result: Not read Biodegradation: Exposure time:	bic ated sludge, non-adapted 20 mg/l dily biodegradable. 5 %
	nemical Oxygen and (BOD)	: No data availab	le

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rsion	Revision Date: 07/21/2021	SDS Number: 400001012200	Date of last issue: 01/11/2017 Date of first issue: 01/09/2017
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Chemi (COD)	ical Oxygen Demand)	: No data availabl	e
BOD/0	COD	: No data availabl	e
ThOD		: No data availabl	e
BOD/1	ΓhOD	: No data availabl	e
Dissol (DOC)	ved organic carbon	: No data availabl	e
Physic remov	co-chemical ability	: No data availabl	e
2,2'-[(2	o onents: 1-methylethylidene)bis ty in water	: Degradation half	f life(DT50): 4.83 d (77 °F / 25 °C) pH: 4 Test Guideline 111
			f life(DT50): 7.1 d (77 °F / 25 °C) pH: 9 Test Guideline 111 water
			f life(DT50): 3.58 d (77 °F / 25 °C) pH: 7 Test Guideline 111 water
Photo	degradation	: No data availabl	e
Impac Treatn	t on Sewage nent	: No data availabl	e
Bioac	cumulative potential		
<u>Comp</u>	onents:		
	1-methylethylidene)bis cumulation	: Bioconcentration	
<u>Comp</u>	onents:		
Partitio	1-methylethylidene)bis on coefficient: n- bl/water	: log Pow: 3.242 (pH: 7.1	77 °F / 25 °C)
		ivietnoa: OECD	Test Guideline 117
Mobili	ity in soil	: No data availabl	

2,2'-[(1-methylethylidene) bis (4,1-phenylene oxymethylene)] bis oxirane:



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enviro	oution among nmental compartments ty in soil	: Koc: 445 : No data available	Print Date 02/08/2022
	adverse effects onmental fate and ays	: No data available	
	ts of PBT and vPvB sment	: No data available	
Endoc potent	crine disrupting tial	: No data available	
	bed organic bound ens (AOX)	: No data available	
Hazar	dous to the ozone lay	r	
Ozone	e-Depletion Potential	 Regulation: 40 CFR Protection of Enviro Protection of Stratospheric Ozone - CAA Substances Remarks: This product neither contains, manufactured with a Class I or Class II O U.S. Clean Air Act Section 602 (40 CFR B). 	Section 602 Class I nor was DDS as defined by the
	onal ecological ation - Product	: An environmental hazard cannot be excl unprofessional handling or disposal. Toxic to aquatic life with long lasting effe	
Globa (GWP	l warming potential	: No data available	

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	Dispose of contents and container in accordance with all local, regional, national and international regulations. Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container.
Contaminated packaging	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR UN/ID No.

: UN 3082

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Prope	r shipping name	:	Environmentally h (BISPHENOL A	nazardous substance, liquid, n.o.s. EPOXY RESIN)
Class		:	9	
Packi	ng group	:	III	
Labels	3	:	Miscellaneous	
Packi aircra	ng instruction (cargo ft)	:	964	
Packing instruction (passenger aircraft)		:	964	
Environmentally hazardous		:	yes	
IMDG	-Code			
UN nu		:	UN 3082	
Proper shipping name		:	N.O.S.	ALLY HAZARDOUS SUBSTANCE, LIQUID,
Class			(BISPHENOL A E 9	FOAT RESIN)
	ng group	:	9 	
Label		:	9	
Eaber		:	F-A, S-F	
	e pollutant	÷	yes	
	•		•	

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

49 CFR

49 CFK		
UN/ID/NA number	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(BISPHENOL A EPOXY RESIN)
Remarks	:	Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to
		facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

Remarks	: 49CFR: no dangerous good in non-bulk packa	iging
---------	--	-------

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 311/312 Hazards : Respiratory or skin sensitisation Skin corrosion or irritation Serious eye damage or eye irritation

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SARA 313

: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

WARNING: This product can expose you to chemicals including 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

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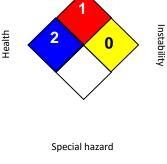
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SECTION 16. OTHER INFORMATION

Further information





HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

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: 07/21/2021

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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SEC	TION 1	. IDENTIFICATION				
	Product name		:	EPIBOND® 153	4 A US	
	Manufa	acturer or supplier's o	deta	ils		
	Company name of supplier Address			 Huntsman Advanced Materials Americas LLC P.O. Box 4980 The Woodlands, TX 77387 United States of America (USA) 		
	Telephone		:	: Non-Emergency: (800) 257-5547		
	E-mail address of person responsible for the SDS		:	: Global_Product_EHS_AdMat@huntsman.com		
	Emergency telephone number		r :	: Chemtrec: (800) 424-9300 or (703) 527-3887		
	Recom	mended use of the c	hem	ical and restriction	ons on use	
	Recommended use			Epoxy constituents		

SECTION 2. HAZARDS IDENTIFICATION

Skin irritation

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

: Category 2

Eye irritation	: Category 2A
Skin sensitisation	: Category 1
Short-term (acute) aquatic hazard	: Category 2
Chronic aquatic toxicity	: Category 2
GHS label elements Hazard pictograms	
Signal word	: Warning
Hazard statements	 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.
Precautionary statements	: Prevention:



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		P261 Avoid bre	eathing mist or vapours.
			in thoroughly after handling.
		P272 Contami	nated work clothing must not be allowed out of
		the workplace.	
		P273 Avoid rel	ease to the environment.
		P280 Wear pro	otective gloves/ eye protection/ face protection.
		Response:	
			F ON SKIN: Wash with plenty of soap and water.
			- P338 IF IN EYES: Rinse cautiously with water
			utes. Remove contact lenses, if present and eas
		to do. Continue	
		P333 + P313 li attention.	f skin irritation or rash occurs: Get medical advice
		P337 + P313 li attention.	f eye irritation persists: Get medical advice/
			contaminated clothing and wash before reuse.
		P391 Collect s	
		Storage:	F
		Not available	
		Disposal:	
		P501 Dispose	of contents/container to an approved facility in the local, regional, national and international

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1- phenyleneoxymethylene)]bisoxirane	1675-54-3	70 - 90
1,3-bis(2,3-epoxypropoxy)-2,2- dimethylpropane	17557-23-2	20 - 30

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

SECTION 4. FIRST AID MEASURES

General advice	: Move out of dangerous area. Show this safety data sheet to the doctor in attendance.
	Treat symptomatically.
	Get medical attention if symptoms occur.

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lf i	haled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.		
In case of skin contact		:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.		
In case of eye contact		:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.		
lf s	If swallowed		Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.		
an	Most important symptoms and effects, both acute and delayed		None known.		
Protection of first-aiders		:	First Aid responders should pay attention to self-protection and use the recommended protective clothing If potential for exposure exists refer to Section 8 for specif personal protective equipment. Avoid inhalation, ingestion and contact with skin and eyes No action shall be taken involving any personal risk or with suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.		
No	tes to physician	:	Treat symptomat	cally.	

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	Exercise caution when using a high volume water jet as it may scatter and spread fire
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides Halogenated compounds
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.



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Special protective equipment for firefighters		:	Wear self-contair necessary.	ed breathing apparatus for firefighting if

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers.
Materials to avoid	:	For incompatible materials please refer to Section 10 of this SDS.
Recommended storage temperature	:	36 - 104 °F / 2 - 40 °C

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	er information on ge stability	: Stable under n	ormal conditions.	Print Date 02/08/2022
SECTION	8. EXPOSURE CON	TROLS/PERSONAL P	ROTECTION	
Com	ponents with workpl	ace control paramete	ers	
Conta	ains no substances wi	th occupational exposu	ure limit values.	
Perso	onal protective equip	oment		

Personal protective equip	nent
Respiratory protection	: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
Hand protection	
Material	: butyl-rubber
Break through time	: >8h
Material	: Solvent-resistant gloves (butyl-rubber)
Material	: Nitrile rubber
Break through time	: 10 - 480 min
Remarks	 Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	 Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	 When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

: liquid

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Colour		:	amber		
Odour		:	No data is availa	able on the product itsel	f.
Odour ⁻	Threshold	:	No data is availa	able on the product itsel	f.
pН		:	No data is availa	able on the product itsel	f.
Melting	point/freezing point	:	No data availabl	е	
Boiling	point	:	> 392 °F / > 200	°C	
Flash p	point	:	259 °F / 126 °C Method: closed	cup	
Evapor	ation rate	:	< 1		
Flamma	ability (solid, gas)	:	No data is availa	able on the product itsel	f.
Flamma	ability (liquids)	:	No data is availa	able on the product itsel	f.
	explosion limit / Upper bility limit	:	No data is availa	able on the product itsel	f.
	explosion limit / Lower bility limit	:	No data is availa	able on the product itsel	f.
Vapour	pressure	:	< 1.333 hPa (68	°F / 20 °C)	
Relative	e vapour density	:	No data is availa	able on the product itsel	f.
Relative	e density	:	1		
Density	1	:	ca. 1 g/cm3 (77	°F / 25 °C)	
Solubili Wate	ity(ies) er solubility	:	slightly soluble		
Solu	bility in other solvents	:	No data is availa	able on the product itsel	f.
Partitio octanol	n coefficient: n-	:	No data is availa	able on the product itsel	f.
	nition temperature	:	No data is availa	able on the product itsel	f.
Therma	al decomposition	:	No data is availa	able on the product itsel	f.
	celerating position temperature)	:	No data is availa	able on the product itsel	f.
Viscosi Visco	ty osity, dynamic	:	1,000 mPa.s		



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Explo	sive properties	: No data is av	ailable on the product itself.
Oxidi	zing properties	: No data is av	ailable on the product itself.
Moleo	cular weight	: No data avail	able
Partic	cle size	: No data is av	ailable on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	carbon dioxide carbon monoxide Halogenated compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of : No data is available on the product itself. exposure

Acute toxicity

Components:

2,2'-[(1-methylethylidene)bis(4	1,1-phenyleneoxymethylene)]bisoxirane:		
Acute oral	: LD50 (Rat, female): > 2,000 mg/kg		
toxicityComponents	Method: OECD Test Guideline 420		
	Assessment: The substance or mixture has no acute oral		
toxicity			
	Remarks: No mortality observed at this dose.		

1,3-bis(2,3-epoxypropoxy)-2,2-c	limethylpropane:
Acute oral	: LD50 (Rat): 4,500 mg/kg
toxicityComponents	Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : No data available

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg



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			Test Guideline 402 e substance or mixture has no acute dermal
	Acute toxicity (other routes of administration)	: No data available	e

Skin corrosion/irritation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Species: Rabbit Exposure time: 4 h Assessment: Irritating to skin. Method: OECD Test Guideline 404 Result: Irritating to skin.

1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane: Species: Rabbit Result: Irritating to skin.

Serious eye damage/eye irritation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Species: Rabbit Result: Irritating to eyes. Assessment: Irritating to eyes. Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Test Type: Local lymph node assay (LLNA) Exposure routes: Skin Species: Mouse Method: OECD Test Guideline 429 Result: The product is a skin sensitiser, sub-category 1B.

1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane: Exposure routes: Skin Result: May cause sensitisation by skin contact.

Assessment:

No data available

Germ cell mutagenicity

Components:

2,2'-[(1-methylethylidene)k	bis(4,1-phenyleneoxymethylene)]bisoxirane:
Genotoxicity in vitro	: Test Type: In vitro mammalian cell gene mutation test
	Test system: mouse lymphoma cells
	Metabolic activation: without metabolic activation
	Result: positive
	•

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		Test system: Sa Metabolic active	
Com	ponents:		
		s(4,1-phenyleneoxyme	
Geno	toxicity in vivo	: Test Type: in vi Species: Mouse Cell type: Germ Application Rou Dose: 3333, 10 Result: negative	e (male) ute: Oral 000 mg/kg
			nale) atic ute: Oral 00,1000 mg/kg bw/day Test Guideline 488
	cell mutagenicity- ssment	: No data availat	le
Carci	nogenicity		
Com	ponents:		
Speci Applio Expose Dose Frequ	(1-methylethylidene)bi ies: Rat, male cation Route: Oral sure time: 24 month(s : 0, 2, 15, or 100 mg/k uency of Treatment: 7 EL: 15 mg/kg bw/day	g bw/day	ethylene)]bisoxirane:
Resu	od: OECD Test Guide lt: negative et Organs: Digestive o		
Applio Expos Dose Frequ	ies: Mouse, male cation Route: Dermal sure time: 24 month(s : 0, 0.1, 10, 100 mg/kg uency of Treatment: 3 _: 0.1 mg/kg body wei	g bw/day days/week	
Resu	od: OECD Test Guide lt: negative et Organs: Digestive o		
Speci	ies: Rat, female		

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Application Route: Dermal Exposure time: 24 month(s)

Dose: 0.1, 100, 1000 mg/kg bw/day

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Frequency of Treatment: 5 days/week NOEL: 100 mg/kg body weight Method: OECD Test Guideline 453 **Result:** negative Species: Rat, female **Application Route: Oral** Exposure time: 24 month(s) Dose: 0, 2, 15, or 100 mg/kg bw/day Frequency of Treatment: 7 days/week NOAEL: 100 mg/kg bw/day Method: OECD Test Guideline 453 **Result:** negative Target Organs: Digestive organs Species: Rat. females Application Route: Oral Exposure time: 24 month(s) Dose: 0, 2, 15, or 100 mg/kg bw/day Frequency of Treatment: 7 days/week NOEL: 2 mg/kg bw/day Method: OECD Test Guideline 453 **Result:** negative Target Organs: Digestive organs Carcinogenicity -: No data available Assessment IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. No component of this product present at levels greater than or **OSHA** equal to 0.1% is on OSHA's list of regulated carcinogens. NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. **Reproductive toxicity**

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Effects on fertility : Test Type: Two-generation study Species: Rat, male and female Application Route: Oral

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Dose: 0, 50, 180, 540 or 750 milligram per kilogra Duration of Single Treatment: 1 daily General Toxicity - Parent: No-observed-effect lev mg/kg body weight General Toxicity F1: No-observed-effect level: 75 body weight Symptoms: No adverse effects Method: OECD Test Guideline 416 Result: No effects on fertility and early embryonic development were detected. Zomponents: 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Effects on foetal : Species: Rabbit, female development Application Route: Dermal Dose: 0, 30, 100 or 300 milligram per kilogram Duration of Single Treatment: 28 d Frequency of Treatment: 1 daily General Toxicity Maternal: No observed adverse a0 mg/kg body weight Developmental Toxicity: No observed adverse eff 300 mg/kg body weight Developmental Toxicity: No teratogenic effects Test Type: Pre-natal Species: Rabbit, female Application Route: Oral Dose: 0, 20, 60 or 180 milligram per kilogram Duration of Single Treatment: 13 d Frequency of Treatment: 13 d Frequency of Treatment: 14 ally G	
Dose: 0, 50, 180, 540 or 750 milligram per kilogra Duration of Single Treatment: 238 d Frequency of Treatment: 1 daily General Toxicity - Parent: No-observed-effect lev mg/kg body weight General Toxicity F1: No-observed-effect level: 75 body weight Symptoms: No adverse effects Method: OECD Test Guideline 416 Result: No effects on fertility and early embryonic development development Species: Rabbit, female development Application Route: Dermal Dose: 0, 30, 100 or 300 milligram per kilogram Duration of Single Treatment: 28 d Frequency of Treatment: 1 daily General Toxicity Maternal: No observed adverse a0 mg/kg body weight Developmental Toxicity: No observed adverse eff 300 mg/kg body weight Developmental Toxicity: No teratogenic effects Test Type: Pre-natal Species: Rabbit, female Application Route: Oral Dose: 0, 20, 60 or 180 milligram per kilogram Duration of Single Treatment: 1 daily General Toxicity Maternal: No observed adverse eff 300 mg/kg body weight Method: Other guidelines <	
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Effects on foetal : Species: Rabbit, female development Application Route: Dermal Dose: 0, 30, 100 or 300 milligram per kilogram Duration of Single Treatment: 28 d Frequency of Treatment: 1 daily General Toxicity Maternal: No observed adverse 30 mg/kg body weight Developmental Toxicity: No observed adverse eff 300 mg/kg body weight Method: Other guidelines Result: No teratogenic effects Test Type: Pre-natal Species: Rabbit, female Application Route: Oral Dose: 0, 20, 60 or 180 milligram per kilogram Duration of Single Treatment: 13 d Frequency of Treatment: 1 daily General Toxicity Maternal: No observed adverse 60 mg/kg body weight	vel: 540 50 mg/kg
Species: Rabbit, female Application Route: Oral Dose: 0, 20, 60 or 180 milligram per kilogram Duration of Single Treatment: 13 d Frequency of Treatment: 1 daily General Toxicity Maternal: No observed adverse 60 mg/kg body weight	
Developmental Toxicity: No observed adverse eff 180 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects	
Test Type: Pre-natal Species: Rat, female Application Route: Oral Dose: 0, 60, 180 and 540 milligram per kilogram Duration of Single Treatment: 10 d Frequency of Treatment: 1 daily General Toxicity Maternal: No observed adverse 180 mg/kg body weight Developmental Toxicity: No observed adverse eff 540 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects	effect level:



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STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Species: Rat, male and female NOAEL: 50 mg/kg Application Route: oral (gavage) Exposure time: 14 Weeks Number of exposures: 7 d Dose: 0, 50, 250, 1000 mg/kg/day Method: OECD Test Guideline 408

Species: Rat, male and female NOAEL: >= 10 mg/kg Application Route: Skin contact Exposure time: 13 Weeks Number of exposures: 5 d Dose: 0, 10, 100, 1000 mg/kg/day Method: OECD Test Guideline 411

Species: Mouse, male NOAEL: 100 mg/kg Application Route: Skin contact Exposure time: 13 Weeks Number of exposures: 3 d Dose: 0, 1, 10, 100 mg/kg/day Method: OECD Test Guideline 411

Repeated dose toxicity - : No data available Assessment

Aspiration toxicity

No data available

Experience with human exposure

General Information:	No data available
Inhalation:	No data available
Skin contact:	No data available
Eye contact:	No data available
Ingestion:	No data available

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Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion:

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

<u>Components:</u>	
2,2'-[(1-methylethylidene)bis(4,1-	phenyleneoxymethylene)]bisoxirane:
Toxicity to fish :	LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l Exposure time: 96 h Method: OECD Test Guideline 203

Method: OECD Test Guideline 202

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Toxicity to daphnia and other aquatic invertebrates EC50 (Daphnia magna (Water flea)): 1.8 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water

Components:

	 -phenyleneoxymethylene)]bisoxirane: EC50: 11 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009 NOEC: 4.2 mg/l Exposure time: 72 h Test Type: static test Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009
M-Factor (Acute aquatic : toxicity)	No data available
Toxicity to fish (Chronic : toxicity)	No data available

Components:

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Toxic aqua	(1-methylethylidene)bis(city to daphnia and other tic invertebrates onic toxicity)	: NOEC (Daphnia Exposure time: Test Type: sem Test substance	a magna (Water flea)): 0.3 mg/l 21 d i-static test
M-Fa toxici	actor (Chronic aquatic ity)	: No data availab	le
2,2'-[ponents: (1-methylethylidene)bis(ity to microorganisms		sludge): > 100 mg/l 3 h c test
	city to soil dwelling nisms	: No data availab	le
Plant	toxicity	: No data availab	le
Sedir	ment toxicity	: No data availab	le
	city to terrestrial nisms	: No data availab	le
	oxicology Assessment e aquatic toxicity	: No data availab	le
	ponents:		
	(1-methylethylidene)bis(nic aquatic toxicity		thylene)]bisoxirane: life with long lasting effects.
Toxic	city Data on Soil	: No data availab	le
	r organisms relevant to nvironment	: No data availab	le
Pers	istence and degradabil	ity	
<u>Com</u>	ponents:		
	(1-methylethylidene)bis(egradability	: Test Type: aero Inoculum: activa Concentration: 2 Result: Not read Biodegradation: Exposure time:	bic ated sludge, non-adapted 20 mg/l dily biodegradable. 5 %
	nemical Oxygen and (BOD)	: No data availab	le

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Chemi (COD)	ical Oxygen Demand)	: No data availabl	e
BOD/0	COD	: No data availabl	e
ThOD		: No data availabl	e
BOD/1	ThOD	: No data availabl	e
Dissol (DOC)	ved organic carbon)	: No data availabl	e
Physic remov	co-chemical vability	: No data availabl	e
2,2'-[(2	o <u>onents:</u> 1-methylethylidene)bis ty in water	: Degradation half	f life(DT50): 4.83 d (77 °F / 25 °C) pH: 4 Test Guideline 111
			f life(DT50): 7.1 d (77 °F / 25 °C) pH: 9 Test Guideline 111 water
			f life(DT50): 3.58 d (77 °F / 25 °C) pH: 7 Test Guideline 111 water
Photo	degradation	: No data availabl	e
Impac Treatn	t on Sewage nent	: No data availabl	e
Bioac	cumulative potential		
<u>Comp</u>	onents:		
	1-methylethylidene)bis cumulation	: Bioconcentration	
<u>Comp</u>	oonents:		
Partitio	1-methylethylidene)bis on coefficient: n- bl/water	: log Pow: 3.242 (pH: 7.1	77 °F / 25 °C)
		Method: OECD	Test Guideline 117
Mobili	ity in soil		

2,2'-[(1-methylethylidene) bis (4,1-phenylene oxymethylene)] bis oxirane:



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enviro	oution among nmental compartments ty in soil	Print Date 02/08, : Koc: 445 : No data available	/2022
	adverse effects onmental fate and ays	: No data available	
	ts of PBT and vPvB sment	: No data available	
Endoo potent	crine disrupting tial	: No data available	
	bed organic bound ens (AOX)	: No data available	
Hazar	dous to the ozone lay	er	
Ozone	e-Depletion Potential	 Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App B). 	v the
	onal ecological ation - Product	 An environmental hazard cannot be excluded in the event unprofessional handling or disposal. Toxic to aquatic life with long lasting effects. 	of
Globa (GWP	l warming potential	: No data available	

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	Dispose of contents and container in accordance with all local, regional, national and international regulations. Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container.
Contaminated packaging	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR UN/ID No.

: UN 3082

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Prope	r shipping name	:	Environmentally h (BISPHENOL A	nazardous substance, liquid, n.o.s. EPOXY RESIN)
Class		:	9	
Packi	ng group	:	III	
Labels	3	:	Miscellaneous	
Packi aircra	ng instruction (cargo ft)	:	964	
Packing instruction (passenger aircraft)		:	964	
Enviro	onmentally hazardous	:	yes	
IMDG	-Code			
UN nu		:	UN 3082	
Prope	r shipping name	:	N.O.S.	ALLY HAZARDOUS SUBSTANCE, LIQUID,
Class			(BISPHENOL A E 9	FOAT RESIN)
	ng group	:	9 	
Label		:	9	
Eaber		:	F-A, S-F	
	e pollutant	÷	yes	
	•		•	

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

49 CFR

49 CFK		
UN/ID/NA number	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(BISPHENOL A EPOXY RESIN)
Remarks	:	Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to
		facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

Remarks	: 49CFR: no dangerous good in non-bulk packa	iging
---------	--	-------

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 311/312 Hazards : Respiratory or skin sensitisation Skin corrosion or irritation Serious eye damage or eye irritation

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SARA 313

: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

WARNING: This product can expose you to chemicals including 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

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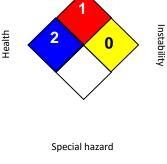
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SECTION 16. OTHER INFORMATION

Further information





HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

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: 07/21/2021

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.



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				Print Date 12/10/2019
SEC	TION 1	. IDENTIFICATION		
Product name : EPIBOND® 1534 B US			534 B US	
I	Manufa	acturer or supplier's d	letails	
	Company name of supplier Address : Huntsman Advanced Materials Americas LLC : P.O. Box 4980 The Woodlands, TX 77387 United States of America (USA)) ds, of America (USA)
	Telephone		: Non-Emergen	cy: (800) 257-5547
	E-mail address of person : Global_Product_EHS_AdMat@huntsman.com responsible for the SDS			ct_EHS_AdMat@huntsman.com
	Emerge	ency telephone number	: Chemtrec: (80	00) 424-9300 or (703) 527-3887
-		mended use of the ch mended use	nemical and restric : Hardener	ctions on use

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200			
Skin irritation	: Category 2		
Serious eye damage	: Category 1		
Skin sensitisation	: Category 1		
Short-term (acute) aquatic hazard	: Category 2		
Long-term (chronic) aquatic hazard	: Category 2		
GHS label elements			
Hazard pictograms			
Signal word	: Danger		
Hazard statements	 H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H411 Toxic to aquatic life with long lasting effects. 		
Precautionary statements	: Prevention:		





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		P264 Wash s P272 Contam the workplace P273 Avoid re P280 Wear pr Response: P302 + P352 P305 + P351 water for seve and easy to d CENTER/doct P333 + P313 attention. P362 Take off P391 Collect s Storage: Not available Disposal: P501 Dispose	elease to the environment. rotective gloves/ eye protection/ face protection. IF ON SKIN: Wash with plenty of soap and water. + P338 + P310 IF IN EYES: Rinse cautiously with eral minutes. Remove contact lenses, if present to. Continue rinsing. Immediately call a POISON for. If skin irritation or rash occurs: Get medical advice.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	68082-29-1	30 - 50
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	68410-23-1	30 - 50
Triethylenetetramine	112-24-3	2.5 - 3

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice	: Move out of dangerous area.
	Consult a physician.
	Show this safety data sheet to the doctor in attendance.
	Treat symptomatically.
	Get medical attention if symptoms occur.

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lf	inhaled	: If inhaled, remove to fresh Get medical attention if syr	
In	case of skin contact	: If skin irritation persists, ca If on skin, rinse well with w If on clothes, remove clothe	ater.
In	case of eye contact	: Small amounts splashed in tissue damage and blindner In the case of contact with of water and seek medical Continue rinsing eyes durin Remove contact lenses. Keep eye wide open while If eye irritation persists, cor	ss. eyes, rinse immediately with plenty advice. g transport to hospital. rinsing.
lf	swallowed	: Keep respiratory tract clear Never give anything by mo If symptoms persist, call a Take victim immediately to	uth to an unconscious person. bhysician.
ar	ost important symptoms Id effects, both acute and elayed	: None known.	
No	otes to physician	: Treat symptomatically.	

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No hazardous combustion products are known
Specific extinguishing methods	:	No data is available on the product itself.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.



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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapours or spray mist. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
		Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers.
Materials to avoid	:	For incompatible materials please refer to Section 10 of this



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	mmended storage erature	: 36 - 104 °F / 2	- 40 °C
Furth	er information on ge stability	: No decomposi	tion if stored and applied as directed.
		Stable under n	ormal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipme	Personal protective equipment				
Respiratory protection	: No personal respiratory protective equipment normally required.				
Hand protection					
Remarks	: The suitability for a specific workplace should be discussed with the producers of the protective gloves.				
Eye protection	: Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.				
Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.				
Hygiene measures	: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.				

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: amber
Odour	: ammoniacal
Odour Threshold	: No data is available on the product itself.
рН	: No data is available on the product itself.
Melting point/freezing point	: No data available
Boiling point/boiling range	: No information available.
Flash point	: > 559 °F / > 293 °C Method: open cup

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Evap	poration rate	:	< 1		
Flan	nmability (solid, gas)	:	No data is availa	ble on the product itself.	
Flan	nmability (liquids)	:	No data is availa	ble on the product itself.	
	er explosion limit / Upper mability limit	:	No data is availa	ble on the product itself.	
	er explosion limit / Lower mability limit	:	No data is availa	ble on the product itself.	
Vap	our pressure	:	< 1.333 hPa (68	°F / 20 °C)	
Rela	tive vapour density	:	No data is availa	ble on the product itself.	
Rela	ative density	:	No data is availa	ole on the product itself.	
Den	sity	:	ca. 1 g/cm3 (77	°F / 25 °C)	
	ıbility(ies) /ater solubility	:	negligible		
S	olubility in other solvents	:	No data is availa	ble on the product itself.	
	ition coefficient: n-	:	No data is availa	ole on the product itself.	
	nol/water o-ignition temperature	:	No data is availa	ble on the product itself.	
The	mal decomposition	:	No data is availa	ble on the product itself.	
	Accelerating omposition temperature DT)	:	No data is availa	ble on the product itself.	
	cosity iscosity, dynamic	:	2,000 mPa.s		
Exp	losive properties	:	No data is availa	ole on the product itself.	
Oxic	dizing properties	:	No data is availa	ble on the product itself	
Mol	ecular weight	:	No data available		
Part	icle size	:	No data is availa	ble on the product itself.	

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.



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Incom	patible materials	: None known.	
Hazaı produ	rdous decomposition cts	: No hazardous	decomposition products are known.
Hazardous decomposition products		: carbon dioxide	
produ		carbon monoxi	de
		Nitrogen oxide	S

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	No data is available on the product itself.
Acute toxicity Acute oral toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	No data available
Acute dermal toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute toxicity (other routes of	:	No data available

administration)

Skin corrosion/irritation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Species: human skin Method: OECD Test Guideline 431 Result: Non-corrosive

Species: human skin Exposure time: 1 h Assessment: Irritating to skin. Method: OECD Test Guideline 439 Result: irritating

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Species: human skin Method: OECD Test Guideline 431 Result: Skin irritation

Triethylenetetramine: Species: Rabbit Assessment: Causes burns.



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Method: OECD Test Guideline 404 Result: Causes burns.

Serious eye damage/eye irritation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Species: Rabbit Result: Severe eye irritation Assessment: Risk of serious damage to eyes. Method: OECD Test Guideline 405

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Species: Rabbit Result: Irreversible effects on the eye Assessment: Corrosive Method: OECD Test Guideline 405

Triethylenetetramine: Species: Rabbit Result: Corrosive Assessment: Corrosive Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Test Type: Local lymph node assay (LLNA) Exposure routes: Skin contact Species: Mouse Method: OECD Test Guideline 429 Result: Probability or evidence of high skin sensitisation rate in humans

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Test Type: Local lymph node assay (LLNA) Exposure routes: Skin Species: Mouse Method: OECD Test Guideline 429 Result: May cause sensitisation by skin contact.

Triethylenetetramine: Exposure routes: Skin Species: Guinea pig Method: OECD Test Guideline 406 Result: May cause sensitisation by skin contact.

Exposure routes: Skin Species: Guinea pig Method: OECD Test Guideline 406 Result: May cause sensitisation by skin contact.

Components:

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Print Date 12/10/201 Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Assessment: May cause an allergic skin reaction. Germ cell mutagenicity Components: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro i test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test system: Human lymphocytes Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 487 Result: negative Test Type: Micronucleus test Test system: Salmonella lyphimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd, dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro i Test Type: Ames test Test system: Salmonella lyphimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd, dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro Components: Triethylenetetramine: Genotoxicity in vitro Components: Triethylenetetramine: Genotoxicity in vitro Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: Fatty acids, C18-unsatd, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: Fatty acids, C18-unsatd, dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: Fatty acids, C18-unsatd, dimers, oligomeric reaction products with tall-oil fatty acids and trie	ersion 2	Revision Date: 11/05/2019	SDS Number: 400001012201	Date of last issue: 05/22/2019 Date of first issue: 08/11/2016
Semponents: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro :: Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Micronucleus test Test system: Human lymphocytes Method: OECD Test Guideline 487 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 472 Result: negative <td>triethy</td> <td>lenetetramine:</td> <td>-</td> <td></td>	triethy	lenetetramine:	-	
Semponents: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Genotoxicity in vitro :: Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Micronucleus test Test system: Human lymphocytes Method: OECD Test Guideline 487 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 471 Result: negative Method: OECD Test Guideline 472 Result: negative <td>•</td> <td></td> <td></td> <td></td>	•			
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: : Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Micronucleus test Test system: Muman lymphocytes Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 487 Result: negative Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation Method: OECD Test Guideline 471 Result: negative Triethylenetetramine: : Concentration: 0 - 200 µg/L Metabolic activation: metabolic activation Method: OECD Test Guideline 482 Result: negative Components : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Method: OECD Test Guideline 474 Result: negative Components: : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474				
Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Metabolic activation: negative Method: OECD Test Guideline 471 Result: negative Components: Triethylenetetramine: Genotoxicity in vivo : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474	Fatty triethy	acids, C18-unsatd.,	: Test Type: In v Test system: r Metabolic activ Method: OECE Result: negativ Test Type: Mid Test system: H Metabolic activ Method: OECE	Aitro mammalian cell gene mutation test nouse lymphoma cells vation: with and without metabolic activation D Test Guideline 476 re cronucleus test Human lymphocytes vation: with and without metabolic activation D Test Guideline 487
Genotoxicity in vitro : Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Triethylenetetramine: : Concentration: 0 - 200 µg/L Metabolic activation: negative Method: OECD Test Guideline 482 Result: negative Components: : Concentration: 0 - 200 µg/L Metabolic activation: negative Method: OECD Test Guideline 482 Result: negative Components: : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Components: : Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negative Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- Assessment : In vitro tests did not show mutagenic effects	Fatty	acide C18-unsatd	Test system: S Metabolic activ Method: OECI Result: negativ	Salmonella typhimurium ation: with and without metabolic activation D Test Guideline 471 re
Genotoxicity in vitro: Concentration: 0 - 200 μg/L Metabolic activation: negative Method: OECD Test Guideline 482 Result: negativeComponents:Triethylenetetramine: Genotoxicity in vivo: Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negativeComponents:Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- Assessmentin vitro tests did not show mutagenic effects Assessment			: Test Type: Am Test system: S Metabolic activ Method: OECI	hes test Salmonella typhimurium vation: with and without metabolic activation D Test Guideline 471
Triethylenetetramine: Genotoxicity in vivo: Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg Method: OECD Test Guideline 474 Result: negativeComponents: Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- Assessment: In vitro tests did not show mutagenic effects Assessment	-		Metabolic activ Method: OEC	vation: negative D Test Guideline 482
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Germ cell mutagenicity- : In vitro tests did not show mutagenic effects Assessment	Trieth	lenetetramine:	Dose: 0 - 600 Method: OEC	mg/kg D Test Guideline 474
Germ cell mutagenicity- : No data available	Fatty triethy Germ	acids, C18-unsatd., lenetetramine: cell mutagenicity-	-	
	Germ	cell mutagenicity-	: No data availal	ble

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Acco	amont		Print Date 12/10/2019
Asse	ssment		
Carci	nogenicity		
Trieth Speci Applic Dose: Frequ Metho	oonents: ylenetetramine: es: Mouse, male cation Route: Dermal 42 mg/kg ency of Treatment: 3 d od: OECD Test Guidelir t: negative		
Applic Expos Dose: Frequ	es: Mouse, male cation Route: Dermal sure time: 104 weeks 16.8 mg/kg ency of Treatment: 3 d od: OECD Test Guidelir	•	
	nogenicity - ssment	: No data availab	le
IARC			his product present at levels greater than or lentified as probable, possible or confirmed by IARC.
ACGI	н		his product present at levels greater than or lentified as a carcinogen or potential GIH.
OSHA	A Contraction of the second seco	No component of t equal to 0.1% is o	this product present at levels greater than or OSHA's list of regulated carcinogens.
NTP			his product present at levels greater than or lentified as a known or anticipated carcinogen
Repro	oductive toxicity		
Comp	oonents:		
Fatty triethy		: Species: Rat, m Application Rou Dose: 0, 100, 3 Frequency of T General Toxicity 1,000 mg/kg bo Method: OECD	ite: Oral 00, 1000 mg/kg bw/d reatment: 7 days/week y - Parent: No observed adverse effect level:
Fatty	acids, C18-unsatd., din	Species: Rat, m Application Rou	

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			Print Date 12/10/2019 body weight D Test Guideline 422 I testing did not show any effects on fertility.
Triethy	onents: lenetetramine: on foetal oment	> 750 mg/kg k Method: OEC Result: No ter Species: Rabk Application Ro General Toxic 125 mg/kg bo Method: OEC	ity Maternal: No observed adverse effect level: oody weight D Test Guideline 414 atogenic effects bit bute: Dermal ity Maternal: No observed adverse effect level:
Reproc Assess	luctive toxicity - sment	: No data availa	ble

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine: Species: Rat, male and female NOAEL: 1000 mg/kg NOAEL: 1,000 mg/kg Application Route: Oral Exposure time: 14 days Number of exposures: Once daily Dose: 0, 100, 300, 1000 mg/kg bw/d Group: yes Method: OECD Test Guideline 422 Target Organs: Liver

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines: Species: Rat, male and female NOAEL: 1000 mg/kg Application Route: Ingestion Exposure time: 6 Weeks Number of exposures: 7 d Method: Subchronic toxicity



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Triethylenetetramine: Species: Rat, male and female NOAEL: 50 mg/kg/d Application Route: Ingestion Exposure time: 26 Weeks Number of exposures: 7 d Method: Subchronic toxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and
triethylenetetramine:Repeated dose toxicity -
AssessmentNo adverse effect has been observed in chronic toxicity
tests.

Aspiration toxicity

No data available

Experience with human exposure

General Information:	No data available
Inhalation:	No data available
Skin contact:	No data available
Eye contact:	No data available
Ingestion:	No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine:

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Toxic	ity to fish	Exposure time	Print Date 12/10/2019 Janio rerio (zebrafish)): 7.07 mg/l : 96 h) Test Guideline 203
	acids, C18-unsatd., dim ity to fish	: LC50: 7.07 mg Exposure time Test Type: ser Test substance	: 96 h ni-static test
	ylenetetramine: ity to fish	Exposure time Test Type: sta Test substance	tic test
-	oonents:		
triethy Toxic	acids, C18-unsatd., dim ylenetetramine: ity to daphnia and other ic invertebrates	: EC50 (Daphnia Exposure time Test Type: sta	
Toxic	acids, C18-unsatd., dim ity to daphnia and other ic invertebrates	EC50 (Daphnia Exposure time Test Type: sta Test substance	tic test
Toxic	ylenetetramine: ity to daphnia and other ic invertebrates	Exposure time Test Type: sta Test substance	tic test
	oonents:		
triethy	/lenetetramine: ity to algae/aquatic	: EC50 (Selenas Exposure time Test Type: sta Test substance Method: OECE	tic test
		Exposure time Test Type: sta	: 72 h

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:



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Toxici plants	ty to algae/aquatic		ErC50 (Selenastru Exposure time: 72 Test Type: static t Test substance: F Method: OECD Te	test Fresh water
	ylenetetramine: ty to algae/aquatic		ErC50 (Selenastru Exposure time: 72 Test Type: semi-s Test substance: F Method: OECD Te	static test Fresh water
M-Fac toxicit	ctor (Acute aquatic y)	:	No data available	
Toxici toxicit	ty to fish (Chronic y)	:	No data available	
Triethy Toxici aquati	<u>ponents:</u> ylenetetramine: ty to daphnia and other ic invertebrates nic toxicity)		EC10 (Daphnia m Exposure time: 21 Test Type: semi-s Test substance: F Method: OECD Te	static test Fresh water
M-Fac toxicit	ctor (Chronic aquatic ty)	:	No data available	
Fatty a triethy	ponents: acids, C18-unsatd., dime denetetramine: ty to microorganisms	:	EC50 (activated s	
			Exposure time: 3 Test Type: static t Method: OECD Te	test
	acids, C18-unsatd., dime ty to microorganisms	:	eaction products v EC0: > 100 mg/l Method: DIN 3841	with polyethylenepolyamines:
	vlenetetramine: ty to microorganisms		EC50 (activated s Exposure time: 0. Test Type: static t Test substance: F	5 h test
Toxici organi	ty to soil dwelling isms	:	No data available	
Plant	toxicity	:	No data available	
Sedim	nent toxicity	:	No data available	



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	city to terrestrial nisms	: No data available	Print Date 12/10/2019
Ecot	oxicology Assessment		
Com	ponents:		
	acids, C18-unsatd., dime e aquatic toxicity		with polyethylenepolyamines: no known ecotoxicological effects.
Chro	nic aquatic toxicity	: No data available	
Toxi	city Data on Soil	: No data available	
	er organisms relevant to environment	: No data available	
Pers	istence and degradabil	ity	
Com	ponents:		
trieth	vacids, C18-unsatd., dim ylenetetramine: egradability	: Test Type: aerob Inoculum: activat Result: Not readi Biodegradation: Exposure time: 7	ed sludge ly biodegradable. 0 - 70 %
	vacids, C18-unsatd., dim egradability	: Inoculum: activat Concentration: 9 Result: Inherently Biodegradation: Exposure time: 7	mg/l / biodegradable. 100 %
Biod	hylenetetramine: egradability hemical Oxygen	Biodegradation: Exposure time: 1 Method: OECD T Inoculum: activat Result: Not readi Biodegradation: Exposure time: 8	ly biodegradable. 0 % 62 d Fest Guideline 301D red sludge ly biodegradable. 20 % 84 d Biodegradability: Modified SCAS Test
	and (BOD)		
Cher (COI	nical Oxygen Demand D)	: No data available	

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BC	DD/COD	: No data available	Print Date 12/10/2019
The	OD	: No data available	
BC)D/ThOD	: No data available	
	ssolved organic carbon OC)	: No data available	
	ysico-chemical novability	: No data available	
Sta	ability in water	: No data available	
Ph	otodegradation	: No data available	
	pact on Sewage eatment	: No data available	
Bio	paccumulative potential		
Fat trie Bic Fat	thylenetetramine: baccumulation	: Bioconcentration Remarks: Does i ers, reaction products	not bioaccumulate. with polyethylenepolyamines: factor (BCF): 1.85 - 2.69
Fat trie Pa	mponents: tty acids, C18-unsatd., dime thylenetetramine: rtition coefficient: n- canol/water	: log Pow: 10.34	n products with tall-oil fatty acids and Fest Guideline 117
Pa	ethylenetetramine: rtition coefficient: n- anol/water	: log Pow: -2.65 (6 Method: OECD 1	8 °F / 20 °C) Fest Guideline 117
Мо	bility in soil		
Mc	bbility	: No data available	
<u>Co</u>	<u>mponents:</u>		
Dis	ethylenetetramine: stribution among vironmental compartments	: Koc: 1584.9 - 50 Method: OECD 1	12 Fest Guideline 106
Sta	ability in soil	: No data available	
Otl	her adverse effects		
En	vironmental fate and	: No data available	



EPIBOND® 1534 B US

Versio 1.2	on	Revision Date: 11/05/2019		lumber: 1012201	Date of last issue: 05/ Date of first issue: 08/	
D	athway	/S				Print Date 12/10/2019
	Results Issessr	of PBT and vPvB ment	: No	data available		
	Endocri otentia	ne disrupting I	: No	data available		
		ed organic bound s (AOX)	: No	data available		
н	lazard	ous to the ozone lay	ər			
C)zone-I	Depletion Potential	Pr Su Re ma	otection of Strat bstances marks: This pro anufactured with S. Clean Air Ac	R Protection of Enviror cospheric Ozone - CAA oduct neither contains, n a Class I or Class II C t Section 602 (40 CFR	Section 602 Class I nor was DDS as defined by the
		al ecological ion - Product	un	professional ha	hazard cannot be excl ndling or disposal. e with long lasting effe	
	GWP)	warming potential	: No	data available		

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	 The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of contents/ container to an approved waste disposal plant.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA UN/ID No.

: UN 3082





Enriching lives through innovation

EPIBOND® 1534 B US

Version 1.2	Revision Date: 11/05/2019	SDS Number: 400001012201	Date of last issue: 05/22/2019 Date of first issue: 08/11/2016
Prop	er shipping name		Print Date 12/10/2019 ally hazardous substance, liquid, n.o.s. TTY ACID (C18) POLYAMIDOAMINE RESIN)
Clas	S	: 9	
Pack	king group	: III	
Labe	ls	: Class 9 - Mis	scellaneous dangerous substances and articles
Pack aircra	king instruction (cargo aft)	: 964	
	king instruction senger aircraft)	: 964	
IMD	G		
UN r	number	: UN 3082	
Prop	er shipping name	: ENVIRONME N.O.S.	ENTALLY HAZARDOUS SUBSTANCE, LIQUID,
			TY ACID (C18) POLYAMIDOAMINE RESIN)
Clas	-	: 9	
	king group	: 111	
Labe	S Code	: 9 : F-A, S-F	
	ne pollutant	: r-A, S-F : yes	
man	io pondunt	. ,00	

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

DOT	Classification
	olassinoution

UN/ID/NA number	: UN 3082
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
	(DIMER FATTY ACID (C18) POLYAMIDOAMINE RESIN)
Class	: 9
Packing group	: III
Labels	: Class 9 - Miscellaneous dangerous substances and articles
ERG Code	: 171
Marine pollutant	: yes(DIMER FATTY ACID (C18) POLYAMIDOAMINE RESIN)

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 311/312 Hazards	:	Skin corrosion or irritation	
		Serious eye damage or eye irritation	
		Respiratory or skin sensitisation	



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Version	Revision Date:	SDS Number:	Date of last issue: 05/22/2019
1.2	11/05/2019	400001012201	Date of first issue: 08/11/2016
			Print Date 12/10/2019 loes not contain any chemical components with mbers that exceed the threshold (De Minimis)

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

CH INV	: The formulation contains substances listed on the Swiss Inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIOC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.



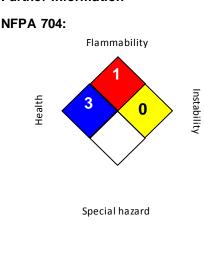
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SECTION 16. OTHER INFORMATION

Further information



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

Revision Date

: 11/05/2019

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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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