



1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Thio and Fine Chemicals

Customer Service Telephone Number: (800) 628-4453
(Monday through Friday, 8:30 AM to 5:30 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (866) 767-5089
(24 hrs., 7 days a week)

Product Information

Product name: VULTAC® 5
Synonyms: Blend- Calcium Silicate, Amyl Disulfide Polymer
Molecular formula: (C₁₁H₁₆O.Cl₂S₂)_x
Chemical family: Polysulfide
Product use: Vulcanization agent

2. HAZARDS IDENTIFICATION

Emergency Overview

Color: brown
Physical state: solid
Form: powder
Odor: phenol-like

Potential Health Effects

Primary routes of exposure:
Inhalation and skin contact.

Signs and symptoms of acute exposure:
Mechanical irritation effects from dust exposure are possible at ambient temperature.

Skin:
No more than slightly toxic. Non-irritating. (based on components)

Inhalation:
No more than slightly toxic. (based on components)

Eyes:
Practically non-irritating. (based on components)

Ingestion:



Practically nontoxic. (based on components)

Repeated exposure:

Data for a component: Prolonged or repeated exposure may cause: A benign dust induced lung condition, without impairment of lung function. (dust)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	OSHA Hazardous
Phenol, 4-(1,1-dimethylpropyl)-, polymer with sulfur chloride (S2Cl2)	68555-98-6	75 %	N
Silica	7631-86-9	25 %	Y
Water	7732-18-5	< 5 %	N
Sulfur	7704-34-9	< 2 %	Y

This material is classified as hazardous under Federal OSHA regulation.

The substance(s) marked with a "Y" in the Hazard column above, are those identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

While this material is not classified as hazardous under Federal OSHA regulations, this MSDS contains valuable information critical to the safe handling and proper use of this product. This MSDS should be retained and available for employees and other users of this product.

4. FIRST AID MEASURES**Inhalation:**

If inhaled, remove victim to fresh air.

Skin:

In case of contact, immediately flush skin with plenty of water. Remove material from clothing. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:

Immediately flush eye(s) with plenty of water.

Ingestion:

If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flash point	Not determined
Auto-ignition temperature:	Not determined
Lower flammable limit (LFL):	Not determined



Upper flammable limit (UFL): Not determined

Extinguishing media (suitable):
water spray, Carbon dioxide (CO₂), Foam, Dry chemical

Protective equipment:
Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:
Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:
When burned, the following hazardous products of combustion can occur:
Carbon monoxide
Carbon dioxide (CO₂)
sulfur oxides

6. ACCIDENTAL RELEASE MEASURES

In case of spill or leak:
Spills should be contained and placed in suitable containers for disposal. Sweep up and shovel into suitable containers for disposal. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7. HANDLING AND STORAGE

Handling

General information on handling:
Handle in accordance with good industrial hygiene and safety practices.
These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing.

Storage

General information on storage conditions:
This material is not hazardous under normal storage conditions; however, material should be stored in closed containers, in a secure area to prevent container damage and subsequent spillage.

Storage incompatibility – General:
Store separate from: Strong oxidizing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

Silica (7631-86-9)



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US. OSHA Table Z-3 (29 CFR 1910.1000)

Time Weighted Average (TWA):	20millions of particles per cubic foot of air
Time Weighted Average (TWA):	0.8 mg/m3
Remarks:	The exposure limit is calculated from the equation, $80/(\%SiO_2)$, using a value of 100% SiO ₂ . Lower values of % SiO ₂ will give higher exposure limits.

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

Engineering controls:

Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above). Provide ventilation if necessary to control exposure levels below airborne exposure limits (see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Respiratory protection:

Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:

Minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Wash thoroughly after handling.

Eye protection:

Use good industrial practice to avoid eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	brown
Physical state:	solid
Form:	powder
Odor:	phenol-like
pH:	not determined
Density:	not determined



Specific Gravity (Relative density):	1.435 (77 °F(25 °C))
Bulk density:	0.3 kg/l
Vapor pressure:	not applicable
Vapor density:	not applicable
Boiling point/boiling range:	not determined
Freezing point:	not determined
Melting point/range:	not determined
Solubility in water:	Negligible
% Volatiles:	0 %

10. STABILITY AND REACTIVITY

Stability:

This material is chemically stable under normal and anticipated storage, handling and processing conditions.

Materials to avoid:

Strong oxidizing agents

Conditions / hazards to avoid:

Avoid dust formation.

Hazardous decomposition products:

No decomposition if stored normally.

11. TOXICOLOGICAL INFORMATION

Data on this material and/or its components are summarized below.

Data for Phenol, 4-(1,1-dimethylpropyl)-, polymer with sulfur chloride (S2Cl2) (68555-98-6)

Acute toxicity

Oral:

Practically nontoxic. (rat) LD50 = 6,000 mg/kg.

Dermal:

No more than slightly toxic. (rabbit) LD50 > 2,000 mg/kg.

Skin Irritation:

Non-irritating. (rabbit) 0.0/8.0. (4 h)

Eye Irritation:

Practically non-irritating. (rabbit) 0.7/110.

Human experience**Skin contact:**

Slightly irritating.

Data for Silica (7631-86-9)**Acute toxicity****Oral:**

Practically nontoxic. (rat) LD50 > 5,000 mg/kg.

Dermal:

Practically nontoxic. (rabbit) LD50 > 5,000 mg/kg.

Inhalation:

No deaths occurred. (rat) 4 h LC0 >= 2.08 mg/l.

Skin Irritation:

Non-irritating to slightly irritating. (rabbit) Irritation Index: 0 - 2/8.0. (4 h)

Eye Irritation:

Non-irritating. (rabbit) OECD Test Guideline 405

Repeated dose toxicity

Repeated inhalation administration to rat / affected organ(s): lung, lymph nodes / signs: inflammation / No adverse systemic effects reported. (Local effects, reversible)

Repeated dietary administration to rat / No adverse systemic effects reported.

Carcinogenicity

Chronic dietary administration administration to rat and mouse / affected organ(s): lung / No increase in tumor incidence was reported.

Classified by the International Agency for Research on Cancer as: Group 3: Unclassifiable as to carcinogenicity in humans.

Genotoxicity**Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells, human cells, yeast

Genotoxicity**Assessment in Vivo:**

No genetic changes were observed in laboratory tests using: rats

Developmental toxicity

Exposure during pregnancy. oral (rat, rabbit, hamster, mouse) / No birth defects were observed.

Other information

Information given is based on data obtained from similar substances.

Human experience**Inhalation:**

Respiratory system: No increase in tumor incidence was reported. No significant impairment of lung function. (based on reports of occupational exposure to workers)

Data for Sulfur (7704-34-9)**Acute toxicity****Oral:**

Practically nontoxic. (rat) LD50 > 5,000 mg/kg.

Dermal:

No more than slightly toxic. (rabbit) LD50 > 2,000 mg/kg.

Inhalation:

Practically nontoxic. (rat) 4 h LC50 > 9.23 mg/l.

Skin Irritation:

Slightly irritating.

Eye Irritation:

Moderately irritating.

Skin Sensitization:

Repeated skin exposure. (guinea pig) No skin allergy was observed

Repeated dose toxicity

Subchronic Inhalation administration to rat / signs: reduced body weight

Genotoxicity**Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria

Human experience**Inhalation:**

Respiratory disorders, chronic bronchitis. (dust)

Human experience**Skin contact:**

Erythema. (repeated or prolonged exposure)

Human experience**Eye contact:**

Dust and/or vapor are reported to cause irritation when proper industrial hygiene controls/procedures are not used.

12. ECOLOGICAL INFORMATION**Chemical Fate and Pathway**

Data on this material and/or its components are summarized below.

**Ecotoxicology**

Data on this material and/or its components are summarized below.

Data for Sulfur (7704-34-9)**Aquatic toxicity data:**

Practically nontoxic. Gambusia affinis (Mosquito fish) LD50 = 10,000 mg/l

Practically nontoxic. Fish LOEC between 1,600 - 10,000 mg/l (Colloidal suspension)

Practically nontoxic. Oncorhynchus mykiss (rainbow trout), Bluegill sunfish 96 h LD50 > 180 mg/l

Aquatic invertebrates:

Practically nontoxic. Daphnia magna (Water flea) 48 h LD50 > 5,000 mg/l

Practically nontoxic. Mysid shrimp 48 h LD50 > 736 mg/l

13. DISPOSAL CONSIDERATIONS**Waste disposal:**

Where possible recycling is preferred to disposal or incineration. If recycling is not an option, incinerate or dispose of in accordance with federal, state, and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT): not regulated

International Maritime Dangerous Goods Code (IMDG): not regulated

15. REGULATORY INFORMATION**Chemical Inventory Status**

EU. EINECS	EINECS	Conforms to
US. Toxic Substances Control Act	TSCA	The components of this product are all on the TSCA Inventory.
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	Conforms to
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 144)	DSL	All components of this product are on the Canadian DSL list.
Japan. Kashin-Hou Law List	ENCS (JP)	Conforms to
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to



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Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act PICCS (PH) Conforms to

China. Inventory of Existing Chemical Substances IECSC (CN) Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

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

SARA Title III - Section 311/312 Hazard Categories:

No SARA Hazards

SARA Title III – Section 313 Toxic Chemicals:

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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

The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

OSHA Regulated Carcinogens (NTP, IARC, OSHA Listed):

NTP:

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA:

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

United States – State Regulations

New Jersey Right to Know

Chemical Name
Silica

CAS-No.
7631-86-9



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Sulfur 7704-34-9

Pennsylvania Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
Silica	7631-86-9

Phenol, 4-(1,1-dimethylpropyl)-, polymer with sulfur chloride (S ₂ Cl ₂)	68555-98-6
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Sulfur 7704-34-9

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Latest Revision(s):

Revised Section(s):	Updated Corporate Address Change and Rocky Mountain Poison Center Phone Number
Reference number:	000000032058
Date of Revision:	07/11/2011
Date Printed:	07/11/2011

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