A1100 DLC®-Z

1: Identification

Product identifier: A1100 DLC®

Other means of identification: Gamma-aminopropyltriethoxysilane on calcium silicate

Supplier:

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

Recommended use: Rubber compounding

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:

Hazard Classification	Category
Flammable solid	4
Skin corrosion/irritation	1B
Serious eye damage/eye irritation	1
Acute toxicity: oral	4
Skin sensitization	1
Specific target organ toxicity (single exposure)	2

GHS label elements

Signal word: DANGER

Symbol(s):

Hazard statements:
Flammable solid.
Harmful if swallowed.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
Causes damage to organs in contact with skin.

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

Precautionary statements:

Prevention:
Do not eat, drink, or smoke when using this product.
Wash hands thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.

	Keep away from flames and hot surfaces. No smoking. Do not breathe dust/vapours. Avoid release to the environment. Wear protective gloves. Wear eye or face protection. Wear protective clothing.
Response:	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: get medical attention. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. Do NOT induce vomiting. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. 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_2, water spray (fog), or foam to extinguish.
Storage:	Store locked up. Store in a dry place. Store in a closed container. Store in a well-ventilated place. Keep cool.
Disposal:	Dispose of contents/container in accordance with applicable regulations.
Supplemental information:	Not applicable.

3: Composition

Substance/mixture: Mixture

Ingredient	Synonyms	CAS number	Concentration (%)
1-propamine,3-(triethoxysilyl)-		919-30-2	70-74
Ethanol		64-17-5	<1
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: 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. Seek immediate medical attention.

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. Seek immediate medical attention.

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: Causes serious eye damage

Inhalation: May give off gas, vapour, or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact: Causes severe burns. May cause an allergic skin reaction.

Ingestion: Harmful if swallowed. May cause burns to mouth, throat, and stomach.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:
Pain
Watering
Irritation
Redness

Inhalation: Adverse symptoms may include the following:
Coughing
Respiratory tract irritation

Skin contact: Adverse symptoms may include the following:
Pain or irritation
Redness
Blistering may occur

Ingestion: Adverse symptoms may include the following:
Stomach pain

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

Notes to physician:	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
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 dry chemical, CO_2, water spray (fog), or foam.
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 Nitrogen oxides Silicon 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**). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used.

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.

8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient	OSHA PEL	ACGIH TLV	NIOSH REL
Ethanol	1,900 mg/m^3 TWA 1,000 ppm TWA	1,000 ppm STEL	1,900 mg/m^3 TWA 1,000 ppm TWA

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:	White to off-white.
Odor:	Amine-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:	1.11
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:	Stable under normal conditions.
Chemical stability:	This product is stable.
Possibility of hazardous reactions:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid:	Avoid all possible sources of ignition. Avoid moisture. Avoid generating dust. Refer to protective measures listed in **Sections 7 and 8**.
Incompatible materials:	Reactive or incompatible with the following materials: Water Oxidizing materials Reaction with water or other aqueous media is rapid and exothermic.
Hazardous decomposition products:	In the event of a fire, hazardous decomposition products may include: Carbon monoxide Carbon dioxide

Nitrogen oxides
Silicon oxides
Other unidentified organic compounds

11: Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/summary: Not determined.

Ingredient	Result	Species	Dose	Exposure
Gamma-aminopropyltriethoxysilane	LD_{50} oral LD_{50} inhalation LD_{50} dermal	Rat (M) Rat (M) Rabbit (M)	3000 mg/kg > 7.35 mg/L > 2000 mg/kg	- 4 h -
Calcium silicate	LD_{50} oral LD_{50} dermal LC_{50} inhalation	Rat Rabbit Rat	>5000 mg/kg >5000 mg/kg 0.69 mg/L	- - -

Irritation/corrosion

Conclusion/summary

Skin: Corrosive to skin (Rabbit)

Eyes: Severely irritating to the eyes (Rabbit)

Respiratory: Not determined.

Sensitization

Conclusion/summary:

Skin: Sensitizing (Guinea pig)

Respiratory: Not determined.

Mutagenicity:

Conclusion/summary: Not determined.

Carcinogenicity

Conclusion/summary: Not determined.

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.

Aspiration hazard

Not available.

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

Potential acute health effects

Eye contact: Causes serious eye damage

Inhalation: May give off gas, vapour, or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products

	may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact:	Causes severe burns. May cause an allergic skin reaction.
Ingestion:	Harmful if swallowed. May cause burns to mouth, throat, and stomach.

Symptoms related to the physical, chemical, and toxicological characteristics

Eye contact:	Adverse symptoms may include the following: Pain Watering Irritation Redness
Inhalation:	Adverse symptoms may include the following: Coughing Respiratory tract irritation
Skin contact:	Adverse symptoms may include the following: Pain or irritation Redness Blistering may occur
Ingestion:	Adverse symptoms may include the following: Stomach pain

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

Short-term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long-term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

General:	Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity:	Not available.
Mutagenicity:	This material was not mutagenic in an Ames bacterial assay. This material was negative in a CHO gene mutation assay. This material was negative in a SCE assay. This material was negative in a mouse micronucleus assay.
Teratogenicity:	Not available.
Developmental effects:	Not available.
Fertility effects:	Not classified based on available information.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information

Not genotoxic in various in vitro or in vivo studies. No evidence for systemic toxicity by short-term recurrent (9-day) application to the skin of rabbits up to 84 mg/kg/day (6 h/day, occlusive), although a cumulative local irritation occurs.

Recurrent exposure of rats to an aerosol of a hydrolyzate of this material (150 mg/m^3) produced inflammatory and irritant effects in the nasal, laryngeal, and tracheal mucosae, and inflammatory reactions in the lungs. A separate laboratory study indicates that contact with a hydrolyzate of this organosilane ester does not result in skin sensitization. The International Agency for Research on Cancer (IARC) has determined that the consumption of alcoholic beverages is causally related to the occurrence of malignant tumors of the oral cavity, pharynx, larynx, esophagus, and liver in humans. The carcinogenic response attributed to drinking alcoholic beverages has not been verified in studies with laboratory animals. Established uses of denatured alcohol and non-beverage uses of pure ethanol are not considered to pose any significant cancer hazard.

12: Ecological information

Toxicity

Ingredient	Result	Species	Exposure
Gamma-aminopropyltriethoxysilane	Acute LC50 934 mg/L Acute EC50 1,000 mg/L Acute NOEC 1.3 mg/L	Fish – *brachydanio rerio* Algae – *desmodesmus subspicatus* Algae – *desmodesmus subspicatus*	96 h 72 h 72 h
Calcium silicate	LC_{50} > 10000 mg/L EC_{50} > 1000 mg/L	Fish – *Brachydanio rerio* Daphnia – *Daphnia magna*	96 hours 24 hours

Persistence and degradability

Ingredient	Aquatic half-life	Photolysis	Biodegradability
Gamma-aminopropyltriethoxysilane	-	-	Not readily, hydrolyses (67% - 28d)

Bioaccumulative potential

Ingredient	$LogP_{OW}$	BCF	Potential
Gamma-aminopropyltriethoxysilane	1.7	-	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	UN3263	UN3263	UN3263
UN proper shipping name	Corrosive solid, basic, organic, n.o.s. (3-aminopropyltriethoxysilane)	Corrosive solid, basic, organic, n.o.s. (3-aminopropyltriethoxysilane)	Corrosive solid, basic, organic, n.o.s. (3-aminopropyltriethoxysilane)
Transport hazard class(es)	8	8	8
Packing group	II	II	II
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:

Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

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)

HEALTH	3
FLAMMABILITY	1
REACTIVITY	2
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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