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: RENLAM® 1710 US

## **RENLAM® 1710 US**

Version Revision Date: 1.1 11/07/2018

Product name

SDS Number: 400001012656

Date of last issue: 01/19/2018 Date of first issue: 01/19/2018

### SECTION 1. IDENTIFICATION

Manufacturer or supplier's de	tai	ls
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	:	SDS@huntsman.com
Emergency telephone number	:	Chemtrec: (800) 424-9300 or (703) 527-3887

#### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with 29 CFR 1910.1200

Skin irritation		ce with 29 CFR 1910.1200 Category 2
Eye irritation	:	Category 2A
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	:	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: P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P272 Contaminated work clothing should not be allowed out of the workplace.









SAFETY	DATA	SHEET

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		P280 Wear pro <b>Response:</b> P302 + P352 If P305 + P351 + for several min to do. Continue P333 + P313 If attention. P337 + P313 If attention. P362 Take off P391 Collect sp <b>Storage:</b> Not available <b>Disposal:</b> P501 Dispose	skin irritation or rash occurs: Get medical advice, eye irritation persists: Get medical advice/ contaminated clothing and wash before reuse.
Othe	r 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-	1675-54-3	30 - 50
phenyleneoxymethylene)]bisoxirane		
limestone	1317-65-3	30 - 50
Oxirane, mono[(C12-14-alkyloxy)methyl]	68609-97-2	5 - 10
derivs.		
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	3101-60-8	2.5 - 5
titanium dioxide	13463-67-7	1 - 5

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	<ul> <li>Move out of dangerous area.</li> <li>Show this safety data sheet to the doctor in attendance.</li> <li>Treat symptomatically.</li> <li>Get medical attention if symptoms occur.</li> </ul>
If inhaled	: If inhaled, remove to fresh air. Get medical attention if symptoms occur.







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In cas	se of skin contact	If on skin, rins	persists, call a physician. e well with water. emove clothes.
In cas	se of eye contact	Remove conta Protect unharr Keep eye wide	
lf swa	llowed		ry tract clear. ything by mouth to an unconscious person. ersist, call a physician.
	important symptoms ffects, both acute and ed	: None known.	
Notes	to physician	: Treat sympton	natically.

#### 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	:	Carbon oxides Halogenated compounds
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.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions,	:	Use personal protective equipment.
protective equipment and		
emergency procedures		





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Env	rironmental precautions	:		ther lea ict cont	akage or spi aminates riv	g drains. illage if safe to do so. vers and lakes or drains inform
	hods and materials for tainment and cleaning up	:	acid binder	, unive	rsal binder,	material (e.g. sand, silica gel, sawdust). ainers for disposal.
SECTIO	N 7. HANDLING AND ST	OR	AGE			
	rice on protection against and explosion	:	Normal me	asures	for prevent	ive fire protection.
Adv	rice on safe handling	:	Avoid conta For persona Smoking, e application Dispose of regulations Persons su allergies, cl	sure - act with al prote ating a area. rinse v sceptil hronic	obtain speci skin and e action see s nd drinking vater in acco ble to skin so or recurrent	
Cor	nditions for safe storage	:	Containers v upright to pr	which and which and which are a constructed with the second secon	re opened mu	a dry and well-ventilated place. ist be carefully resealed and kept ners.
Fur	ther information on	:	Stable unde	er norn	nal conditior	IS.

#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
limestone	1317-65-3	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA	10 mg/m3 (Titanium dioxide)	ACGIH

Personal protective equipment

storage stability





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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.			
	nd protection marks	: The suitability for a specific workplace should be discussed with the producers of the protective gloves.	I		
Eye	e protection	<ul> <li>Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processir problems.</li> </ul>	ng		
Ski	n and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place	e.		
Hyg	giene 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	:	white, opaque
Odour	:	slight
Odour Threshold	:	No data is available on the product itself.
рН	:	No data is available on the product itself.
Freezing point	:	No data is available on the product itself.
Melting point	:	No data is available on the product itself.
Boiling point	:	No data is available on the product itself.
Flash point	:	293 °F / 145 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.





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Flamn	nability (liquids)	:	No data is availa	ble on the product itself.
	explosion limit / Upper ability limit	:	No data is availa	ble on the product itself.
	explosion limit / Lower ability limit	:	No data is availa	ble on the product itself.
Vapou	ır pressure	:	0.25327 hPa (77	°F / 25 °C)
Relativ	ve vapour density	:	No data is availa	ble on the product itself.
Relativ	ve density	:	1.45	
Densit	ty	:	No data is availa	ble on the product itself.
	ility(ies) ter solubility	:	negligible	
Solu	ubility in other solvents	:	No data is availa	ble on the product itself.
	on coefficient: n- bl/water	:	No data is availa	ble on the product itself.
	gnition temperature	:	No data is availa	ble on the product itself.
Therm	al decomposition	:	No data is availa	ble on the product itself.
	ccelerating nposition temperature T)	:	No data is availa	ble on the product itself.
Viscos	sity	:	No data is availa	ble on the product itself.
Explos	sive properties	:	No data is availa	ble on the product itself.
Oxidiz	ing properties	:	No data is availa	ble on the product itself.
Particl	le size	:	No data is availa	ble on the product itself.

### SECTION 10. STABILITY AND REACTIVITY

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





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	product	is		carbon monoxide	
				Halogenated con	npounds
SEC	TION 1	1. TOXICOLOGICAL	INFO	ORMATION	
	Informa exposu		:	No data is availab	le on the product itself.
	Acute	toxicity			
	Acute of	-methylethylidene)bis(4		LD50 (Rat, female Method: OECD Te	e): > 2,000 mg/kg
	limesto Acute c toxicity		:	LD50 (Rat): 6,450	mg/kg
	Acute of	e, mono[(C12-14-alkylo oral Components		methyl] derivs.: LD50 (Rat, male): Method: Other gu	
	Acute of	utylphenyl 1-(2,3-epox oral Components		LD50 (Rat, female Method: OECD Te	
	Acute of	n dioxide: oral Components	:	LD50 (Rat, female Method: OECD To Assessment: The toxicity	
		onents: e, mono[(C12-14-alkylo nhalation toxicity		methyl] derivs.: LC0 (Rat): > 0.15 Exposure time: 7 Test atmosphere: Method: Other gu	h vapour
		n dioxide: nhalation toxicity	:	LC50 (Rat, male a Exposure time: 4	and female): 3.43 - 5.09 mg/l h





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			Test atmosphe Method: OECD Assessment: T inhalation toxic	Test Guideline he substance o	e 403 r mixture has no acute
	2,2'-[(1	onents: -methylethylidene)bis( <sup>,</sup> dermal toxicity	: LD50 (Rat, mal Method: OECD	e and female): Test Guideline	> 2,000 mg/kg
		e, mono[(C12-14-alkylo dermal toxicity	: (Rabbit, male):		, 4,5 ml/kg r mixture has no acute dermal
		outylphenyl 1-(2,3-epox dermal toxicity	: LD50 (Rat, mal Method: OECD	Test Guideline	
		n dioxide: dermal toxicity	: LD50 Dermal (	Rabbit): > 10,00	00 mg/kg
		oxicity (other routes of stration)	: No data availat	ble	
	Skin c	orrosion/irritation			
	2,2'-[(1 Specie Assess Methoo	onents: -methylethylidene)bis( s: Rabbit ment: Mild skin irritant d: OECD Test Guidelin Irritating to skin.		ethylene)]bisoxi	rane:
	Specie Exposu Methoo	e, mono[(C12-14-alkyle s: Rabbit ure time: 24 h d: Acute Dermal Toxicit Irritating to skin.			
	Specie Assess Method	outylphenyl 1-(2,3-epox s: Rat sment: No skin irritatior d: OECD Test Guidelin No skin irritation	1		





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titanium dioxide: Species: Rabbit Assessment: No skin irritation Method: OECD Test Guideline 404 Result: Normally reversible injuries

#### Serious eye damage/eye irritation

#### Components:

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

limestone: Species: Rabbit Result: Mechanical irritation of the eyes is possible. Assessment: No eye irritation

Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.: Species: Rabbit Result: slight irritation Assessment: No eye irritation Method: OECD Test Guideline 405

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether: Species: Rabbit Result: No eye irritation Assessment: No eye irritation Method: OECD Test Guideline 405

titanium dioxide: Species: Rabbit Result: Normally reversible injuries Assessment: No eye irritation Method: OECD Test Guideline 405

#### Respiratory or skin sensitisation

#### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Exposure routes: Skin Species: Mouse Assessment: May cause sensitisation by skin contact. Method: OECD Test Guideline 429 Result: Causes sensitisation.

limestone: Exposure routes: Skin Species: Guinea pig Method: OECD Test Guideline 406 Result: Does not cause skin sensitisation.

Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.: Test Type: Buehler Test





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Exposure routes: Skin Species: Guinea pig Method: OPPTS 870.2600 Result: May cause sensitisation by skin contact.

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether: Exposure routes: Skin Species: Mouse Method: OECD Test Guideline 429 Result: The product is a skin sensitiser, sub-category 1A.

titanium dioxide: Test Type: Local lymph node assay (LLNA) Exposure routes: Skin Species: Mouse Assessment: Does not cause skin sensitisation. Method: OECD Test Guideline 429 Result: Does not cause skin sensitisation.

Exposure routes: Skin Species: Guinea pig Assessment: Does not cause skin sensitisation. Method: OECD Test Guideline 406 Result: Does not cause skin sensitisation.

#### Components:

titanium dioxide: Assessment: No skin irritation, No eye irritation Does not cause skin sensitisation., Does not cause respiratory sensitisation.

#### Germ cell mutagenicity

#### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: positive

> Concentration: 0 - 5000 ug/plate Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: positive

> Metabolic activation: with and without metabolic activation

Oxirane, mono[(C12-14-alky	/loxy)methyl] derivs.:
Genotoxicity in vitro	: Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: positive
	Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Concentration: 0,5 - 5.000 µg/mL





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			Method: OE Result: neg		st Guideline 47	6
		tylphenyl 1-(2,3-epox icity in vitro	: Test Type: Test system Concentrati Metabolic a Method: OE Result: posi	n: Chine on: 50 ( ctivation CD Test itive	n: negative st Guideline 47	ary cells
			Metabolic a	n: Salm ctivation CD Te:	onella typhimu	hout metabolic activation
	titanium Genotox	dioxide: icity in vitro	Metabolic a	on: 100 ctivatio CD Te	- 200 ug/plate	hout metabolic activation
			Concentrati Metabolic a	on: 31 - ctivatio CD Te	- 500 μg/L	II gene mutation test hout metabolic activation '6
			Concentrati Metabolic a	on: 125 ctivatio CD Te	osome aberrati 5 - 2500 μg/L n: with and with st Guideline 47	hout metabolic activation
		<u>nents:</u> nethylethylidene)bis(4 icity in vivo	: Cell type: G Application	erm Route: CD Te		
			Cell type: S Application Dose: 0 - 50 Method: OF Result: neg	Route: 000 mg PTS 87	/kg	
		mono[(C12-14-alkylc icity in vivo	: Test Type: Species: Me Cell type: B Application	In vivo i ouse (m one ma Route:	micronucleus te nale and female nrow Intraperitoneal hr, 48 hr, and 3	e) Injection





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		Method: OECI Result: negativ	0 Test Guideline 474 /e
	um dioxide: toxicity in vivo	Dose: 0.8, 7.2, Method: OECE Result: negativ Test Type: Mic Species: Rat (i Application Ro Exposure time Dose: 500, 100	e (males) ute: Inhalation : 5 consecutive days and 28.5 mg/m <sup>3</sup> O Test Guideline 474 /e cronucleus test male and female) ute: Oral : once D0, and 2000 mg/kg bw O Test Guideline 474
titaniı Germ	ponents: um dioxide: n cell mutagenicity- ssment		rial or mammalian cell cultures did not show cts., Animal testing did not show any mutagenic
	n cell mutagenicity- ssment	: No data availa	ble

#### Carcinogenicity

#### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane: Species: Rat, male and female Application Route: Oral Exposure time: 24 month(s) Dose: 15 mg/kg Frequency of Treatment: 7 days/week Method: OECD Test Guideline 453 Result: negative

Species: Mouse, male Application Route: Dermal Exposure time: 24 month(s) Dose: 0.1 mg/kg Frequency of Treatment: 3 days/week Method: OECD Test Guideline 453 Result: negative

Species: Rat, female Application Route: Dermal Exposure time: 24 month(s) Dose: 1 mg/kg Frequency of Treatment: 5 days/week





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Method: OECD Test Guideline 453 Result: negative

Date:

titanium dioxide: Species: Rat, male and female Application Route: Oral Exposure time: 103 weeks Dose: 0, 25000, 50000 ppm Frequency of Treatment: 7 days/week NOAEL: > 50.000 ppm

Method: No information available.

Remarks: Titanium Dioxide: based on the results of chronic inhalation studies (with positive results only in a single species - rat), IARC has concluded that: "There is inadequate evidence in humans for the carcinogenicity of titanium dioxide." but that : "There is sufficient evidence in experimental animals for carcinogenicity of titanium dioxide". IARCs overall evaluation was that "titanium dioxide is possibly carcinogenic to humans (Group 2B)."

Huntsman has examined all of the available animal carcinogenicity and mechanistic data together with workplace epidemiology data for titanium dioxide and concludes that the weight of scientific evidence indicates that there is no causative link between titanium dioxide exposure and cancer risk in humans and that workplace exposures in compliance with applicable exposure standards will not result in lung cancer or chronic respiratory diseases in humans.

Components:	
titanium dioxide: Carcinogenicity - Assessment IARC	: Not classifiable as a human carcinogen. Group 2B: Possibly carcinogenic to humans titanium dioxide
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.
OSHA	No component of this product present at levels greater than or 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:	
	<ul> <li>,1-phenyleneoxymethylene)]bisoxirane:</li> <li>Test Type: Two-generation study Species: Rat, male and female Application Route: Oral Dose: &gt;750 milligram per kilogram</li> </ul>





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		Method: OECD		
Oxira	ne, mono[(C12-14-alk	Species: Rat, n Application Rou Duration of Sin Frequency of T General Toxicit 100 mg/kg bod	gle Treatment: reatment: 5 day y - Parent: No c	13 Weeks /s/week /bserved adverse effect level:
2,2'-[( Effect	oonents: 1-methylethylidene)bis s on foetal opment	s(4,1-phenyleneoxyme : Species: Rabbi Application Rou General Toxicit 30 mg/kg body Method: Other Result: No tera	it, female ute: Dermal y Maternal: No weight guidelines	ane: observed adverse effect level:
		60 mg/kg body	ute: Oral y Maternal: No weight Test Guideline	observed adverse effect level: 414
		180 mg/kg bod	ute: Oral sy Maternal: No y weight ) Test Guideline	observed adverse effect level: 414
Oxira	ne, mono[(C12-14-alk	Species: Rat, for Application Rou Duration of Sin General Toxicit 200 mg/kg bod Developmental 200 mg/kg bod	ute: Dermal gle Treatment: 6 y Maternal: No y weight Toxicity: No ob y weight Test Guideline	observed adverse effect level: served adverse effect level:
titaniu	m dioxide:	Application Rou Dose: 100, 300 Duration of Sin Frequency of T	), and 1000 mg/l gle Treatment: 2 reatment: 7 day	kg bw/ 20 d



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1,000 mg/kg body weight Developmental Toxicity: No observed adverse effect level: 1,000 mg/kg body weight Method: OECD Test Guideline 414 Result: No adverse effects

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### Components:

titanium dioxide: Reproductive toxicity - : No evidence of adverse effects on sexual function and fertility, Assessment or on development, based on animal experiments.

#### 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: Ingestion Exposure time: 14 Weeks Number of exposures: 7 d Method: Subchronic toxicity

Species: Rat, male and female NOEL: 10 mg/kg Application Route: Skin contact Exposure time: 13 Weeks Number of exposures: 5 d Method: Subchronic toxicity

Species: Mouse, male NOAEL: 100 mg/kg Application Route: Skin contact Exposure time: 13 Weeks Number of exposures: 3 d Method: Subchronic toxicity

Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.: Species: Rat, male and female NOEL: 1 mg/kg LOAEL: 10 mg/kg Application Route: Skin contact Exposure time: 13 Weeks Number of exposures: 5 days/week for 13 weeks Method: OECD Test Guideline 411





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titanium dioxide: Species: Rat, male and female NOEC: 3500 mg/m3 Application Route: Ingestion Test atmosphere: dust/mist Exposure time: 2 yr Number of exposures: 5 d Method: Chronic toxicity

Species: Rat, male and female NOEC: 10 - 50 mg/m3 Application Route: Inhalation Exposure time: 2 yr Number of exposures: 6 hours/day, 5 days/week Method: Chronic toxicity

#### Components:

titanium dioxide: Repeated dose toxicity -: No skin irritation. No eye irritation Assessment No 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





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## SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

### Components:

	phenyleneoxymethylene)]bisoxirane: LC50 (Oncorhynchus mykiss (rainbow trout)): 1.5 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203
limestone: Toxicity to fish :	LC50: > 56,000 mg/l Exposure time: 96 h
Oxirane, mono[(C12-14-alkyloxy) Toxicity to fish :	methyl] derivs.: LL50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203
p-tert-butylphenyl 1-(2,3-epoxy)pr Toxicity to fish :	ropyl ether: LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203
titanium dioxide: Toxicity to fish :	LC50 (Cyprinodon variegatus (sheepshead minnow)): > 10,000 mg/l Exposure time: 96 h Test Type: semi-static test Test substance: Marine water Method: OECD Test Guideline 203
	phenyleneoxymethylene)]bisoxirane: EC50 (Daphnia magna (Water flea)): 2.7 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water
Oxirane, mono[(C12-14-alkyloxy) Toxicity to daphnia and other : aquatic invertebrates	methyl] derivs.: EL50 (Daphnia magna (Water flea)): 7.2 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
p-tert-butylphenyl 1-(2,3-epoxy)pr Toxicity to daphnia and other : aquatic invertebrates	ropyl ether: EC50 (Daphnia magna (Water flea)): ca. 67.9 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water





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		Method: OECD	Test Guideline 2	202
2,2	omponents: 2'-[(1-methylethylidene)bis(4 xicity to algae		trum capricornut	ne: um (green algae)): 9.4 mg/l
		Test Type: stati Test substance Method: EPA-6	: Fresh water	
	kirane, mono[(C12-14-alkylo xicity to algae	: IC50 (Selenastr Exposure time: Test Type: stati	72 h	m (green algae)): 843.75 mg/l 201
	ert-butylphenyl 1-(2,3-epox xicity to algae	: EbC50 (Selena Exposure time: Test Type: stati Test substance	72 h c test	tum (green algae)): ca. 9 mg/l
	Factor (Acute aquatic kicity)	: No data availab	le	
	xicity to fish (Chronic kicity)	: No data availab	le	
2,2 To aq	2'-[(1-methylethylidene)bis(4 xicity to daphnia and other uatic invertebrates hronic toxicity)	: NOEC (Daphnia Exposure time: Test Type: sem Test substance	a magna (Water 21 d i-static test	flea)): 0.3 mg/l
To aq	nestone: xicity to daphnia and other uatic invertebrates hronic toxicity)	: EC50 (Daphnia Exposure time: Test Type: sem Test substance	125 d i-static test	lea)): > 350 mg/l
	Factor (Chronic aquatic kicity)	: No data availab	le	
2,2	omponents: 2'-[(1-methylethylidene)bis(4 xicity to microorganisms	4,1-phenyleneoxyme : IC50 (activated Exposure time: Test Type: stati Test substance	sludge): > 100 n 3 h c test	

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





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	Toxicity t	o microorganisms	:	Exposure tir Test Type: s	ne: 3 h static tes	ge): > 100 mg/l t : Guideline 209	
		tylphenyl 1-(2,3-epox o microorganisms		EC50: > 1,0 Exposure tir Test Type: s Test substa	ne: 3 h static tes nce: Fre		
	Toxicity t organism	o soil dwelling Is	:	No data ava	ilable		
	Compon titanium ( Plant tox	dioxide:	:	NOEC: 100, Exposure tir			
	<u>Compon</u> titanium ( Sedimen	dioxide:	<ul> <li>: (Gammarus pulex (Amphipod)): &gt; 100000 mg/kgse Study: Acute Test Type: semi-static test Water: Fresh water Exposure duration: 28 d Method: ASTM Method, other</li> <li>(Gammarus pulex (Amphipod)): 100000 mg/kgsedi Study: Chronic Test Type: semi-static test Water: Fresh water Exposure duration: 28 d Method: ASTM Method, other</li> <li>(Gammarus pulex (Amphipod)): 14989 mg/kgsedin Study: Acute Test Type: semi-static test Water: Marine water Exposure duration: 10 d</li> </ul>				00000 mg/kgsedimentdw
	Compon titanium ( Toxicity t organism	dioxide: o terrestrial	:	NOEC: 10,0 Exposure tir			
		ology Assessment uatic toxicity	:	No data ava	ilable		
	Chronic a	aquatic toxicity	:	No data ava	ilable		
	Toxicity [	Data on Soil	:	No data ava	ilable		





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Other organisms relevant to : No data available the environment

#### Persistence and degradability

## Components:

<u>Components:</u>						
2,2'-[(1-methylethylidene)bis(4,1- Biodegradability :	-p :	ohenyleneoxymethylene)]bisoxirane: Inoculum: Sewage (STP effluent) Concentration: 20 mg/l Result: Not readily biodegradable. Biodegradation: 5 % Exposure time: 28 d Method: OECD Test Guideline 301F				
Oxirane, mono[(C12-14-alkyloxy Biodegradability	/)r :	nethyl] derivs.: Test Type: aerobic Inoculum: activated sludge Concentration: 100 mg/l Result: Readily biodegradable. Biodegradation: 87 % Exposure time: 28 d Method: OECD Test Guideline 301F				
p-tert-butylphenyl 1-(2,3-epoxy)p Biodegradability :		opyl ether: Test Type: aerobic Inoculum: activated sludge Concentration: 5 mg/l Result: Not readily biodegradable. Biodegradation: ca. 1.1 % Exposure time: 28 d Method: OECD Test Guideline 301D				
Biochemical Oxygen : Demand (BOD)	:	No data available				
Chemical Oxygen Demand : (COD)	:	No data available				
BOD/COD :	:	No data available				
ThOD :	:	No data available				
BOD/ThOD :	:	No data available				
Dissolved organic carbon : (DOC)	:	No data available				
Physico-chemical : removability	:	No data available				
Componentes						

#### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:						
Stability in water : Degradation half life(DT50): 4.83 d (77 °F / 25 °C						
-		Method: OECD Test Guideline 111				





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				Remarks: F	resh v	vater	
					CD T	est Guideline	l d (77 °F / 25 °C) pH: 9 111
					CD T	est Guideline	58 d (77 °F / 25 °C) pH: 7 111
	n tort but	vinhanul 1 /2 2 anav	2	onul othor			
	Stability i	ylphenyl 1-(2,3-epox n water		Degradation	CD Te	est Guideline	. 17 d (77 °F / 25 °C) pH: 7 111
					CD Te	est Guideline	. 7.98 d (77 °F / 25 °C) pH: 4 111
					CD Te	est Guideline	. 10.8 d (77 °F / 25 °C) pH: 9 111
	Photodeg	gradation	:	No data ava	ilable		
	Impact or Treatmer	n Sewage nt	:	No data ava	ilable		
	Bioaccu	mulative potential					
	Compon	ents:					
		ethylethylidene)bis( nulation		Bioconcentr	ation		31
	titanium o Bioaccun		:	Bioconcentr Exposure tir Test substa Method: ser	ation f ne: 14 nce: F ni-stat	factor (BCF): I d resh water	
		ethylethylidene)bis( coefficient: n-		log Pow: 3.2 pH: 7.1	242 (7		
	limestone Partition octanol/w	coefficient: n-	:	log Pow: < '	1		
		mono[(C12-14-alkylo coefficient: n-		methyl] deriv log Pow: 3.7		°F / 20 °C)	





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	octanol	/water		Method: OECD Te	est Guideline 107
p-tert-butylphenyl 1-(2,3-epoxy)p Partition coefficient: n- : octanol/water			opyl ether: log Pow: 3.59 (68 °F / 20 °C) pH: 7 Method: OECD Test Guideline 107		
	Mobilit	y in soil			
	Mobility	•	:	No data available	
	Compo	ments: methylethylidene)bis(4	1.1-1	phenyleneoxymethy	vlene)]bisoxirane:
	Distribu environ	tion among mental compartments	:	Koc: 445	,,
	Distribu	utylphenyl 1-(2,3-epox ition among mental compartments		opyl ether: OECD Test Guide Koc: ca. 755, log l Method: OECD Te	Koc: ca. 2.88
	Stability	/ in soil	:	No data available	
	Other a	dverse effects			
	Environ pathwa	mental fate and ys	:	No data available	
	Results assessi	of PBT and vPvB ment	:	No data available	
	Endocri potentia	ine disrupting al	:	No data available	
		ed organic bound ns (AOX)	:	No data available	
	Hazard	ous to the ozone laye	er		
		Depletion Potential	:	Protection of Strat Substances Remarks: This pro manufactured with	R Protection of Environment; Part 82 tospheric Ozone - CAA Section 602 Class I oduct neither contains, nor was n a Class I or Class II ODS as defined by the t Section 602 (40 CFR 82, Subpt. A, App.A +
		nal ecological tion - Product	:	unprofessional ha	hazard cannot be excluded in the event of ndling or disposal. fe with long lasting effects.
	Global (GWP)	warming potential	:	No data available	





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#### SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	<ul> <li>The product should not be allowed to enter drains, water courses or the soil.</li> <li>Do not contaminate ponds, waterways or ditches with chemical or used container.</li> <li>Send to a licensed waste management company.</li> </ul>
Contaminated packaging	<ul> <li>Empty remaining contents.</li> <li>Dispose of as unused product.</li> <li>Do not re-use empty containers.</li> </ul>

#### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

IATA
------

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s.
		(BISPHENOL A EPOXY RESIN, Butylphenylglycidylether)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo	:	964
aircraft)		
Packing instruction	:	964
(passenger aircraft)		
Environmentally hazardous	:	yes
IMDG		
UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
		N.O.S.
		(BISPHENOL A EPOXY RESIN, Butylphenylglycidylether)
Class	:	9
Packing group	:	III
Labels	:	9

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

: F-A, S-F

: yes

Not applicable for product as supplied.

#### National Regulations

EmS Code

Marine pollutant

DOT	Classification
	olassification

DOT Classification		
UN/ID/NA number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,





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Labels ERG (	Code e pollutant	: 9 : III : CLASS 9 : 171 : yes(BISPHENO : Above applies	A EPOXY RESIN, Butylphenylglycidylether) DL A EPOXY RESIN, Butylphenylglycidylether) only to containers over 119 gallons or 450 lated if shipped in packages less than or equal (450 liters).

#### 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

CENCEA Reportable Quantity				
Components	CAS-No.	Component RQ	Calculated product RQ	
		(lbs)	(lbs)	
arsenic	7440-38-2	1	*	
1-chloro-2,3-epoxypropane	106-89-8	100	*	
nickel	7440-02-0	100	*	
zinc	7440-66-6	1000	*	
chromium	7440-47-3	5000	*	
copper	7440-50-8	5000	*	
antimony	7440-36-0	5000	*	

#### CERCLA Reportable Quantity

\*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards	:	Skin corrosion or irritation Serious eye damage or eye irritation Respiratory or skin sensitisation
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 arsenic, nickel, titanium dioxide, 1-chloro-2,3-epoxypropane, which is/are known to the State of California to cause cancer, and 1chloro-2,3-epoxypropane, 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:

CH INV

: The formulation contains substances listed on the Swiss





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			n compliance with the inventory
DSL		: This product cor Canadian NDSL	ntains one or several components listed in the
AICS		: On the inventory	y, or in compliance with the inventory
NZIoC		: Not in complian	ce with the inventory
ENCS		: Not in compliant	ce with the inventory
KECI		: Not in compliant	ce with the inventory
PICCS	3	: On the inventory	y, or in compliance with the inventory
IECSC	;	: On the inventor	y, or in compliance with the inventory
TCSI		: On the inventory	y, or in compliance with the inventory
TSCA		: On the inventory	y, 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.

#### SECTION 16. OTHER INFORMATION



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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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## **REN® 1710 US**

Version Revision Date: 1.1 08/01/2018

Product name

ate: SDS Number: 3 400001012573

Date of last issue: 10/03/2016 Date of first issue: 10/03/2016

## SECTION 1. IDENTIFICATION

Manufacturer or supplier's details				
Company name of supplier Address	<ul> <li>Huntsman Advanced Materials Americas LLC</li> <li>P.O. Box 4980</li> <li>The Woodlands,</li> <li>TX 77387</li> <li>United States of America (USA)</li> </ul>			
Telephone	: Non-Emergency: (800) 257-5547			
E-mail address of person responsible for the SDS	: MSDS@huntsman.com			
Emergency telephone number	: Chemtrec: (800) 424-9300 or (703) 527-3887			
Recommended use of the chemical and restrictions on use Recommended use : Hardener				

: REN® 1710 US

#### 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
Reproductive toxicity	: Category 2
Short-term (acute) aquatic hazard	: Category 2
Chronic aquatic toxicity	: Category 2
GHS label elements Hazard pictograms	
Signal word	: Danger
Hazard statements	<ul> <li>H315 Causes skin irritation.</li> <li>H317 May cause an allergic skin reaction.</li> <li>H318 Causes serious eye damage.</li> <li>H361 Suspected of damaging fertility or the unborn child.</li> <li>H411 Toxic to aquatic life with long lasting effects.</li> </ul>





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Precautionary statements	<ul> <li>Prevention:</li> <li>P201 Obtain special instructions before use.</li> <li>P202 Do not handle until all safety precautions have been read and understood.</li> <li>P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.</li> <li>P264 Wash skin thoroughly after handling.</li> <li>P272 Contaminated work clothing must not be allowed out of the workplace.</li> <li>P273 Avoid release to the environment.</li> <li>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</li> <li>Response:</li> <li>P302 + P352 IF ON SKIN: Wash with plenty of soap and water.</li> <li>P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.</li> <li>P308 + P313 IF exposed or concerned: Get medical advice/ attention.</li> <li>P362 Take off contaminated clothing and wash before reuse.</li> <li>P391 Collect spillage.</li> <li>Storage:</li> <li>P405 Store locked up.</li> <li>Disposal:</li> <li>P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.</li> </ul>
Other hazards None known.	

#### None known.

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Triethylenetetramine, propoxylated	26950-63-0	50 - 70
Triethylenetetramine	112-24-3	30 - 50
salicylic acid	69-72-7	10 - 20
Phenol, 4-nonyl-, branched	84852-15-3	0.25 - 1

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.





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				Treat symptomati	data sheet to the doctor in attendance.
	lf inhale	ed	:	If inhaled, remove Get medical atten	e to fresh air. tion if symptoms occur.
	In case	of skin contact	:	If skin irritation pe If on skin, rinse we If on clothes, reme	
	In case	of eye contact	:	tissue damage an In the case of con of water and seek Continue rinsing e Remove contact l Keep eye wide op	tact with eyes, rinse immediately with plenty medical advice. eyes during transport to hospital. enses.
	lf swalle	owed	:	If symptoms persi	
1		nportant symptoms ects, both acute and d	:	None known.	
	Notes t	o physician	:	Treat symptomati	cally.

### 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





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		be disposed of	in accordance with local regulations.
	ial protective equipment efighters	: Wear self-conta necessary.	ined 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 in respective authorities.	form
Methods and materials for containment and cleaning up	Soak up with inert absorbent material (e.g. sand, silica acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.	gel,

#### 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/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. Observe label precautions. Keep in properly labelled containers.
Materials to avoid	:	For incompatible materials please refer to Section 10 of this SDS.
Further information on storage stability	:	Stable under normal conditions.





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### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

## Personal protective equipment

Respiratory protection	:	No personal respiratory protective equipment normally required.
Respiratory protection	:	In the case of vapour formation use a respirator with an approved filter.
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	:	slight, ammoniacal
Odour Threshold	:	No data is available on the product itself.
pН	:	No data is available on the product itself.
Freezing point	:	No data is available on the product itself.
Melting point	:	No data is available on the product itself.
Boiling point	:	No data is available on the product itself.
Flash point	:	> 340 °F / > 171 °C Method: open cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.





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Flammability (liquids)	: No data is available on the product itself.	
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.	
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.	
Vapour pressure	: No data is available on the product itself.	
Relative vapour density	: No data is available on the product itself.	
Relative density	: 1.02 - 1.06	
Density	: 1.02 - 1.06 g/cm3	
Solubility(ies) Water solubility	: partly soluble	
Solubility in other solvents	: No data is available on the product itself.	
Partition coefficient: n- octanol/water	: No data is available on the product itself.	
Auto-ignition temperature	: No data is available on the product itself.	
Thermal decomposition	: No data is available on the product itself.	
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.	
Viscosity	: No data is available on the product itself.	
Explosive properties	: No data is available on the product itself.	
Oxidizing properties	: No data is available on the product itself.	
Particle size	: No data is available on the product itself.	

#### SECTION 10. STABILITY AND REACTIVITY

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





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## 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 : 2,282 mg/kg
		Method: Calculation method
Acute inhalation toxicity	:	No data available
Acute dermal toxicity - Product	:	Acute toxicity estimate : 2,192 mg/kg Method: Calculation method
Acute toxicity (other routes of administration)	:	No data available
Skin corrosion/irritation		

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## Product:

Assessment: Severe skin irritation Remarks: Expert judgement

#### Serious eye damage/eye irritation

#### Components:

Triethylenetetramine, propoxylated: Result: Eye irritation

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

salicylic acid: Species: Rabbit Result: Irreversible effects on the eye Assessment: Corrosive

Phenol, 4-nonyl-, branched: Result: Risk of serious damage to eyes.

#### Respiratory or skin sensitisation

#### Components:

Triethylenetetramine, propoxylated: Exposure routes: Skin Method: OECD Test Guideline 429 Result: Probability or evidence of low to moderate skin sensitisation rate in humans

Triethylenetetramine: Exposure routes: Skin





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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.

salicylic acid: Exposure routes: Skin Species: Mouse Method: OECD Test Guideline 429 Result: Does not cause skin sensitisation.

Phenol, 4-nonyl-, branched: Exposure routes: Skin Species: Guinea pig Method: OECD Test Guideline 406 Result: Does not cause skin sensitisation.

#### Components:

Phenol, 4-nonyl-, branched: Assessment:

Causes severe skin burns and eye damage.

#### Germ cell mutagenicity

#### Components:

Triethylenetetramine, propoxylated: Genotoxicity in vitro

Genotoxicity in vitro	Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Method: OECD Test Guideline 476 Result: negative
	Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: positive
	Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Method: OECD Test Guideline 473 Result: negative
Triethylenetetramine: Genotoxicity in vitro :	Concentration: 0 - 200 µg/L Metabolic activation: negative Method: OECD Test Guideline 482 Result: negative
Components: Triethylenetetramine: Genotoxicity in vivo	Application Route: Intraperitoneal injection Dose: 0 - 600 mg/kg





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Method: OECD Test Guideline 474 Result: negative

### Components:

Triethylenetetramine, propoxylated: Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Germ cell mutagenicity- : No data available Assessment

#### Carcinogenicity

#### Components:

Triethylenetetramine: Species: Mouse, male Application Route: Dermal Dose: 42 mg/kg Frequency of Treatment: 3 days/week Method: OECD Test Guideline 451 Result: negative

Species: Mouse, male Application Route: Dermal Exposure time: 104 weeks Dose: 16.8 mg/kg Frequency of Treatment: 3 days/week Method: OECD Test Guideline 451

salicylic acid: Species: Rat, male and female Application Route: Oral Exposure time: 24 month(s) Dose: 500 mg/kg Frequency of Treatment: 7 daily Result: negative

Carcinogenicity - Assessment	: No data available
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.
OSHA	No component of this product present at levels greater than or 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.





## **REN® 1710 US**

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#### **Reproductive toxicity**

,	
Components:	
Triethylenetetramine, propoxylate	d:
	Test Type: Fertility
2	Species: Rat, male and female
	Strain: wistar
	Application Route: Ingestion
	Dose: 100, 300 and 750 milligram per kilogram
	General Toxicity - Parent: No-observed-effect level: Measured
	750 mg/kg body weight
	General Toxicity F1: No-observed-effect level: Measured 750
	mg/kg body weight
	Method: OECD Test Guideline 422
salicylic acid:	
	Species: Rat, male and female
	Application Route: Oral
	Method: OECD Test Guideline 416
	Result: negative
	Species: Mouse
	Application Route: Oral
	Method: OECD Test Guideline 416
	Result: negative
Components:	
	-
Triethylenetetramine, propoxylate Effects on foetal	
development	Species: Rat, male and female Strain: wistar
development	Application Route: Ingestion
	Dose: 100, 300 and 750 milligram per kilogram
	General Toxicity Maternal: No-observed-effect level:
	Measured 300 mg/kg body weight
	Developmental Toxicity: No observed adverse effect level:
	Measured 750 mg/kg body weight
	Method: OECD Test Guideline 422
Triathylapatatramina	
Triethylenetetramine:	Species: Rat
	Application Route: Oral
	General Toxicity Maternal: No observed adverse effect level:
	> 750 mg/kg body weight
	Method: OECD Test Guideline 414
	Result: No teratogenic effects
	Species: Rabbit
	Application Route: Dermal
	General Toxicity Maternal: No observed adverse effect level:
	125 mg/kg body weight Method: OECD Test Guideline 414
	Result: No teratogenic effects
	Nesuli. No telatogenio enecto




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salicylic acid:

Species: Rabbit, female Application Route: Oral General Toxicity Maternal: No observed adverse effect level: 125 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects

Phenol, 4-nonyl-, branched:

Species: Rat, female Application Route: Oral General Toxicity Maternal: No observed adverse effect level: 75 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects

#### Components:

Triethylenetetramine, propoxylat Reproductive toxicity - Assessment		d: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.
Phenol, 4-nonyl-, branched: Reproductive toxicity - Assessment	:	Suspected human reproductive toxicant
STOT - single exposure		

No data available

#### STOT - repeated exposure

#### Components:

Triethylenetetramine, propoxylated: Exposure routes: Ingestion Target Organs: Kidney Assessment: No significant health effects observed at a concentration of 300mg/kg bw/day.

#### Repeated dose toxicity

#### Components:

Triethylenetetramine, propoxylated: Species: Rat, male and female NOAEL: 300 mg/kg Application Route: Ingestion Exposure time: 43 - 44 Days Method: OECD Test Guideline 422

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





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salicylic acid: Species: Dog, male and female NOEC: 700 mg/m3 Application Route: Ingestion Test atmosphere: vapour Exposure time: 4 Weeks Number of exposures: 6 d Method: OECD Test Guideline 412

Species: Rat, male and female LOAEL: 250 mg/kg Application Route: Ingestion Exposure time: 2 yr Number of exposures: 7 d Method: Chronic toxicity

Phenol, 4-nonyl-, branched: Species: Rat, male and female NOAEL: 100 mg/kg Application Route: Ingestion Exposure time: 672 h Number of exposures: 7 d Method: Subacute toxicity

Species: Rat, male and female NOAEL: 50 mg/kg Application Route: Ingestion Exposure time: 2,160 h Number of exposures: 7 d Method: Subchronic toxicity

#### Components:

Phenol, 4-nonyl-, branched: Repeated dose toxicity -Assessment

: Causes severe skin burns and eye damage.

#### 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> Triethylenetetramine, propoxyla Toxicity to fish	ted: : LC50 (Oncorhynchus mykiss (rainbow trout)): Measured > 4.1 mg/l Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 203
Triethylenetetramine: Toxicity to fish	<ul> <li>LC50 (Pimephales promelas (fathead minnow)): 330 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: Fish Acute Toxicity Test</li> </ul>
salicylic acid: Toxicity to fish	<ul> <li>LC50 (Pimephales promelas (fathead minnow)): 1,370 mg/l Exposure time: 96 h Test Type: flow-through test Test substance: Fresh water Method: OECD Test Guideline 203</li> </ul>
Phenol, 4-nonyl-, branched: Toxicity to fish	<ul> <li>LC50 (Pimephales promelas (fathead minnow)): 0.128 mg/l Exposure time: 96 h Test Type: flow-through test Test substance: Fresh water Method: ASTM Method, other</li> </ul>
	LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.209 mg/l Exposure time: 96 h Test Type: flow-through test Test substance: Fresh water Method: ASTM Method, other





Version 1.1	Revision Date: 08/01/2018	SDS Number: 400001012573	Date of last issue: 10/03/2016 Date of first issue: 10/03/2016
		LC50 (Oncorhy Exposure time: Test Type: flow Test substance Method: ASTM	r-through test :: Fresh water
Comp	onents:		
Toxicit	lenetetramine, propoxy y to daphnia and other c invertebrates	: EC50 (Daphnia Exposure time: Test Type: stat Analytical moni	ic test
Toxicit	lenetetramine: y to daphnia and other c invertebrates	Exposure time: Test Type: stat Test substance	ic test
	c acid: y to daphnia and other c invertebrates	: EC50: 870 mg/ Exposure time: Test Type: stat Test substance Method: OECD	48 h ic test
Toxicit	l, 4-nonyl-, branched: y to daphnia and other c invertebrates	Exposure time: Test Type: stat Test substance Method: ASTM EC50 (Daphnia Exposure time: Test substance	ic test :: Fresh water Method, other a magna (Water flea)): 0.14 mg/l 48 h :: Fresh water
		Method: Directi	ve 67/548/EEC, Annex V, C.2.
Triethy	<u>onents:</u> lenetetramine, propoxy y to algae	: EC50 (Pseudol mg/l Exposure time: Test Type: stat Analytical moni	ic test
		ErC10 (Pseudo 0.11 mg/l Exposure time: Test Type: stat Analytical moni	ic test





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		Method: C	ECD Test Guideline 201				
	Triethylenetetramine: Toxicity to algae		: ErC50 (Selenastrum capricornutum (green algae)): 20 mg/l Exposure time: 72 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 201				
	salicylic acid: Toxicity to algae		00 mg/l time: 72 h ECD Test Guideline 201				
	Phenol, 4-nonyl-, branched: Toxicity to algae		esmodesmus subspicatus (green algae)): 1.3 mg/l time: 72 h : static test tance: Fresh water				
		Exposure Test Type Test subs	elenastrum capricornutum (green algae)): 0.41 mg/l time: 96 h : static test tance: Fresh water Igal Toxicity, Tiers I and II				
Phen	ponents: ol, 4-nonyl-, branched: ctor (Acute aquatic ty)	: 10					
Phen Toxic	<u>Components:</u> Phenol, 4-nonyl-, branched: Toxicity to fish (Chronic toxicity)		ncorhynchus mykiss (rainbow trout)): 0.006 mg/l time: 91 d : flow-through test tance: Fresh water				
Trieth Toxic aquat	<u>Components:</u> Triethylenetetramine: Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)		phnia magna (Water flea)): 1.9 mg/l time: 21 d : semi-static test tance: Fresh water DECD Test Guideline 202				
Toxic aquat	lic acid: ity to daphnia and other tic invertebrates onic toxicity)	r : NOEC (Daphnia magna (Water flea)): 10 mg/l Exposure time: 21 d Method: OECD Test Guideline 202					
	M-Factor (Chronic aquatic toxicity)		: No data available				





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REN	® 1710 US			Enriching lives through innov		
Versio 1.1	n Revision Date: 08/01/2018	SDS Number: 400001012573		sue: 10/03/2016 sue: 10/03/2016		
т	omponents: riethylenetetramine, propos oxicity to microorganisms	: EC10 (activate Exposure time: Test Type: stat Test substance	ic test	09		
Triethylenetetramine: Toxicity to microorganisms		: EC50 (activated sludge): 800 mg/l Exposure time: 0.5 h Test Type: static test Test substance: Fresh water				
	alicylic acid: oxicity to microorganisms	Exposure time: Test Type: stat Test substance	ic test	-		
	henol, 4-nonyl-, branched: oxicity to microorganisms	Exposure time: Test Type: stat Test substance	ic test			
P	omponents: henol, 4-nonyl-, branched: oxicity to soil dwelling rganisms	: EC10: 3.44 mg Exposure time: EC50 (Other): Exposure time: Test substance	504 h 906.7 mg/kg 4 Weeks			
P	lant toxicity	: No data availat	ble			
s	ediment toxicity	: No data availat	ble			
P T O	omponents: henol, 4-nonyl-, branched: oxicity to terrestrial rganisms cotoxicology Assessment	: EC10: 63.2 mg Exposure time: Test substance	672 h e: Synthetic			
A	cute aquatic toxicity	: No data availat	ble			





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Other organisms relevant to : No data available the environment

#### Persistence and degradability

#### Components:

Triethylenetetramine, propoxylated:

Biodegradability	: Inoculum: Domestic sewage Concentration: 100 mg/l Result: Not readily biodegradable. Biodegradation: 4 % Exposure time: 28 d Method: OECD Test Guideline 301F
Triethylenetetramine: Biodegradability	<ul> <li>Inoculum: activated sludge Result: Not readily biodegradable. Biodegradation: 0 % Exposure time: 162 d Method: OECD Test Guideline 301D</li> <li>Inoculum: activated sludge Result: Not readily biodegradable. Biodegradation: 20 % Exposure time: 84 d Method: Inherent Biodegradability: Modified SCAS Test</li> </ul>
salicylic acid: Biodegradability	<ul> <li>Inoculum: Mixture Result: Readily biodegradable.</li> <li>Biodegradation: 88.1 %</li> <li>Exposure time: 14 d</li> <li>Method: OECD Test Guideline 301C</li> </ul>
Phenol, 4-nonyl-, branched: Biodegradability	<ul> <li>Inoculum: activated sludge Concentration: 13 mg/l Result: Inherently biodegradable. Biodegradation: ca. 48.2 % Exposure time: 35 d Method: OECD Test Guideline 301B</li> <li>Inoculum: Sediment Concentration: 2 Result: Inherently biodegradable. Biodegradation: 100 % Exposure time: 63 - 84 d Method: Anaerobic Biodegradability in the Subsurface</li> <li>Inoculum: Marine water Concentration: 11 Biodegradation: 50 % Exposure time: 56 - 112 d</li> </ul>
	Method: OECD Test Guideline 309





ersion 1	Revision Date: 08/01/2018		S Number: 0001012573	Date of last issue: 10/03/2016 Date of first issue: 10/03/2016
		:	950 mgO2/g Method: Directive	67/548/EEC, Annex V, C.5
Compo salicylia Chemic (COD) BOD/C	acid: cal Oxygen Demand		1580 mgO2/g No data available	
ThOD		:	No data available	
BOD/T	hOD	:	No data available	
Dissolv (DOC)	ed organic carbon	:	No data available	
Physico remova	o-chemical bility	:	No data available	
	enetetramine, propox		Degradation half I Method: OECD To Degradation half I Method: OECD To	life(DT50): > 1 yr (77 °F / 25 °C) pH: est Guideline 111 life(DT50): > 1 yr (77 °F / 25 °C) pH:
Photod	egradation	:	No data available	
Impact Treatm	on Sewage ent	:	No data available	
Bioacc	umulative potential			
	onents: , 4-nonyl-, branched: umulation	:	Bioconcentration Remarks: Does n Species: Pimepha Bioconcentration	s macrochirus (Bluegill sunfish) factor (BCF): 231 ot bioaccumulate. ales promelas (fathead minnow) factor (BCF): 740 umulation is unlikely.
Partitio	onents: enetetramine, propox n coefficient: n-	*	d: log Pow: -2.42	

octanol/water





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Triethylenetetramine: Partition coefficient: n- octanol/water		:	: log Pow: -2.65 (68 °F / 20 °C) Method: OECD Test Guideline 117				
Partitio	salicylic acid: Partition coefficient: n- octanol/water		log Pow: 2.25 (77 °F / 25 °C) Method: OECD Test Guideline 117				
Partitio	Phenol, 4-nonyl-, branched: Partition coefficient: n- octanol/water		log Pow: 5.4 (73 °F / 23 °C) pH: 5.7 Method: OECD Test Guideline 117				
Mobilit	y in soil						
Mobility	1	:	No data available				
Triethyl Distribu	onents: enetetramine: ition among mental compartments	: Koc: 1584.9 - 5012 ents Method: OECD Test Gui					
	c acid: ition among mental compartments		: Koc: 35 Method: OECD Test Guideline 121				
Distribu environ	Phenol, 4-nonyl-, branched: Distribution among environmental compartments Stability in soil		Koc: 23000 - 4890 No data available	000			
Environ	Other adverse effects Environmental fate and pathways		No data available				
<u>Components:</u> Triethylenetetramine, propoxy Results of PBT and vPvB assessment				not considered to be persistent, and toxic (PBT).			
Endocri potentia	ine disrupting al	:	: No data available				
	ed organic bound ns (AOX)	:	: No data available				
Hazard	ous to the ozone lay	er					
Ozone-	Ozone-Depletion Potential		Protection of Stra Substances Remarks: This pro	R Protection of Environment; Part 82 tospheric Ozone - CAA Section 602 Class I oduct neither contains, nor was			

manufactured with a Class I or Class II ODS as defined by the





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		U.S. Clean Air A B).	ct Section 602 (40 CFR 82, Subpt. A, App.A +
	onal ecological nation - Product	unprofessional h	al hazard cannot be excluded in the event of andling or disposal. life with long lasting effects.
Globa (GWP	l warming potential ?)	: No data availabl	e

#### SECTION 13. DISPOSAL CONSIDERATIONS

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

#### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

		101 2022
UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (TRIETHYLENE TETRAMINE PROPOXYLATED)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
IMDG		
UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIETHYLENE TETRAMINE PROPOXYLATED)
Class	:	9





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Packi	ng group	: !!!	

Labels	:	9
EmS Code	:	F-A, S-F
Marine 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

DOT Classification		
UN/ID/NA number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIETHYLENE TETRAMINE PROPOXYLATED)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(TRIETHYLENE TETRAMINE PROPOXYLATED)
Remarks	:	Different package sizes may lead to a non-regulated classification, 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

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

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
phenol	108-95-2	1000	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

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





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### 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, On the inventory, or in compliance with the inventory
DSL :	All components of this product are on the Canadian DSL
AICS :	On the inventory, or in compliance with the inventory
NZIoC :	Not in compliance with the inventory
ENCS :	Not in compliance with the inventory
KECI :	On the inventory, or in compliance with the inventory
PICCS :	Not 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

This product is subject under TSCA 5(a) to Significant New Use Restrictions (SNUR). Phenol, 4-nonyl-, branched 84852-15-3

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

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

Phenol, 4-nonyl-, branched

84852-15-3





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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

: 08/01/2018

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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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# **REN® 956 US**

Version 1.0 11/27/2017

**Revision Date:** 

Date of last issue: -Date of first issue: 11/27/2017

## **SECTION 1. IDENTIFICATION**

Product name	: REN® 956 US			
Manufacturer or supplier's details				
Company name of supplier Address	<ul> <li>Huntsman Advanced Materials Americas LLC</li> <li>P.O. Box 4980 The Woodlands, TX 77387 United States of America (USA)</li> </ul>			
Telephone	: Non-Emergency: (800) 257-5547			
E-mail address of person responsible for the SDS	: MSDS@huntsman.com			
Emergency telephone number	: Chemtrec: (800) 424-9300 or (703) 527-3887			
Recommended use of the chemical and restrictions on use				
Recommended use	: Hardener			

SDS Number:

400001012609

### **SECTION 2. HAZARDS IDENTIFICATION**

#### GHS classification in accordance with 29 CFR 1910.1200

Acute toxicity (Dermal)	: Category 4
Skin irritation	: Category 2
Serious eye damage	: Category 1
Skin sensitisation	: Category 1
Acute aquatic toxicity	: Category 2
Chronic aquatic toxicity	: Category 2
GHS label elements Hazard pictograms	
Signal word	: Danger
Hazard statements	<ul> <li>H312 Harmful in contact with skin.</li> <li>H315 Causes skin irritation.</li> <li>H317 May cause an allergic skin reaction.</li> <li>H318 Causes serious eye damage.</li> <li>H411 Toxic to aquatic life with long lasting effects.</li> </ul>
Precautionary statements	: Prevention:

SAF	ETY	DATA	SHEET





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REN®	956 US			
Version 1.0	Revision Date: 11/27/2017	SDS Number: 400001012609	Date of last i Date of first	ssue: - issue: 11/27/2017
		P264 Wash sk P272 Contamin the workplace. P273 Avoid rel P280 Wear pro face protection <b>Response:</b> P302 + P352 + Call a POISON P305 + P351 + water for sever and easy to do CENTER/docto P333 + P313 h attention. P362 Take off P391 Collect s <b>Storage:</b> Not available <b>Disposal:</b> P501 Dispose	in thoroughly after nated work clothine ease to the enviro tective gloves/ p P312 IF ON SK I CENTER/docto P338 + P310 IF ral minutes. Rem Continue rinsin pr. f skin irritation or contaminated close pillage.	ng should not be allowed out o

#### Other hazards

None known.

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

: Mixture

Substance / Mixture

#### Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Triethylenetetramine, propoxylated	26950-63-0	50 - 70
Triethylenetetramine	112-24-3	30 - 50

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	<ul> <li>Move out of dangerous area.</li> <li>Consult a physician.</li> <li>Show this safety data sheet to the doctor in attendance.</li> <li>Treat symptomatically.</li> <li>Get medical attention if symptoms occur.</li> </ul>
If inhaled	: If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	: Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with





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		lf on skin, r	n immediately to hospital. inse well with water. s, remove clothes.
In case of eye contact		tissue dam In the case of water an Continue ri Remove co Protect unf Keep eye v	unts splashed into eyes can cause irreversible age and blindness. of contact with eyes, rinse immediately with plenty id seek medical advice. nsing eyes during transport to hospital. ontact lenses. narmed eye. vide open while rinsing. tion persists, consult a specialist.
If swallowed		Do NOT in Never give If symptom	ratory tract clear. duce vomiting. anything by mouth to an unconscious person. s persist, call a physician. n immediately to hospital.
Most important symptoms and effects, both acute and delayed		: None know	<i>r</i> n.
Notes to physician		: Treat symp	otomatically.

#### SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	1	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.	
Unsuitable extinguishing media	1	High volume water jet	
Specific hazards during firefighting	1	Do not allow run-off from fire fighting to enter drains or water courses.	
Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NOx)	
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

Date:

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment.
Environmental precautions	z	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/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. Observe label precautions. Keep in properly labelled containers.
Further information on storage stability	:	Stable under normal conditions.

#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

#### Personal protective equipment

#### Hand protection

Remarks

: The suitability for a specific workplace should be discussed with the producers of the protective gloves.





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Eye protection		Tightly fitting	: Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.		
Skin and body protection			clothing y protection according to the amount and n of the dangerous substance at the work place.		
Hygiene measures		When using	do not eat or drink. do not smoke. before breaks and at the end of workday.		

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	amber
Odour	:	amine-like
Odour Threshold	:	No data is available on the product itself.
рН	:	No data is available on the product itself.
Freezing point	:	No data is available on the product itself.
Melting point		No data is available on the product itself.
Boiling point		No data is available on the product itself.
Flash point	:	> 148.89 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapour pressure	:	< 1.333 hPa (21 °C)
Relative vapour density	:	No data is available on the product itself.
Relative density	:	1.02
Density	:	No data is available on the product itself.





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Solubility(ies) Water solubility		:	slightly soluble					
	Solut	oility in other solvents	:	: No data is available on the product itself.				
5.		n coefficient: n-	•	: No data is available on the product itself.				
-	octanol/water Auto-ignition temperature		:	No data is availa	ble on the product itself.			
т	Thermal decomposition		:	No data is availa	ble on the product itself.			
d	Self-Accelerating decomposition temperature (SADT)		:	No data is availa	ble on the product itself.			
V	Viscosity		:	No data is availa	ble on the product itself.			
E	Explosive properties		:	No data is availa	ble on the product itself.			
С	Dxidizir	ng properties	:	No data is availa	ble on the product itself.			
Ρ	Particle	size	:	No data is availa	ble on the product itself.			

#### SECTION 10. STABILITY AND REACTIVITY

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

#### SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	No data is available on the produ	uct itself.
Acute toxicity Acute oral toxicity - Product	Acute toxicity estimate : 2,729 m Method: Calculation method	g/kg
Acute inhalation toxicity	No data available	
Acute dermal toxicity - Product	Acute toxicity estimate : 1,950 m Method: Calculation method	g/kg





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Acute toxicity (other routes of : No data available administration)

#### Skin corrosion/irritation

#### Product:

Method: OECD Test Guideline 404 Result: Irritating to skin.

#### Serious eye damage/eye irritation

#### Components:

Triethylenetetramine, propoxylated: Result: Eye irritation

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

#### Respiratory or skin sensitisation

#### Components:

Triethylenetetramine, propoxylated: Exposure routes: Skin Method: OECD Test Guideline 429 Result: Probability or evidence of low to moderate skin sensitisation rate in humans

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.

Assessment:

No data available

#### Germ cell mutagenicity

#### Components:

Triethylenetetramine, propoxylated: Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Method: OECD Test Guideline 476 Result: negative

> Test Type: Ames test Test system: Salmonella typhimurium





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ersion Revision Date: .0 11/27/2017	SDS Number: 400001012609	Date of last Date of first	issue: - issue: 11/27/2017
	Method: OE Result: posi	CD Test Guideline tive	471
	Test system	Chromosome aberr : Chinese hamster CD Test Guideline ative	ovary cells
Triethylenetetramine: Genotoxicity in vitro	Metabolic ad	on: 0 - 200 µg/L ctivation: negative CD Test Guideline ative	482
<b>Components:</b> Triethylenetetramine: Genotoxicity in vivo	Dose: 0 - 60	CD Test Guideline	
Componente:			
Components: Triethylenetetramine, propoxy Germ cell mutagenicity-	: Tests on ba		an cell cultures did not show
Assessment	mutagenic e	ffects.	
Germ cell mutagenicity- Assessment	: No data ava	ilable	
Carcinogenicity			
<u>Components:</u> Triethylenetetramine: Species: Mouse, (male) Application Route: Dermal Dose: 42 mg/kg Frequency of Treatment: 3 day Method: OECD Test Guideline Result: negative			
Species: Mouse, (male) Application Route: Dermal Exposure time: 104 weeks Dose: 16.8 mg/kg Frequency of Treatment: 3 day Method: OECD Test Guideline			
Carcinogenicity - Assessment	: No data ava	ilable	
IARC		s identified as prob	sent at levels greater than or bable, possible or confirmed





SAFETY	DATA SHEET	Distribu Freeman Manufacturing & Sup www.freemansupply.com 800-32	ply Co.	HUNTSMAN
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Version 1.0	Revision Date: 11/27/2017	SDS Number: 400001012609	Date of last is Date of first is	ssue: - ssue: 11/27/2017
ACGI OSHA		equal to 0.1% is ide carcinogen by ACC	entified as a card GIH.	ent at levels greater than or cinogen or potential ent at levels greater than or
0011	·			regulated carcinogens.
NTP				ent at levels greater than or wn or anticipated carcinogen
65.7	ductive toxicity			
Triethy	onents: /lenetetramine, propox s on fertility	: Test Type: Fertil Species: Rat, ma Strain: wistar Application Rout Dose: 100, 300 a General Toxicity 750 mg/kg body	ale and female te: Ingestion and 750 milligrar - Parent: No-ob weight - F1: No-observe ght	ed-effect level: Measured
Triethy Effects	onents: /lenetetramine, propox s on foetal opment	: Species: Rat, ma Strain: wistar Application Rout Dose: 100, 300 a General Toxicity Measured 300 m	te: Ingestion and 750 milligrar ⁄ Maternal: No-ol ng/kg body weigl Toxicity: No obse ng/kg body weigl	bserved-effect level: ht erved adverse effect level: ht
Taiatha	dana shahua walin a s			

Triethylenetetramine:

Species: Rat Application Route: Oral General Toxicity Maternal: No observed adverse effect level: > 750 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects

Species: Rabbit Application Route: Dermal General Toxicity Maternal: No observed adverse effect level: 125 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects





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#### Components:

Triethylenetetramine, propoxylated: Reproductive toxicity - : No e Assessment or or

: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

#### STOT - single exposure

No data available

#### STOT - repeated exposure

#### Components:

Triethylenetetramine, propoxylated: Exposure routes: Ingestion Target Organs: Kidney Assessment: No significant health effects observed at a concentration of 300mg/kg bw/day.

#### **Repeated dose toxicity**

#### Components:

Triethylenetetramine, propoxylated: Species: Rat, male and female NOAEL: 300 mg/kg Application Route: Ingestion Exposure time: 43 - 44 Days Method: OECD Test Guideline 422

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

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





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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:

components.						
Triethylenetetramine, propoxylated:						
	LC50 (Oncorhynchus mykiss (rainbow trout)): Measured > 4.1 mg/l Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 203					
Triethylenetetramine:						
Toxicity to fish :	LC50 (Pimephales promelas (fathead minnow)): 330 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: Fish Acute Toxicity Test					
Components:						
Triethylenetetramine, propoxylate	ed:					
	EC50 (Daphnia magna (Water flea)): Measured 48 mg/l Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202					
Triethylenetetramine:						
	EC50 (Daphnia magna (Water flea)): 31.1 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: Directive 67/548/EEC, Annex V, C.2.					

#### Components:





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	ylenetetramine, prop ity to algae	: EC50 (Pseudo mg/l Exposure time: Test Type: stat Analytical mon Method: OECD	ic test

	ErC10 (Pseudokirchneriella subcapitata (algae)): Meas 0.11 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201	ured
Triethylenetetramine: Toxicity to algae	ErC50 (Selenastrum capricornutum (green algae)): 20 Exposure time: 72 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 201	mg/l
M-Factor (Acute aquatic toxicity)	No data available	
Toxicity to fish (Chronic toxicity)	No data available	
Components: Triethylenetetramine: Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) M-Factor (Chronic aquatic toxicity)	EC10 (Daphnia magna (Water flea)): 1.9 mg/l Exposure time: 21 d Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 202 No data available	
Components:		
Triethylenetetramine, propoxyl Toxicity to microorganisms	ed: EC10 (activated sludge): 38 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209	
Triethylenetetramine: Toxicity to microorganisms	EC50 (activated sludge): 800 mg/l Exposure time: 0.5 h Test Type: static test Test substance: Fresh water	
Toxicity to soil dwelling organisms	No data available	





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Plant	toxicity		No data available	
Sedir	ment toxicity		No data available	)
	ity to terrestrial nisms	:	No data available	
	oxicology Assessment e aquatic toxicity	:	No data available	
Chro	nic aquatic toxicity	:	No data available	)
Τοχία	ity Data on Soil	:	No data available	)
	r organisms relevant to nvironment	:	No data available	
Pers	istence and degradabil	ity		
Com	ponents:			
	nylenetetramine, propoxy egradability	ylate :	Inoculum: Domes Concentration: 10 Result: Not readi Biodegradation: Exposure time: 2	00 mg/l ly biodegradable. 4 %
	nylenetetramine: egradability	:	Inoculum: activat Result: Not readi Biodegradation: Exposure time: 1 Method: OECD T	ly biodegradable. 0 %
			Biodegradation: Exposure time: 8	ly biodegradable. 20 %
	nemical Oxygen and (BOD)	:	No data available	
Cher (COI	nical Oxygen Demand ))	:	No data available	
BOD	/COD	1	No data available	9
ThO	D	•	No data available	9
BOD	/ThOD		No data available	)
Disso	olved organic carbon	ł	No data available	)





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(DOC	;)			
	co-chemical vability		No data available	•
Com	oonents:			
	ylenetetramine, propoxy ity in water		Degradation half	life(DT50): > 1 yr (25 °C) pH: 4 est Guideline 111
				life(DT50): > 1 yr (25 °C) pH: 7 est Guideline 111
				life(DT50): > 1 yr (25 °C) pH: 9 ïest Guideline 111
Photo	odegradation	:	No data available	)
Impac Treat	ct on Sewage ment	ł	No data available	
Bioad	cumulative potential			
Bioac	cumulation	6	No data available	9
Com	oonents:			
Partiti	ylenetetramine, propoxy ion coefficient: n- ol/water		d: log Pow: -2.42	
Partiti	ylenetetramine: on coefficient: n- ol/water	:	log Pow: -2.65 (2 Method: OECD T	0 °C) est Guideline 117
Mobi	lity in soil			
Mobil	ity	ł	No data available	)
Com	oonents:			
	ylenetetramine: oution among		Koc: 1584.9 - 50 <sup>-</sup>	12
	onmental compartments			est Guideline 106
Stabil	ity in soil	:	No data available	
Othe	r adverse effects			
Enviro pathw	onmental fate and /ays	•	No data available	
	oonents:			
	ylenetetramine, propoxy Its of PBT and vPvB	late: :		s not considered to be persistent,
asses	ssment		bioaccumulating	a successive states and a second state of the second states and the second states and the second states and the





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	Endocr potentia	ine disrupting al		No data available	
		ed organic bound ns (AOX)	:	: No data available	
		lous to the ozone lay Depletion Potential	er :	Protection of Stra Substances Remarks: This pro manufactured with	R Protection of Environment; Part 82 tospheric Ozone - CAA Section 602 Class I oduct neither contains, nor was n a Class I or Class II ODS as defined by the t Section 602 (40 CFR 82, Subpt. A, App.A +
		nal ecological ation - Product	:	unprofessional ha	hazard cannot be excluded in the event of ndling or disposal. fe with long lasting effects.
	Global (GWP)	warming potential		No data available	

#### SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	<ul> <li>The product should not be allowed to enter drains, water courses or the soil.</li> <li>Do not contaminate ponds, waterways or ditches with chemical or used container.</li> <li>Send to a licensed waste management company.</li> </ul>
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

#### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

#### ΙΑΤΑ

Not regulated as dangerous goods

#### IMDG

Not regulated as dangerous goods

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable for product as supplied.





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#### National Regulations

#### **DOT Classification**

Not regulated as dangerous goods

#### **SECTION 15. REGULATORY INFORMATION**

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

SARA 311/312 Hazards		Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation Respiratory or skin sensitisation
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

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:

The formulation contains substances listed on the Swiss Inventory, On the inventory, or in compliance with the inventory
All components of this product are on the Canadian DSL
On the inventory, or in compliance with the inventory
Not in compliance with the inventory
On the inventory, or in compliance with the inventory
On the inventory, or in compliance with the inventory
Not in compliance with the inventory
On the inventory, or in compliance with the inventory
On the inventory, or in compliance with the inventory
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.

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