


A172 DLC®-Z

1: Identification

Product identifier:	A172 DLC®-Z	
Other means of identification:	Vinyl-tris(2-methoxyethoxy)silane on silicic acid, calcium salt	
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: Toxic to reproduction – Category 1B

GHS label elements

Signal word:

DANGER

Symbol(s):



Hazard statements:

May damage fertility

May damage the unborn child

Hazards not otherwise classified:

May form combustible dust concentrations in the air.

Additional 2-methoxyethanol may be formed by reaction with moisture.

Precautionary statements:

Prevention:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from flames and hot surfaces. No smoking.

Avoid breathing dust/vapours.

Avoid release to the environment.

Wear protective gloves.

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

In case of fire: Use dry chemical, CO₂, 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 (%)
2,5,7,10-tetraoxa-6-silaundecane,6-ethenyl-6-(2-methoxyethoxy)-		1067-53-4	70-74
silicic acid, calcium salt		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.

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 dry chemical, CO₂. 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 Metal oxides Other unidentified organic compounds Measurements at temperatures above 150°C in presence of air (oxygen) have shown that small amounts of formaldehyde are formed due to oxidative degradation.
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.

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

None.

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:	Ester-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.
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 generating dust. Refer to protective measures listed in Sections 7 and 8 .
Incompatible materials:	Reactive or incompatible with the following materials: Acids Oxidizing materials Strong alkalis Water
Hazardous decomposition products:	In the event of a fire, hazardous decomposition products may include: Carbon monoxide Carbon dioxide Metal oxides Other unidentified organic compounds Measurements at temperatures above 150°C in 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
2,5,7,10-tetraoxa-6-silaundecane,6-ethenyl-6-(2-methoxyethoxy)-	LD ₅₀ oral	Rat (M/F)	> 2000 mg/kg	-
	LD ₅₀ oral	Rat	> 2000 mg/kg	-
	LD ₅₀ dermal	Rat (M/F)	> 2000 mg/kg	-
	LD ₅₀ dermal	Rat	> 2000 mg/kg	-
Silicic acid, calcium salt	LD ₅₀ oral	Rat	>5000 mg/kg	-
	LD ₅₀ dermal	Rabbit	>5000 mg/kg	-
	LC ₅₀ inhalation	Rat	0.69 mg/L	-

Irritation/corrosion

Conclusion/summary

Skin:	Non-irritant to skin (Rabbit)
Eyes:	Non-irritating to the eyes (Rabbit)
Respiratory:	Not determined.

Sensitization

Conclusion/summary:

Skin:	Negative (Guinea pig)
Respiratory:	Not determined.

Mutagenicity:**Conclusion/summary:** Not determined.**Carcinogenicity****Conclusion/summary:** Not determined.**Reproductive toxicity****Conclusion/summary:** No known significant effects or critical hazards.**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:** May be harmful if inhaled.
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:** May be harmful if swallowed.**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:
Reduced fetal weight
Increase in fetal deaths
Skeletal malformations
Coughing
Respiratory tract irritation**Skin contact:** Adverse symptoms may include the following:
Reduced fetal weight
Increase in fetal deaths
Skeletal malformations
Dryness**Ingestion:** Adverse symptoms may include the following:
Reduced fetal weight
Increase in fetal deaths
Skeletal malformations

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

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:	This material was negative in a bacterial reverse (<i>salmonella typhimurium</i> / <i>Escherichia coli</i>) mutation assay. This material was negative in a mammalian cell gene mutation test. This material was negative in a mammalian chromosome aberration test.
Teratogenicity:	No known significant effects or critical hazards. May damage the unborn child.
Developmental effects:	No known significant effects or critical hazards.
Fertility effects:	May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information

Repeated exposure to 2-methoxyethanol may cause injury to bone marrow, blood cells, kidneys, liver, and testes. Reproductive toxicity was observed in rats exposed orally to 250 or 270 mg/kg/day of vinyl tris-2-methoxyethoxysilane prior to mating and during gestation. Effects included reduced litter size and postnatal pup survival during the first 4 days after birth. No adverse effects were observed at 25 mg/kg/day.

12: Ecological information

Toxicity

Silicic acid, calcium salt	LC ₅₀ > 10000 mg/L	Fish – <i>Brachydanio rerio</i>	96 hours
	EC ₅₀ > 1000 mg/L	Daphnia – <i>Daphnia magna</i>	24 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Ingredient	LogP _{ow}	BCF	Potential
2,5,7,10-tetraoxa-6-silaundecane,6-ethenyl-6-(2-methoxyethoxy)-	0.26	-	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	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 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:

Fire hazard
Delayed (chronic) health hazard

Section 313 – Toxic Chemicals:

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.

US State regulations:

New Jersey Right to Know:

Silicic acid, calcium salt.

Massachusetts Right to Know:

Silicic acid, calcium salt.

Pennsylvania Right to Know:

Silicic acid, calcium salt.

Rhode Island Right to Know:

Silicic acid, calcium salt.

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	2	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.
FLAMMABILITY	2	
REACTIVITY	1	
PERSONAL PROTECTION		

* - 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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