


# A187 DLC®-Z

## 1: Identification

<b>Product identifier:</b>	A187 DLC®-Z	
<b>Other means of identification:</b>	Gamma-glycidoxypropyltrimethoxysilane on calcium silicate	
<b>Supplier:</b>		NATROCHEM, Inc. P.O. Box 1205 Savannah, GA 31402-1205 912-236-4464
<b>Recommended use:</b>	Rubber	
<b>Restrictions on use:</b>	Not applicable.	
<b>Emergency phone number:</b>	CHEMTREC (USA)	800-424-9300
	CHEMTREC (Int'l)	202-483-7616

## 2: Hazard(s) identification

**OSHA/HCS status:** This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

**GHS classification:**

Hazard Classification	Category
Combustible dust	N/A

## GHS label elements

**Signal word:**

DANGER

**Symbol(s):**



**Hazard statements:**

Causes serious eye damage

**Hazards not otherwise classified:**

May form combustible dust concentrations in the air.

Additional methanol may be formed by reaction with moisture.

**Precautionary statements:**

**Prevention:**

Avoid breathing dust/ vapours.

Do not get in eyes, on skin, or on clothing.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

Wear eye or face protection.

**Response:**

IF ON SKIN (or hair): Wash with plenty of soap and water.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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. Immediately call a POISON CENTER/doctor.  
IF exposed or concerned: Call a POISON CENTER/ doctor if you feel unwell.

In case of fire: Use dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray 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:** Not applicable.

### 3: Composition

**Substance/mixture:** Mixture

Ingredient	Synonyms	CAS number	Concentration (%)
Silane, trimethoxy[3-(oxiranylmethoxy)propyl]-		2530-83-8	50-75
Calcium silicate		1344-95-2	26-30

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:** Get medical attention immediately. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.

**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. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

## 5: Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media:** Use dry chemical, CO<sub>2</sub>. Alcohol-resistant foam or water spray (fog).

**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.

<b>Hazardous thermal decomposition products:</b>	In the event of a fire, hazardous decomposition products may include: Carbon monoxide Carbon dioxide Silicon oxides Other unidentified organic compounds Measurements at temperatures above 150°C in the presence of air (oxygen) have shown that small amounts of formaldehyde are formed due to oxidative degradation.
<b>Special protective actions for firefighters:</b>	No action shall be taken involving any personal risk or without proper training.
<b>Special protective equipment for firefighters:</b>	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

<b>For non-emergency personnel:</b>	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.
<b>For emergency responders:</b>	If specialized clothing is required to deal with the spillage, take note of any information in <b>Section 8</b> on suitable and unsuitable materials. See also the information immediately above in "For non-emergency personnel".
<b>Environmental precautions:</b>	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

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

<b>Protective measures:</b>	Put on appropriate personal protective equipment (see <b>Section 8</b> ).
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**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.

**Conditions for safe storage, including any incompatibilities:**

See also **Section 8** for additional information on hygiene measures. 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.

## 8: Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Components with limit values that require monitoring at the workplace:	
Calcium silicate (1344-95-2)	
OSHA	5 mg/m <sup>3</sup>
ACGIH	10 mg/m <sup>3</sup>

**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

<b>Eye/face protection:</b>	contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. 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.
<b><u>Skin protection</u></b>	
<b>Hand protection:</b>	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.
<b>Body protection:</b>	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.
<b>Other skin protection:</b>	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.
<b>Respiratory protection:</b>	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

<b>Physical state:</b>	Powder, solid, or granular solid.
<b>Color:</b>	White to tan.
<b>Odor:</b>	Ester-like.
<b>Odor threshold:</b>	Not available.
<b>pH:</b>	Not available.
<b>Melting/freezing point:</b>	Not available.
<b>Boiling point and range:</b>	Not available.
<b>Flash point:</b>	Not available.
<b>Evaporation rate:</b>	Not available.
<b>Flammability:</b>	Not available.
<b>Flammability or explosive limits:</b>	Not available.
<b>Vapor pressure:</b>	Not available.
<b>Vapor density:</b>	Not available.
<b>Relative density:</b>	1.23
<b>Solubility:</b>	Reactive in water.

<b>Partition coefficient: n-octanol/water:</b>	Not available.
<b>Auto-ignition temperature:</b>	Not available.
<b>Decomposition temperature:</b>	Not available.
<b>Viscosity:</b>	Not applicable.

## 10: Stability and reactivity

<b>Reactivity:</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability:</b>	This product is stable.
<b>Possibility of hazardous reactions:</b>	<b>POLYMERIZATION – HYDROLYSIS</b> The epoxysilane esters are not monomers in the usual sense, but polymeric materials may be produced under certain conditions of catalyzed partial hydrolysis. Polysiloxanes are produced by polymerization of the silyl ester group in the presence of controlled amounts of water and alkali or acid catalyst at ambient temperatures. At slightly higher temperatures (~50°C), poly glycol ethers are produced via the epoxy functional group under the same conditions of water concentration and alkali or acid catalyst. In as much as both of these reactions are exothermic and may occur simultaneously, the heat evolved may be cumulative and greatly accelerate the rate of reactions. It is imperative, therefore, that unintentional contamination of the epoxysilane esters with water be avoided, and that intentional hydrolysis be properly controlled to avoid hazardous consequences.
<b>Conditions to avoid:</b>	Avoid generating dust. Avoid all possible sources of ignition (spark or flame). Avoid high temperatures and moisture. Refer to protective measures listed in <b>Sections 7 and 8</b> .
<b>Incompatible materials:</b>	Reactive or incompatible with the following materials: Hydrofluoric acid water
<b>Hazardous decomposition products:</b>	In the event of a fire, hazardous decomposition products may include: Carbon monoxide Carbon dioxide Silicon oxides Other unidentified organic compounds Measurements at temperatures above 150°C in the presence of air (oxygen) have shown that small amounts of formaldehyde are formed due to oxidative degradation.

## 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

**Conclusion/summary:** Not determined.

Ingredient	Result	Species	Dose	Exposure
Calcium silicate	LD <sub>50</sub> oral	Rat	>5000 mg/kg	-
	LD <sub>50</sub> dermal	Rabbit	>5000 mg/kg	-
	LC <sub>50</sub> inhalation	Rat	0.69 mg/L	-

#### Irritation/corrosion

##### Conclusion/summary

**Skin:** Not determined.

**Eyes:** Not determined.

**Respiratory:** Not determined.

#### Sensitization

##### Conclusion/summary:

**Skin:** Not determined.

**Respiratory:** Not determined.

#### Mutagenicity:

**Conclusion/summary:** Not determined.

#### Carcinogenicity

**Conclusion/summary:** Not determined.

#### Classification

Ingredient	OSHA	IARC	NTP
Calcium silicate	-	-	-

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:** Not determined.

#### Teratogenicity

**Conclusion/summary:** Not determined.

#### 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:** Causes serious eye damage.



<b>Inhalation:</b>	May give off gas, vapour, or dust that is very irritating or corrosive to the respiratory system.
<b>Skin contact:</b>	Prolonged or repeated contact may dry skin and cause irritation.
<b>Ingestion:</b>	May cause burns to mouth, throat, and stomach.

### Symptoms related to the physical, chemical, and toxicological characteristics

<b>Eye contact:</b>	Adverse symptoms may include the following: Irritation Pain Watering Redness
<b>Inhalation:</b>	Adverse symptoms may include the following: Coughing Respiratory tract irritation
<b>Skin contact:</b>	Adverse symptoms may include the following: Dryness Pain or irritation Redness Blistering may occur
<b>Ingestion:</b>	Adverse symptoms may include the following: Stomach pains

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

<b>Conclusion/summary:</b>	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
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#### Short-term exposure

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

#### Long-term exposure

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

#### Potential chronic health effects

<b>General:</b>	No known significant effects or critical hazards.
<b>Carcinogenicity:</b>	No known significant effects or critical hazards.
<b>Mutagenicity:</b>	No known significant effects or critical hazards.
<b>Teratogenicity:</b>	No known significant effects or critical hazards.
<b>Developmental effects:</b>	No known significant effects or critical hazards.
<b>Fertility effects:</b>	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

### Other information

Long-term repeated overexposure to methanol vapor concentrations of 3000 ppm or greater may allow a cumulative effect to occur with resulting nausea, vomiting, headache, ringing in the ears, insomnia, trembling, unsteady gait, vertigo, clouded and double vision. Liver and/or kidney injury may occur. Prolonged overexposure at levels of 800-1000 ppm may result in severe eye damage in some persons.

Gamma-Glycidoxypropyltrimethoxysilane This organosilane ester was weakly mutagenic in the following in vitro procedures: Ames test, mouse lymphoma assay, and a sister chromatid exchange test. This weak in vivo mutagenic activity was reduced by the inclusion of metabolic activation in the test systems. Results of in vivo genotoxicity studies have shown mixed results. Repeated exposure of rats or rabbits to this material did not result in an increase in sister chromatid exchange, while single exposures of mice to a hydrolyzate of this material resulted in a significant increase in micronucleated polychromatic erythrocytes. It is unlikely that this material presents a significant genotoxic hazard, in that it lacks any local tumorigenic response to the chronic recurrent application to mouse skin. In a developmental toxicity study with rats given this organosilane ester by gavage over the period of organogenesis, the only effect was minimal fetotoxicity at 3000 mg/kg/day (reduced ossification at one site) in the presence of maternal toxicity. There were no embryotoxic or teratogenic effects. No effects were seen at 500 and 1500 mg/kg/day.

A subsequent developmental study in the rabbit, using gavage dosages of 50, 200 and 400 mg/kg/day given over gestational days 6 through 18, resulted in one maternal death at 400 mg/kg/day; there were no other indications of maternal toxicity at this or lower dosages. At no dosage was there any evidence for developmental toxicity (embryofetal toxicity or teratogenicity).

## 12: Ecological information

### Toxicity

Calcium silicate	LC <sub>50</sub> > 10000 mg/L EC <sub>50</sub> > 1000 mg/L	Fish – <i>Brachydanio rerio</i> Daphnia – <i>Daphnia magna</i>	96 hours 24 hours
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### Persistence and degradability

Not available.

### Bioaccumulative potential

Not available.

### Mobility in soil

Soil/water partition  
coefficient (K<sub>oc</sub>):

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	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.
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.

**Philippines inventory (PICCS):** All components are listed or exempted.

## United States

### US Federal regulations:

#### *SARA Title III*

**Section 311/312 – Hazard Categories:**

### US State regulations:

#### **New Jersey Right to Know:**

Calcium silicate.

#### **Massachusetts Right to Know:**

Calcium silicate.

#### **Pennsylvania Right to Know:**

Calcium silicate.

#### **Rhode Island Right to Know:**

Calcium silicate.

#### **California Prop. 65:**

This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

## 16: Other information

### Hazardous Material Identification System (USA)

<b>HEALTH</b>	<b>2</b>
<b>FLAMMABILITY</b>	<b>2</b>
<b>REACTIVITY</b>	<b>1</b>
<b>PERSONAL PROTECTION</b>	

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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