Saret 515 DLC®

1: Identification

Product identifier: Saret 515 DLC®
Other means of identification: Chemical mixture
Supplier:

NATROCHEM, Inc.
P.O. Box 1205
Savannah, GA 31402-1205
912-236-4464

Recommended use: Rubber crosslinking agent
Restrictions on use: Not applicable.
Emergency phone number: CHEMTREC (USA) 800-424-9300
CHEMTREC (Int'l) 202-483-7616

2: Hazard(s) identification

GHS classification: Skin sensitization – Category 1
Chronic aquatic toxicity – Category 2
Carcinogenicity – Category 2

GHS label elements

Signal word: WARNING
Symbol(s):

Hazard statements: May cause an allergic skin reaction
Toxic to aquatic life with long lasting effects
Suspected of causing cancer.

Hazards not otherwise classified: May form combustible dust concentrations in the air.

Precautionary statements:

Prevention: Avoid breathing dust/vapours.
Do not get in eyes, on skin, or on clothing.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response: IF ON SKIN (or hair): Wash with plenty of soap and water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses if present and easy to do – continue rinsing.
IF exposed or concerned: Call a POISON CENTER/ doctor if you feel unwell.

	In case of fire: Use water spray, CO_2, foam, or dry chemical to extinguish.
Storage:	Store in a dry place. Store in a closed container.
Disposal:	Dispose of contents/container in accordance with applicable regulations.
Supplemental information:	Possible cross-sensitization with other acrylates and methacrylates.

3: Composition

Substance/mixture: Mixture

Ingredient	Synonyms	CAS number	Concentration (%)
2-propenoic acid, 2-methyl-, 2-ethyl-2-[[(2-methyl-1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	Trimethylolpropane trimethacrylate, TMPTMA	3290-92-4	55-65
2-propenoic acid, 2-ethyl-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	Trimethylolpropane triacrylate, TMPTA	15625-89-5	0-10
Benzeneamine, N-nitroso-N-phenyl	N-nitrosodiphenylamine	86-30-6	0-2
Calcium silicate		1344-95-2	26-30

Contains no detectable crystalline silica (detection limit <0.01% by weight)
Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

4: First-aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM, OR PHYSICIAN immediately; have SDS information available. Never give anything by mouth to an unconscious or convulsing person.

Description of necessary first aid measures

Eye contact:	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
Inhalation:	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular, or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Skin contact:	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion:	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed.

Potential acute health effects

Eye contact:	No significant irritation expected other than possible mechanical irritation.
Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat, and lungs.
Skin contact:	Prolonged or repeated contact may dry skin and cause irritation.
Ingestion:	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact:	Adverse symptoms may include the following: Irritation Redness
Inhalation:	Adverse symptoms may include the following: Coughing Respiratory tract irritation
Skin contact:	Adverse symptoms may include the following: Dryness
Ingestion:	No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments:	No specific treatment.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:	Use water spray, CO_2, foam, or dry chemical to extinguish.
Unsuitable extinguishing media:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical:	Product forms a slippery surface when combined with water.

Hazardous thermal decomposition products:	In the event of a fire, hazardous decomposition products may include: Carbon monoxide Carbon dioxide Acrylates Methacrylates Nitogen oxides Other unidentified organic compounds
Special protective actions for firefighters:	No action shall be taken involving any personal risk or without proper training.
Special protective equipment for firefighters:	Firefighters and others who may be exposed to products of combustion should wear full firefighting turn out gear (full bunker gear) and self-contained breathing apparatus (SCBA) operated in pressure-demand mode (MSHA/NIOSH approved or equivalent).

6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

For non-emergency personnel:	Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Product forms slippery surface when combined with water. No action shall be taken involving any personal risk or without suitable training.
For emergency responders:	If specialized clothing is required to deal with the spillage, take note of any information in **Section 8** on suitable and unsuitable materials. See also the information immediately above in "For non-emergency personnel".
Environmental precautions:	Avoid release to sewers, waterways, soil, or air. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil, or air).

Methods and materials for containment and cleaning up

Small spill:	Avoid generating dust. Vacuum or sweep up material and place in a designated, labeled waste container.
Large spill:	Avoid generating dust. Vacuum or sweep up material and place in a designated, labeled waste container.

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

7: Handling and storage

Precautions for safe handling

Protective measures:	Put on appropriate personal protective equipment (see **Section 8**).
Advice on general occupational hygiene:	Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should

	wash hands and face before eating, drinking, and smoking. Remove contaminated clothing and protective equipment before entering eating areas. When transferring material into flammable solvents, use proper grounding to avoid electrical sparks. Avoid alteration of product properties before use. Calcining (which may result in crystalline silica formation) or mixing with additives may alter toxicological properties. See also **Section 8** for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities:	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool, and well-ventilated area away from incompatible materials (see **Section 10**) and food and drink. Keep container tightly closed and sealed until ready for use. Do not store in unlabeled containers. Incompatible materials include: strong oxidizing agents, strong reducing agents, free radical generators, inert gas, oxygen scavengers, peroxides.

8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient	OSHA PEL	ACGIH TLV	NIOSH REL
2-propenoic acid, 2-methyl-, 2-ethyl-2-[[(2-methyl-1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	1 mg/m^3 TWA	Not available.	Not available.
2-propenoic acid, 2-ethyl-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	1 mg/m^3 TWA	Not available.	Not available.

Recommended monitoring procedures:	If this product contains ingredients with exposure limits, personal, workplace atmosphere, or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
Appropriate engineering controls:	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
Environmental exposure controls:	Emissions from ventilation or work process equipment should be checked to ensure that they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters, or engineering modifications to process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory, and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases, or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: splash goggles.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. When handling hot material, wear heat-resistant gloves that are able to withstand the temperature of molten product.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

9: Physical and chemical properties

Appearance

Physical state: Powder, solid, or granular solid.

Color: Tan to brown

Odor: Acrylic-like.

Odor threshold: Not available.

pH: Not available.

Melting/freezing point: Not available.

Boiling point and range: Not available.

Flash point: Not available.

Evaporation rate: Not available.

Flammability: Not available.

Flammability or explosive limits:	Not available.
Vapor pressure:	Not available.
Vapor density:	Not available.
Relative density:	Not available.
Solubility:	Not available.
Partition coefficient: n-octanol/water:	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
Viscosity:	Not applicable.

10: Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	This product is stable under normal and anticipated storage, handling, and processing considtions; however, this material can undergo hazardous polymerization.
Possibility of hazardous reactions:	Hazardous polymerization may occur. Polymerization is exothermic and can degenerate into an uncontrolled reaction.
Conditions to avoid:	Avoid generating dust. This material polymerizes exothermically in the presence of heat, contamination, oxygen-free atmosphere, free radicals, peroxides, and inhibitor depletion, liberating heat. Avoid direct sunlight. Do NOT expose to UV light. Refer to protective measures listed in **Sections 7 and 8**.
Incompatible materials:	Reactive or incompatible with the following materials: Acids Oxidizing materials Strong alkalis Strong reducing agents Free radical generators Inery gas Oxygen scavenger Peroxides
Hazardous decomposition products:	In the event of a fire, hazardous decomposition products may include: Carbon monoxide Carbon dioxide Acrylates Methacrylates Nitogen oxides Other unidentified organic compounds

11: Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/summary: No known significant effects or critical hazards.

Ingredient	Result	Species	Dose	Exposure
2-propenoic acid, 2-methyl-, 2-ethyl-2-[[(2-methyl-1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester 2-propenoic acid, 2-ethyl-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	LD_{50} dermal LC_0 inhalation	Rabbit Rat	>5000 mg/kg Saturated vapour	- 8 h
2-propenoic acid, 2-methyl-, 2-ethyl-2-[[(2-methyl-1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester 2-propenoic acid, 2-ethyl-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	LD_{50} dermal LD_{50} dermal LC_0 inhalation	Rabbit Rat Rat	5170 mg/kg >2000 mg/kg >0.55mg/L	- - 6 h
2-propenoic acid, 2-methyl-, 2-ethyl-2-[[(2-methyl-1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	LD_{50} dermal	Rabbit	>7940 mg/kg	-

Irritation/corrosion

Conclusion/summary

Skin: TMPTMA: Causes mild skin irritation – Rabbit, 4-6 h. Causes skin irritation – Rabbit, 5 d repeated exposure.
TMPTA: Causes mild skin irritation – Rabbit, 4 h (Irritation index 2.2-3.8/8)

Eyes: TMPTMA: Causes mild eye irritation – Rabbit, 0-8.1/110
TMPTA: Causes serious eye irritation – Rabbit, 44/110
N-nitrosodiphenylamine: Causes mild eye irritation - Rabbit

Respiratory: No known significant effects or critical hazards.

Sensitization

Conclusion/summary:

Skin: TMPTMA: Not a sensitizer – Guinea pig maxmisation test. Both positive and negative responses have been recorded. Possible cross sensitization with other acrylates and methacrylates.
TMPTA: May cause an allergic skin reaction, repeated skin exposure. Guinea pig – skin allergy was observed (strong sensitizer).

Respiratory: No known significant effects or critical hazards.

Mutagenicity:

Conclusion/summary: TMPTMA: in vitro – No genetic changes were observed in laboratory tests using bacteria, yeast. Both positive and negative responses were observed in laboratory tests using animal cells, human cells. In vivo – No genetic changes were observed in laboratory tests using rats, mice.
TMPTA: in vitro – both positive and equivocal responses were observed in laboratory tests using bacteria. Genetic changes were observed in laboratory tests using animal cells. In vivo – No genetic changes were observed in laboratory tests using mice.
N-nitrosodiphenylamine: in vitro – Both positive and negative changes were observed in laboratory tests using bacteria, animal cells. In vivo – No genetic changes were observed in laboratory tests using rats, mice. An equivocal response has been reported in a test using fruit flies.

Carcinogenicity

Conclusion/summary: TMPTMA: Chronic dermal administration to mouse: no increase in tumour incidence was reported.
N-nitrosodiphenylamine: Chronic dietary administration to mouse: no increase in tumour incidence was reported. Chronic dietary administration to rat: increase in tumour incidence was reported (urinary bladder).

Classification

Ingredient	OSHA	IARC	NTP
N-nitrosodiphenylamine	-	3	-

Carcinogen classification code:
IARC: 1, 2A, 2B, 3, 4
NTP: [Known/Reasonably anticipated] to be a human carcinogen
OSHA: +
Not listed/regulated: -

Reproductive toxicity

Conclusion/summary: TMPTMA: Oral, rat, no toxicity to reproduction.

Teratogenicity

Conclusion/summary: No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Target organs Contains material which may cause damage to the following organs: upper respiratory tract, eyes.

Aspiration hazard

Not available.

Information on the likely routes of exposure: Routes of entry anticipated: oral, dermal, inhalation.

Potential acute health effects

Eye contact: No significant irritation expected other than possible mechanical irritation.

Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat, and lungs.
Skin contact:	Prolonged or repeated contact may dry skin and cause irritation.
Ingestion:	No known significant effects or critical hazards.

Symptoms related to the physical, chemical, and toxicological characteristics

Eye contact:	Adverse symptoms may include the following: Irritation Redness
Inhalation:	Adverse symptoms may include the following: Coughing Respiratory tract irritation
Skin contact:	Adverse symptoms may include the following: Dryness
Ingestion:	No specific data.

Delayed and immediate effects and also chronic effects from short- and long-term exposure

Conclusion/summary:

Short-term exposure

Potential immediate effects	No significant irritation expected other than possible mechanical irritation.
Potential delayed effects	Prolonged or repeated contact may dry skin and cause irritation.

Long-term exposure

Potential immediate effects	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
Potential delayed effects	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Potential chronic health effects

General:	No known significant effects or critical hazards.
Carcinogenicity:	No known significant effects or critical hazards.
Mutagenicity:	No known significant effects or critical hazards.
Teratogenicity:	No known significant effects or critical hazards.
Developmental effects:	No known significant effects or critical hazards.
Fertility effects:	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Oral ATE: > 5000 mg/kg

12: Ecological information

Toxicity

Ingredient	Result	Species	Exposure
TMPTMA	LC50 2 mg/L	Fish – *oncorhynchus mykiss*	96 h
	EC50 9.22 mg/L	Daphnia – *daphnia magna*	48 h
TMPTMA TMPTA	EC50 1.11-3.88 mg/L	Algae – *pseudokirchneriella subcapitata*	72 h
	EC50 > 1000 mg/L	Activated sludge	3 h
	NOEC 0.138 mg/L	Fish – *pimephales promelas*	32 d
	LL50 1.47 mg/L	Fish – *leuciscus idus*	96 h
	EC50 19.9 mg/L	Daphnia – *daphnia magna*	48 h
TMPTA N-nitrosodiphenylamine	EC50 4.86 mg/L	Algae – *desmodesmus subspicatus*	96 h
	EC20 625 mg/L	Activated sludge	30 m
	LC50 5.8 mg/L	Fish – *lepomis macrochirus*	96 h
	EC50 7.8 mg/L	Daphnia – *daphnia magna*	48 h
N-nitrosodiphenylamine	ErC50 > 4 mg/L	Algae - *raphidocelus subcapitata*	72 h
	NOEC 0.075 mg/L	Daphnia – *daphnia magna*	21 d
	ErC10 2.2 mg/L	Algae - *raphidocelus subcapitata*	72 h

Persistence and degradability

Ingredient	Aquatic half-life	Photolysis	Biodegradability
TMPTMA	-	-	Not readily (29-53%, 28 d)
TMPTA	-	-	Readily (86%, 28 d)
N-nitrosodiphenylamine	-	-	Readily (98%, 7 d)

Bioaccumulative potential

Ingredient	$LogP_{ow}$	BCF	Potential
TMPTMA	2.7-4.2	-	-
TMPTA	0.67	-	-
N-nitrosodiphenylamine	2.57-3.13	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}): Not available.

Other adverse effects: No known significant effects or critical hazards.

13: Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions, and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Refer to Sections 6, 7, and 8 for additional information on accidental release measures, handling and storage, and exposure controls.

14: Transport information

	DOT	IMDG	IATA
UN number	UN3077	UN3077	UN3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Propylidynetrimethyl trimethacrylate)	Environmentally hazardous substance, solid, n.o.s. (Propylidynetrimethyl trimethacrylate)	Environmentally hazardous substance, solid, n.o.s. (Propylidynetrimethyl trimethacrylate)
Transport hazard class(es)	9	9	9
Packing group	III	III	III
Environmental hazards	Yes	Yes	Yes
Marine pollutant substances	Yes	Yes	Yes
Additional information	-	-	-

Special precautions for user: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not available.

15: Regulatory information

Inventory status

United States inventory (TSCA 8b): All components are listed or exempted.

Australia inventory (AICS):	All components are listed or exempted.
Canada inventory (DSL):	All components are listed or exempted.
China inventory (IECSC):	All components are listed or exempted.
Europe inventory (REACH):	All components are listed or exempted.
Japan inventory (ENCS):	Please contact your supplier for information on the inventory status of this material.
Korea inventory (KECI):	All components are listed or exempted.
New Zealand inventory (NZIoC):	All components are listed or exempted.

United States

US Federal regulations:

SARA Title III

Section 302 – Extremely Hazardous Chemicals:

The components in this product are either not SARA Section 302 regulated or are regulated but present in negligible concentrations.

Section 311/312 – Hazard Categories:

Reactivity hazard, acute health hazard, chronic health hazard.

Section 313 – Toxic Chemicals:

N-nitrosodiphenylamine (86-30-6), 1.0% de minimis, 25k lb mfring, 10k lb other

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – Reportable Quantity (RQ)

N-nitrosodiphenylamine (86-30-6): 100 lb

US State regulations:

Ingredient	NJ RTK	MA RTK	PN RTK	CA Prop. 65
TMPTMA	-	-	Listed	-
TMPTA	-	-	Listed	-
N-nitrosodiphenylamine	Listed	-	Listed	-
Benzene, -methyl	-	-	-	Listed

16: Other information

Hazardous Material Identification System (USA)

HEALTH	**2**
FLAMMABILITY	**1**
REACTIVITY	**0**
PERSONAL PROTECTION	

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1901.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the Nation Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J.J.Keller 800-327-6868.

*** - chronic effects**

The customer is responsible for determining the PPE code for this material.

Key to abbreviations:

ATE	Acute toxicity estimate
BCF	Bioconcentration factor
GHS	Globally Harmonized System of classification and labeling of chemicals
IATA	International Air Transport Association
IBC	Intermediate bulk container
IMDG	International Maritime Dangerous Goods
LogPow	Logarithm of the octanol/water partition coefficient
MARPOL 73/78	International convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978. (MARPOL = marine pollution)
UN	United Nations

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