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RENPASTE® 1250 US

Version	Revision Date:	SDS Number:	Date of last issue: 11/28/2017
1.1	10/25/2018	400001012644	Date of first issue: 11/28/2017

SECTION 1. IDENTIFICATION

Product name : RENPASTE® 1250 US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : 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

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy resin solution

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation : 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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.
Storage:
Not available
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	30 - 50
limestone	1317-65-3	10 - 20
aluminium	7429-90-5	5 - 10
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	3101-60-8	2.5 - 5
titanium dioxide	13463-67-7	0.1 - 1

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

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

SECTION 4. FIRST AID MEASURES

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

If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Most important symptoms and effects, both acute and delayed	:	None known.
Notes to physician	:	Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides Halogenated compounds Metal oxides
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		Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

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

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

aluminium	7429-90-5	TWA (total dust)	15 mg/m3 (Aluminium)	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3 (Aluminium)	OSHA Z-1
		TWA (Respirable fraction)	1 mg/m3 (Aluminium)	ACGIH
		TWA (total dust)	15 mg/m3 (Aluminium)	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3 (Aluminium)	OSHA Z-1
		TWA (Respirable fraction)	1 mg/m3 (Aluminium)	ACGIH
titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA	10 mg/m3 (Titanium dioxide)	ACGIH

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
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	:	paste
Colour	:	light grey
Odour	:	No data is available on the product itself.
Odour Threshold	:	No data is available on the product itself.
pH	:	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	:	> 199.99 °F / > 93.33 °C Method: estimated, 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	:	0.0003999 hPa (77 °F / 25 °C)
Relative vapour density	:	No data is available on the product itself.
Relative density	:	1.5 - 1.6
Density	:	No data is available on the product itself.
Solubility(ies)		
Water solubility	:	insoluble
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	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	carbon dioxide carbon monoxide Halogenated compounds Metal oxides

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Components:

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

Acute oral toxicityComponents : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity

limestone:

Acute oral toxicityComponents : LD50 (Rat): 6,450 mg/kg

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Acute oral toxicityComponents : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 425
Assessment: The substance or mixture has no acute oral toxicity

titanium dioxide:

Acute oral : LD50 (Rat, female): > 5,000 mg/kg

toxicityComponents — Method: OECD Test Guideline 425
Assessment: The substance or mixture has no acute oral toxicity

Components:

titanium dioxide:
Acute inhalation toxicity : LC50 (Rat, male and female): 3.43 - 5.09 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

titanium dioxide:
Acute dermal toxicity : LD50 Dermal (Rabbit): > 10,000 mg/kg

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

Skin corrosion/irritation

Components:

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Species: Rat
Assessment: No skin irritation
Method: OECD Test Guideline 402
Result: No skin irritation

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

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.

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Genotoxicity in vitro	:	Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Concentration: 50 ug/plate Metabolic activation: negative Method: OECD Test Guideline 473 Result: positive Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: positive

titanium dioxide:

Genotoxicity in vitro	:	Test Type: Ames test Concentration: 100 - 200 ug/plate Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test Concentration: 31 - 500 µg/L Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative

Test Type: Chromosome aberration test in vitro
Concentration: 125 - 2500 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Components:

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

Genotoxicity in vivo : Cell type: Germ
Application Route: Oral
Method: OECD Test Guideline 478
Result: negative

Cell type: Somatic
Application Route: Oral
Dose: 0 - 5000 mg/kg
Method: OPPTS 870.5395
Result: negative

titanium dioxide:

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (males)
Application Route: Inhalation
Exposure time: 5 consecutive days
Dose: 0.8, 7.2, and 28.5 mg/m³
Method: OECD Test Guideline 474
Result: negative

Test Type: Micronucleus test
Species: Rat (male and female)
Application Route: Oral
Exposure time: once
Dose: 500, 1000, and 2000 mg/kg bw
Method: OECD Test Guideline 474
Result: negative

Components:

titanium dioxide:

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

Germ cell mutagenicity-Assessment : No data available

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
Method: OECD Test Guideline 453
Result: negative

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	: Not classifiable as a human carcinogen.
IARC	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:

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

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: >750 milligram per kilogram
General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight
General Toxicity F1: No-observed-effect level: 540 mg/kg body weight
Symptoms: No adverse effects
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Components:

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

Effects on foetal development : Species: Rabbit, female
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight
Method: Other guidelines
Result: No teratogenic effects

Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 60 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

titanium dioxide:

Species: Rat, male and female
Application Route: Oral
Dose: 100, 300, and 1000 mg/kg bw/
Duration of Single Treatment: 20 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level: 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

Components:

titanium dioxide:
Reproductive toxicity - Assessment : 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

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

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 - Assessment : No skin irritation, No eye irritation
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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Toxicity to fish : 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

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.7 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): ca. 67.9 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Toxicity to algae : EbC50 (Selenastrum capricornutum (green algae)): ca. 9 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Components:

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

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.3 mg/l Exposure time: 21 d Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 211

limestone:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC50 (Daphnia magna (Water flea)): > 350 mg/l Exposure time: 125 d Test Type: semi-static test Test substance: Fresh water
M-Factor (Chronic aquatic toxicity)	:	No data available

Components:

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

Toxicity to microorganisms	:	IC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Toxicity to microorganisms	:	EC50: > 1,000 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209
Toxicity to soil dwelling organisms	:	No data available

Components:

titanium dioxide:

Plant toxicity	:	NOEC: 100,000 mg/kg Exposure time: 480 h

Components:

titanium dioxide:

Sediment toxicity	:	(Gammarus pulex (Amphipod)): > 100000 mg/kgsedimentdw Study: Acute Test Type: semi-static test Water: Fresh water Exposure duration: 28 d Method: ASTM Method, other (Gammarus pulex (Amphipod)): 100000 mg/kgsedimentdw Study: Chronic Test Type: semi-static test Water: Fresh water Exposure duration: 28 d Method: ASTM Method, other

(Gammarus pulex (Amphipod)): 14989 mg/kgsedimentdw
Study: Acute
Test Type: semi-static test
Water: Marine water
Exposure duration: 10 d

Components:

titanium dioxide:

Toxicity to terrestrial organisms	:	NOEC: 10,000 mg/kg Exposure time: 672 h

Ecotoxicology Assessment

Acute aquatic toxicity	:	No data available
Chronic aquatic toxicity	:	No data available
Toxicity Data on Soil	:	No data available
Other organisms relevant to the environment	:	No data available

Persistence and degradability

Components:

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

Biodegradability	:	Inoculum: Sewage (STP effluent) Concentration: 20 mg/l Result: Not readily biodegradable. Biodegradation: 5 % Exposure time: 28 d Method: OECD Test Guideline 301F

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Biodegradability	:	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

Components:

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

Degradation half life(DT50): 7.1 d (77 °F / 25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 3.58 d (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Stability in water : Degradation half life(DT50): ca. 17 d (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): ca. 7.98 d (77 °F / 25 °C) pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): ca. 10.8 d (77 °F / 25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.

titanium dioxide:
Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 19 - 352
Exposure time: 14 d
Test substance: Fresh water
Method: semi-static test
Remarks: Does not bioaccumulate.

Components:

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

Partition coefficient: n-octanol/water	:	log Pow: 3.242 (77 °F / 25 °C) pH: 7.1 Method: OECD Test Guideline 117

limestone:

Partition coefficient: n-octanol/water	:	log Pow: < 1

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Partition coefficient: n-octanol/water	:	log Pow: 3.59 (68 °F / 20 °C) pH: 7 Method: OECD Test Guideline 107

Mobility in soil

Mobility	:	No data available

Components:

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

Distribution among environmental compartments	:	Koc: 445

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Distribution among environmental compartments	:	OECD Test Guideline 121 Koc: ca. 755, log Koc: ca. 2.88 Method: OECD Test Guideline 121
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available
Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information - Product	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

Global warming potential (GWP)	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA

UN/ID No.	:	UN 3082
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 aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
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
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. (BISPHENOL A EPOXY RESIN, Butylphenylglycidylether)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(BISPHENOL A EPOXY RESIN, Butylphenylglycidylether)
Remarks	:	Above applies only to containers over 119 gallons or 450 liters. Not regulated if shipped in packages less than or equal to 119 gallons (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

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
1-chloro-2,3-epoxypropane	106-89-8	100	*

*: 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 titanium dioxide, 1-chloro-2,3-epoxypropane, which is/are known to the State of California to cause cancer, and 1-chloro-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 Inventory, On the inventory, or in compliance with the inventory
DSL	:	This product contains one or several components listed in the Canadian NDSL.
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On the inventory, or in compliance with the inventory

Inventories

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

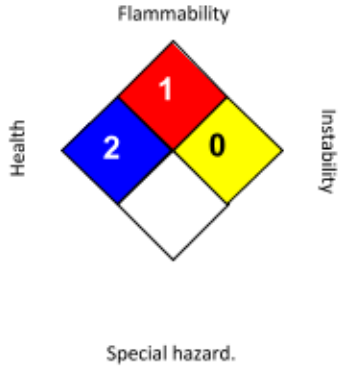
TSCA - 5(a) Significant New Use Rule List of Chemicals
No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No substances are subject to TSCA 12(b) export notification requirements.

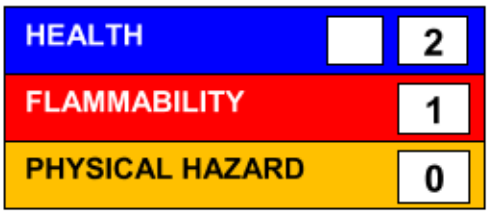
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



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	:	10/25/2018
ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

ACGIH / TWA	:	8-hour, time-weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average

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

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

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

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

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

HUNTSMAN
Enriching lives through innovation

REN® 1250 US

Version	Revision Date:	SDS Number:	Date of last issue: 11/16/2018
1.4	06/17/2019	400001012645	Date of first issue: 06/29/2016

Print Date 01/23/2020

SECTION 1. IDENTIFICATION

Product name : REN® 1250 US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : Non-Emergency: (800) 257-5547

E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Hardener

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitisation : Category 1

Reproductive toxicity : Category 1B

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 2

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H360 May damage fertility or the unborn child.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
aluminium	7429-90-5	30 - 50
limestone	1317-65-3	20 - 30
aluminium hydroxide	21645-51-2	10 - 20
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	68410-23-1	10 - 20
Phenol, 4-nonyl-, branched	84852-15-3	5 - 10
Diethylenetriamine	111-40-0	3 - 5
Triethylenetetramine	112-24-3	2.5 - 3
Silicon, amorphous	7631-86-9	1 - 5
4,4'-isopropylidenediphenol	80-05-7	1 - 2.5
m-phenylenebis(methylamine)	1477-55-0	0.25 - 1
quartz (SiO2)	14808-60-7	0.1 - 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. Show this safety data sheet to the doctor in attendance. Treat symptomatically. Get medical attention if symptoms occur.
If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Induce vomiting immediately and call a physician. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	:	None known.
Notes to physician	:	Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Metal oxides Carbon dioxide (CO2) Carbon monoxide 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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations. 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	:	Stable under normal conditions.

storage stability

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
aluminium	7429-90-5	TWA (total dust)	15 mg/m3 (Aluminium)	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3 (Aluminium)	OSHA Z-1
		TWA (Respirable fraction)	1 mg/m3 (Aluminium)	ACGIH
limestone	1317-65-3	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
aluminium hydroxide	21645-51-2	TWA (Respirable fraction)	1 mg/m3 (Aluminium)	ACGIH
		TWA (Respirable fraction)	1 mg/m3 (Aluminium)	ACGIH
Diethylenetriamine	111-40-0	TWA	1 ppm	ACGIH
Silicon, amorphous	7631-86-9	TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m3 / %SiO2 (Silica)	OSHA Z-3
		TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m3 / %SiO2 (Silica)	OSHA Z-3
		TWA	6 mg/m3 (Silica)	NIOSH REL
m-phenylenebis(methylamine)	1477-55-0	C	0.1 mg/m3	ACGIH
quartz (SiO2)	14808-60-7	TWA (respirable)	10 mg/m3 / %SiO2+2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO2+5	OSHA Z-3
		TWA (Respirable fraction)	0.025 mg/m3 (Silica)	ACGIH

		TWA (Respirable dust)	0.05 mg/m3	OSHA Z-1
		TWA (Respirable dust)	0.05 mg/m3 (Silica)	NIOSH REL

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Respiratory protection : W A R N I N G ! This product contains quartz, which has been classified by IARC as carcinogenic for humans (Group 1), and which can cause silicosis and lung cancer following exposure to respirable dust. It is therefore important to take particular care to avoid inhalation exposure when mechanically processing cured material (e.g. grinding, sanding, sawing).

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 : paste

Colour : dark grey

Odour : ammoniacal

Odour Threshold : No data is available on the product itself.

pH : No data is available on the product itself.

Melting point/freezing point : No data available

Boiling point/boiling range : No data available

Flash point	:	> 199.99 °F / > 93.33 °C Method: estimated, 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.
Self-ignition	:	The substance or mixture is not classified as pyrophoric.
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	:	0.1333 hPa (77 °F / 25 °C)
Relative vapour density	:	No data is available on the product itself.
Relative density	:	1.58 - 1.71
Density	:	No data is available on the product itself.
Solubility(ies)		
Water solubility	:	slightly 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.
Molecular weight	:	No data available
Particle size	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

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

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Acute oral toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity - Product	:	Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute toxicity (other routes of administration)	:	No data available

Skin corrosion/irritation

Product:

Result: Skin irritation

Serious eye damage/eye irritation

Product:

Result: Eye irritation

Respiratory or skin sensitisation

Components:

limestone:
Exposure routes: Skin

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

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

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

Diethylenetriamine:
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.
Remarks: Causes sensitisation.

Exposure routes: Respiratory Tract
Species: Mouse
Result: Does not cause respiratory sensitisation.

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.

4,4'-isopropylidenediphenol:
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.

Exposure routes: Skin
Species: Humans
Assessment: May cause sensitisation by skin contact.
Result: Causes sensitisation.

m-phenylenebis(methylamine):
Exposure routes: Skin
Species: Mouse
Assessment: May cause sensitisation by skin contact.
Method: OECD Test Guideline 429
Result: Causes sensitisation.

Components:

Phenol, 4-nonyl-, branched:
Assessment: Causes severe skin burns and eye damage.

m-phenylenebis(methylamine):
Assessment: Harmful if swallowed or if inhaled., May be harmful in contact with skin., Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

Germ cell mutagenicity

Components:

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Triethylenetetramine:
Genotoxicity in vitro : Concentration: 0 - 200 µg/L
Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative

Silicon, amorphous:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

4,4'-isopropylidenediphenol:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Result: negative

m-phenylenebis(methylamine):
Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Components:

Diethylenetriamine:
Genotoxicity in vivo : Cell type: Somatic
Application Route: Oral
Dose: 85 - 850 mg/kg
Method: OECD Test Guideline 474
Result: negative

Application Route: Oral
Result: negative

Triethylenetetramine:
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 0 - 600 mg/kg
Method: OECD Test Guideline 474
Result: negative

Silicon, amorphous:
Genotoxicity in vivo : Application Route: Inhalation
Dose: 50 mg/m3
Result: negative

4,4'-isopropylidenediphenol:
Genotoxicity in vivo : Method: OECD Test Guideline 474
Result: negative

m-phenylenebis(methylamine):
Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Exposure time: single dose
Dose: 750 mg/kg body weight
Method: OECD Test Guideline 474
Result: negative

Components:

m-phenylenebis(methylamine):
Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

Germ cell mutagenicity-Assessment : No data available

Carcinogenicity

Product:

Result: Not classified due to inconclusive data.

Product:

Carcinogenicity - Assessment	: Carcinogenicity classification not possible from current data.
IARC	Group 1: Carcinogenic to humans quartz (SiO2) (Silica dust, crystalline)
ACGIH	Suspected human carcinogen quartz (SiO2)
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	Known to be human carcinogen quartz (SiO2) (Silica, Crystalline (Respirable Size))

Reproductive toxicity

Components:

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

Effects on fertility	: Species: Rat, male and female Application Route: Other General Toxicity - Parent: No observed adverse effect level: 1,000 mg/kg body weight Method: OECD Test Guideline 422 Result: Animal testing did not show any effects on fertility.

Diethylenetriamine:

Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: No observed adverse effect level: 30 mg/kg wet weight
Method: OECD Test Guideline 421
Result: positive

4,4'-isopropylidenediphenol:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: Embryotoxic effects and adverse effects on the offspring were detected.

m-phenylenebis(methylamine):

Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 150 and 450 mg/kg
General Toxicity - Parent: No-observed-effect level: 50 - 150 mg/kg body weight

General Toxicity F1: No-observed-effect level: 450 mg/kg body weight
Method: OECD Test Guideline 421
Result: No effects on fertility and early embryonic development were detected.

Components:

Phenol, 4-nonyl-, branched:

Effects on foetal development : 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

Diethylenetriamine:

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 100 mg/kg body weight
Method: OECD Test Guideline 421
Result: No adverse effects

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

Silicon, amorphous:

Species: Mouse
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 1,340 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 1,600 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:

1,350 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

4,4'-isopropylidenediphenol:

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: < 160 mg/kg body weight
Method: OECD Test Guideline 416
Result: No teratogenic effects

m-phenylenebis(methylamine):

Test Type: Pre-natal
Species: Rat, male and female
Strain: Sprague-Dawley
Application Route: Oral
Dose: 0, 30, 100, 300 mg/kg milligram per kilogram
Duration of Single Treatment: 19 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level: 100 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 300 mg/kg body weight
Method: OECD Test Guideline 414
Result: No effects on fertility and early embryonic development were detected.

Components:

Phenol, 4-nonyl-, branched:
Reproductive toxicity - Assessment : Suspected human reproductive toxicant

4,4'-isopropylidenediphenol:
Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

m-phenylenebis(methylamine):
Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure

Components:

Diethylenetriamine:
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

4,4'-isopropylidenediphenol:
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT - repeated exposure

Components:

quartz (SiO2):
Exposure routes: inhalation (dust/mist/fume)
Target Organs: Lungs
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

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

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

Diethylenetriamine:
Species: Rat, male and female
NOEC: 70 - 80 mg/m3
Application Route: Ingestion
Test atmosphere: vapour
Exposure time: 360 h
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOAEL: 114 mg/kg/d
Application Route: Skin contact
Exposure time: 9,600 h
Number of exposures: 6 d
Method: Chronic toxicity

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

Silicon, amorphous:
Species: Rat, male and female
NOAEL: 7950 - 8980 mg/kg
Application Route: Ingestion
Exposure time: 4,320 h
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOEC: 4000 - 4500 mg/m3
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: OECD Test Guideline 413

4,4'-isopropylidenediphenol:
Species: Dog, male and female
NOEC: 75 mg/kg, 10 mg/m3
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
LOAEL: 600 mg/kg
Application Route: Ingestion
Exposure time: 672 h
Number of exposures: 7 d
Method: Subchronic toxicity

m-phenylenebis(methylamine):
Species: Rat, male and female
NOEL: 150 mg/kg
Application Route: oral (gavage)
Exposure time: 672 h
Number of exposures: 7 d
Dose: 0, 10, 40, 150 and 600 mg/kg/d
Method: OECD Test Guideline 407

Species: Rat, male and female
: 0.6 mg/m3
Application Route: Inhalation
Exposure time: 13 weeks
Number of exposures: 6 hours per day, 5 days per we
Dose: 0, 0.64, 5.1, 31 mg/m3
Method: OECD Test Guideline 413

Target Organs: Lungs

Components:

Phenol, 4-nonyl-, branched:
Repeated dose toxicity - Assessment : Causes severe skin burns and eye damage.

m-phenylenebis(methylamine):
Repeated dose toxicity - Assessment : Harmful if swallowed or if inhaled., May be harmful in contact with skin., Causes severe skin burns and eye damage.
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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

limestone:
Toxicity to fish : LC50: > 56,000 mg/l
Exposure time: 96 h

aluminium hydroxide:
Toxicity to fish : LC50: > 10,000 mg/l

Exposure time: 96 h

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Toxicity to fish : LC50: 7.07 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Phenol, 4-nonyl-, branched:
Toxicity to fish : 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

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

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.221 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM Method, other

Diethylenetriamine:
Toxicity to fish : LC50: 430 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.

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

Silicon, amorphous:
Toxicity to fish : LL50 (Brachydanio rerio (zebrafish)): > 10,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

4,4'-isopropylidenediphenol:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l
Exposure time: 96 h

m-phenylenebis(methylamine):
Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 87.6 mg/l
Exposure time: 96 h

Test Type: semi-static test
Method: OECD Test Guideline 203

Components:

aluminium hydroxide:
Toxicity to daphnia and other aquatic invertebrates : EC50: > 10,000 mg/l
Exposure time: 48 h

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 5.18 mg/l
Exposure time: 1,152 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Phenol, 4-nonyl-, branched:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.085 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: ASTM Method, other

EC50 (Daphnia magna (Water flea)): 0.14 mg/l
Exposure time: 48 h
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.2.

Diethylenetriamine:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 32 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Triethylenetetramine:
Toxicity to daphnia and other aquatic invertebrates : 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.

Silicon, amorphous:
Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): >= 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

4,4'-isopropylidenediphenol:
Toxicity to daphnia and other aquatic invertebrates : EC50: 3.9 - 10.2 mg/l
Exposure time: 48 h

(Ceriodaphnia dubia (Water flea)):

m-phenylenebis(methylamine):
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 15.2 mg/l
Exposure time: 48 h

Test Type: static test
Method: OECD Test Guideline 202

Components:

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 4.11 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Phenol, 4-nonyl-, branched:
Toxicity to algae/aquatic plants : EbC50 (Desmodesmus subspicatus (green algae)): 1.3 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water

ErC50 (Selenastrum capricornutum (green algae)): 0.41 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: Algal Toxicity, Tiers I and II

Diethylenetriamine:
Toxicity to algae/aquatic plants : EbC50 (Selenastrum capricornutum (green algae)): 1,164 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Triethylenetetramine:
Toxicity to algae/aquatic plants : 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

Silicon, amorphous:
Toxicity to algae/aquatic plants : EL50 (Desmodesmus subspicatus (green algae)): > 10,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

4,4'-isopropylidenediphenol:
Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 2.5 - 3.1 mg/l
Exposure time: 96 h

m-phenylenebis(methylamine):
Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 32.1 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

Components:

Phenol, 4-nonyl-, branched:
M-Factor (Acute aquatic toxicity) : 10

Components:

Phenol, 4-nonyl-, branched:
Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.006 mg/l
Exposure time: 91 d
Test Type: flow-through test
Test substance: Fresh water

Diethylenetriamine:
Toxicity to fish (Chronic toxicity) : NOEC: 10 mg/l
Exposure time: 28 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 210

4,4'-isopropylidenediphenol:
Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.016 mg/l
Exposure time: 444 d
Test Type: flow-through test
Test substance: Fresh water
Method: Fish Life Cycle Toxicity
Remarks: Toxic to aquatic organisms.

Components:

limestone:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): > 350 mg/l
Exposure time: 125 d
Test Type: semi-static test
Test substance: Fresh water

Diethylenetriamine:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 5.6 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.20

Triethylenetetramine:
Toxicity to daphnia and other aquatic invertebrates (Chronic 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

m-phenylenebis(methylamine):
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 4.7 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211

Components:

Phenol, 4-nonyl-, branched:
M-Factor (Chronic aquatic toxicity) : 10

4,4'-isopropylidenediphenol:
M-Factor (Chronic aquatic toxicity) : 1

Components:

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Toxicity to microorganisms : EC0: > 100 mg/l
Method: DIN 38412

Phenol, 4-nonyl-, branched:
Toxicity to microorganisms : EC50 (activated sludge): 950 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

m-phenylenebis(methylamine):
Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 0.5 h
Test Type: static test
Method: OECD Test Guideline 209

Components:

Phenol, 4-nonyl-, branched:
Toxicity to soil dwelling organisms : EC10: 3.44 mg/kg
Exposure time: 504 h

EC50 (Other): 906.7 mg/kg
Exposure time: 4 Weeks
Test substance: Synthetic

Diethylenetriamine:
Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 56 d
Method: OECD Test Guideline 222

Plant toxicity : No data available

Sediment toxicity : No data available

Components:

Phenol, 4-nonyl-, branched:
Toxicity to terrestrial organisms : EC10: 63.2 mg/kg
Exposure time: 672 h
Test substance: Synthetic

Ecotoxicology Assessment

Acute aquatic toxicity - Product : Toxic to aquatic life.

Chronic aquatic toxicity - Product : Toxic to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability

Components:

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

Biodegradability : Inoculum: activated sludge
Concentration: 9 mg/l
Result: Inherently biodegradable.
Biodegradation: 100 %
Exposure time: 74 d
Method: OECD Test Guideline 301B

Phenol, 4-nonyl-, branched:

Biodegradability : Inoculum: activated sludge
Concentration: 13 mg/l
Result: Inherently biodegradable.
Biodegradation: ca. 48.2 %
Exposure time: 35 d
Method: OECD Test Guideline 301B

Inoculum: Sediment
Concentration: 2
Result: Inherently biodegradable.
Biodegradation: 100 %
Exposure time: 63 - 84 d
Method: Anaerobic Biodegradability in the Subsurface

Inoculum: Marine water
Concentration: 11
Biodegradation: 50 %
Exposure time: 56 - 112 d
Method: OECD Test Guideline 309

Diethylenetriamine:

Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: 87 %
Exposure time: 21 d
Method: OECD Test Guideline 301D

Triethylenetetramine:

Biodegradability : Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 162 d
Method: OECD Test Guideline 301D

Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 20 %
Exposure time: 84 d
Method: Inherent Biodegradability: Modified SCAS Test

4,4'-isopropylidenediphenol:
Biodegradability : Result: Not readily biodegradable.
Biodegradation: 1 - 2 %
Exposure time: 28 d

m-phenylenebis(methylamine):
Biodegradability : Inoculum: activated sludge
Concentration: 14.2 mg/l
Result: Not readily biodegradable.
Biodegradation: 49 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

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

Stability in water : No data available

Components:

Diethylenetriamine:
Photodegradation : Test Type: Air
Rate constant: 500000
Degradation (direct photolysis): 50 %

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Components:

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Bioaccumulation : Bioconcentration factor (BCF): 1.85 - 2.69

Test substance: Fresh water

Phenol, 4-nonyl-, branched:
Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 231
Remarks: Does not bioaccumulate.

Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 740
Remarks: Bioaccumulation is unlikely.

Diethylenetriamine:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 0.3 - 6.3
Exposure time: 42 d
Test substance: Fresh water
Method: flow-through test
Remarks: Bioaccumulation is unlikely.

m-phenylenebis(methylamine):
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): < 0.3
Remarks: Does not bioaccumulate.

Components:

limestone:
Partition coefficient: n-octanol/water : log Pow: < 1

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

Diethylenetriamine:
Partition coefficient: n-octanol/water : log Pow: -1.58 (68 °F / 20 °C)
pH: 7

Triethylenetetramine:
Partition coefficient: n-octanol/water : log Pow: -2.65 (68 °F / 20 °C)
Method: OECD Test Guideline 117

m-phenylenebis(methylamine):
Partition coefficient: n-octanol/water : log Pow: 0.18 (77 °F / 25 °C)
pH: 10.3 - 10.4
Method: OECD Test Guideline 107

Mobility in soil

Mobility : No data available

Components:

Phenol, 4-nonyl-, branched:
Distribution among environmental compartments : Koc: 23000 - 489000

Diethylenetriamine:		
Distribution among environmental compartments	:	Koc: 19111
Triethylenetetramine:		
Distribution among environmental compartments	:	Koc: 1584.9 - 5012 Method: OECD Test Guideline 106
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available
Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information - Product	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.
Global warming potential (GWP)	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (NONYL PHENOL, DIMER FATTY ACID (C18) POLYAMIDOAMINE RESIN)
Class	:	9
Packing group	:	III
Labels	:	Class 9 - Miscellaneous dangerous substances and articles
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
Environmentally hazardous	:	yes

IMDG

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

Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

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 : Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Reproductive toxicity

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Phenol, 4-nonyl-, branched	84852-15-3	>= 5 - < 10 %
4,4'-isopropylidenediphenol	80-05-7	>= 1 - < 5 %

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 quartz (SiO2), which is/are known to the State of California to cause cancer, and 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

CH INV : The formulation contains substances listed on the Swiss Inventory

DSL : This product contains one or several components listed in the Canadian NDSL.

AICS : Not in compliance with the inventory

NZIoC : Not in compliance with the inventory

ENCS	:	Notified. Allowed to be imported / manufactured only by the notifiers. Please contact your Huntsman sales representative for more information.
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On the inventory, or in compliance with the inventory

Inventories

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

TSCA - 5(a) Significant New Use Rule List of Chemicals
This product is subject under TSCA 5(a) to Significant New Use Restrictions (SNUR).

Phenol, 4-nonyl-, branched	84852-15-3	Proposed Rule

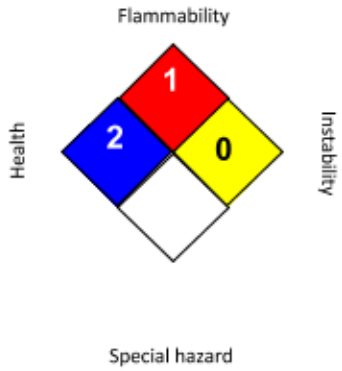
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

Phenol, 4-nonyl-, branched	84852-15-3

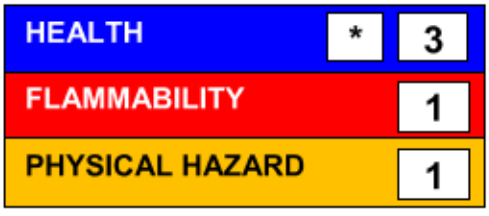
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



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	:	06/17/2019

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / C	:	Ceiling limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average

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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.

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