

SAFETY DATA SHEET



CLEARSTRENGTH® 223

1. PRODUCT AND COMPANY IDENTIFICATION

Company

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

Arkema Coating Resins

Customer Service Telephone Number: (877) 331-6696
(Monday through Friday, 8:00 AM to 5:00 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: CLEARSTRENGTH® 223
Synonyms: C223
Molecular formula: Complex Mixture
Chemical family: Acrylic copolymers
Product use: Impact modifier

SECTION 2: HAZARDS IDENTIFICATION

Emergency Overview

Color: white
Physical state: solid
Form: powder
Odor: slightly acrylic

***Classification of the substance or mixture:**

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Combustible dust,
Chronic aquatic toxicity, Category 3, H412

*For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Product code: VMD00

Version 2.2

Issued on: 07/14/2023

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Signal word: **Warning**

Hazard statements:

H412 : Harmful to aquatic life with long lasting effects.
: May form combustible dust concentrations in air.

Supplemental Hazard Statements:

Processing may release vapors and/or fumes which cause eye, skin and respiratory tract irritation.

Precautionary statements:

Prevention:

P273 : Avoid release to the environment.

Disposal:

P501 : Dispose of contents or container to an approved waste disposal plant.

Supplemental information:

Potential Health Effects:

The product, in the form supplied, is not anticipated to produce significant adverse human health effects. Contains high molecular weight polymer(s). Effects due to processing releases: Irritating to eyes, respiratory system and skin. Prolonged or repeated exposure may cause: headache, drowsiness, nausea, weakness, (severity of effects depends on extent of exposure).

Other:

Handle in accordance with good industrial hygiene and safety practice. (powder) Mechanical irritation effects from dust exposure are possible at ambient temperature. This product may release fume and/or vapor of variable composition depending on processing time and temperature.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No.	Wt/Wt	GHS Classification**
Acrylic copolymer	Proprietary*	> 80 - < 100 %	Not classified

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Alkyl metal salts	Proprietary*	< 2 %	Not classified
Acrylic polymer	Proprietary*	< 2 %	Not classified
Benzenepropanoic acid, 3-(1,1-dimethylethyl)-4-hydroxy-5-methyl-, 1,2-ethanediybis(oxy-2,1-ethanediy) ester	36443-68-2	< 0.25 %	H410

*The specific chemical identity is withheld because it is trade secret information of Arkema Inc.

**For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

Inhalation:

If inhaled, remove victim to fresh air.

Skin:

In case of contact, immediately flush skin with plenty of water. If molten polymer gets on the skin, cool rapidly with cold water. Do not peel solidified product off the skin. Obtain medical treatment for thermal burns. Remove material from clothing. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:

Immediately flush eye(s) with plenty of water. Obtain medical treatment for thermal burns.

Ingestion:

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

4.2. Most important symptoms/effects, acute and delayed:

For most important symptoms and effects (acute and delayed), see Section 2 (Hazard Statements and Supplemental Information if applicable) and Section 11 (Toxicology Information) of this SDS.

4.3. Indication of any immediate medical attention and special treatment needed:

Unless otherwise noted in Notes to Physician, no specific treatment noted; treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES**Extinguishing media (suitable):**

Water spray

Extinguishing media (unsuitable):

High volume water jet

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:

Do not use a solid stream of water.

A solid stream of water can cause a dust explosion.

Do not allow run-off from fire fighting to enter drains or water courses.

Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:

Dust clouds generated during handling and/or storage can form explosive mixtures with air. Dust explosion characteristics vary with the particle size, particle shape, moisture content, contaminants, and other variables.

Note: Check that all equipment is properly grounded and installed to satisfy electrical classification requirements. As with any dry material, pouring this material or allowing it to free-fall or to be conveyed through chutes or pipes can accumulate and generate electrostatic sparks, potentially causing ignition of the material itself, or of any flammable materials which may come into contact with the material or its container.

When burned, the following hazardous products of combustion can occur:

Butadiene

Carbon oxides

Sulphur oxides

Hazardous organic compounds

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, Emergency procedures, Methods and materials for containment/clean-up:**

Prevent further leakage or spillage if you can do so without risk. Evacuate area of all unnecessary personnel. Ventilate the area. Eliminate all ignition sources. Avoid dust formation and dispersal of dust in the air. Wet down (dampen) the spilled material with water. Sweep or scoop up using non-sparking tools and place into suitable properly labeled containers for prompt disposal. The sweepings should be wetted down further with water. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Implement workplace practices such that dusts are not allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. 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.

Protective equipment:

Appropriate personal protective equipment is set forth in Section 8.

SECTION 7: HANDLING AND STORAGE**Handling****General information on handling:**

Avoid breathing dust.

Avoid breathing processing fumes or vapors.

Keep away from heat, sparks and flames.

Keep container closed.

Avoid creating dust in handling, transfer or clean up.

Prevent dust accumulation.

Implement routine housekeeping practices to ensure that dusts do not accumulate on surfaces.

Check that all equipment is properly grounded and installed to satisfy electrical classification requirements.

Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.

Container hazardous when empty.

Emptied container retains product residue.

RESIDUAL DUSTS MAY EXPLODE ON IGNITION.

DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.

Follow label warnings even after container is emptied.

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.

Improper disposal or reuse of this container may be dangerous and/or illegal.

Storage**General information on storage conditions:**

Keep in a dry, cool place. Store in closed containers, in a secure area to prevent container damage and subsequent spillage. Store in well ventilated area away from heat and sources of ignition such as flame, sparks and static electricity. Ensure that all storage and handling equipment is properly grounded and installed to satisfy electrical classification requirements. Static electricity may accumulate when transferring material. All metal and groundable storage containers, including but not limited to drums, cylinders, Returnable Intermodal Bulk Containers (RIBCs) and Class C Flexible Intermodal Bulk Containers (FIBCs) must be bonded and grounded during filling and emptying operations. Observe all federal, state and local regulations and National Fire Protection Association (NFPA) Codes, which pertain to the specific local conditions of storage and use, including NFPA 654.

Storage stability – Remarks:

Stable under recommended storage conditions.

Storage incompatibility – General:

Store separate from:

Bases

Strong oxidizing agents

Strong reducing agents

Temperature tolerance – Do not store above:

104 °F (40 °C)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**Airborne Exposure Guidelines:****Particles Not Otherwise Specified / Nuisance Dust (Proprietary)**

US. ACGIH Threshold Limit Values

Form:	Respirable particles.
Time weighted average	3 mg/m ³
Form:	Inhalable particles.
Time weighted average	10 mg/m ³

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

Form:	Respirable fraction.
Time weighted average	15millions of particles per cubic foot of air

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

Form:	Total dust
Time weighted average	50millions of particles per cubic foot of air

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

Form:	Respirable fraction.
Time weighted average	5 mg/m ³

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

Form:	Total dust
Time weighted average	15 mg/m ³

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). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

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Check that all dust control equipment such as local exhaust ventilation, material transport systems, and air-material separation devices involved in handling this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Isolation devices may be appropriate to prevent propagation from one unit to another. Ensure that dust-handling systems are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Consult ACGIH ventilation manual, NFPA Standard 91 and NFPA Standard 654 for design of exhaust system and safe handling.

Respiratory protection:

Avoid breathing dust. Avoid breathing processing fumes or vapors. 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 and substances released during processing. 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:

Processing of this product releases vapors or fumes which may cause skin irritation. Minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after contact with processing fumes or vapors. Wash thoroughly after handling.

Eye protection:

Use good industrial practice to avoid eye contact. Processing of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely, wear chemical goggles and have eye flushing equipment available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Color:	white
Physical state:	solid
Form:	powder
Odor:	slightly acrylic
Odor threshold:	No data available
Flash point	Not applicable
Auto-ignition temperature:	estimated 878 °F (470 °C)
Lower flammable limit (LFL):	No data available
Upper flammable limit (UFL):	No data available

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pH:	Not applicable
Density:	No data available
Specific Gravity (Relative density):	No data available
Bulk density:	estimated 300 - 400 kg/m ³
Boiling point/boiling range:	Not applicable
Melting point/range:	No data available
Freezing point:	No data available.
Evaporation rate:	No data available
Solubility in water:	insoluble
Viscosity, dynamic:	No data available
Oil/water partition coefficient:	No data available.
Thermal decomposition:	> 482 °F (> 250 °C)
Flammability:	See GHS Classification in Section 2 if applicable

SECTION 10: STABILITY AND REACTIVITY**Stability:**

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

Hazardous reactions:

Hazardous polymerization does not occur.

Materials to avoid:

Bases
Strong oxidizing agents
Strong reducing agents

Conditions / hazards to avoid:

See HANDLING AND STORAGE section of this MSDS for specified conditions. See Hazardous Decomposition Products below.

Hazardous decomposition products:

Thermal decomposition giving flammable and toxic products :
Carbon oxides

Acrylates
Butadiene
Methacrylates
Styrene
Sulphur oxides
Hazardous organic compounds

SECTION 11: TOXICOLOGICAL INFORMATION

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

Data for Acrylic copolymer (Proprietary)**Other information**

The information presented is from representative materials in this chemical class. The results may vary depending on the test substance.

Effects due to processing releases or residual monomer:

Possible cross sensitization with other acrylates and methacrylates.

Data for Alkyl metal salts (Proprietary)**Acute toxicity****Oral:**

No deaths occurred. (rat) LD₀ > 2,000 mg/kg.

Dermal:

No deaths occurred. (rat) LD₀ > 2,000 mg/kg.

Skin Irritation:

Not irritating. (rabbit)

Eye Irritation:

Causes mild eye irritation. (rabbit)

Skin Sensitization:

Not a sensitizer. LLNA: Local Lymph Node Assay. (mouse) No skin allergy was observed.

Repeated dose toxicity

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

Carcinogenicity

Chronic drinking water administration to rat / No increase in tumor incidence was reported.

Genotoxicity**Assessment in Vitro:**

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

Developmental toxicity

Reproductive/Developmental Effects Screening Assay. Dermal (rat) / No birth defects were observed.

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Reproductive effects

Reproductive/Developmental Effects Screening Assay. Dermal (rat) / No toxicity to reproduction.

Other information

The information presented is from representative materials in this chemical class. The results may vary depending on the test substance.

Data for Acrylic polymer (Proprietary)**Other information**

The information presented is from representative materials in this chemical class. The results may vary depending on the test substance.

Effects due to processing releases or residual monomer:

Possible cross sensitization with other acrylates and methacrylates.

SECTION 12: ECOLOGICAL INFORMATION**Chemical Fate and Pathway**

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

Data for Alkyl metal salts (Proprietary)**Biodegradation:**

Readily biodegradable. (28 d) biodegradation 83 %

Additional Information:

The information presented is from representative materials in this chemical class. The results may vary depending on the test substance.

Data for Benzenepropanoic acid, 3-(1,1-dimethylethyl)-4-hydroxy-5-methyl-, 1,2-ethanediylbis(oxy-2,1-ethanediyl) ester (36443-68-2)**Biodegradation:**

Not readily biodegradable. (28 d) biodegradation 3 - 8 %

Bioaccumulation:

BCF = 6.45

Octanol Water Partition Coefficient:

log Pow: = 4.7, at 73 °F (23 °C) pH = 6.4

Ecotoxicology

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

Data for Alkyl metal salts (Proprietary)

The information presented is from representative materials in this chemical class. The results may vary depending on the test substance.

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Aquatic toxicity data:

No effect up to the limit of solubility. *Oncorhynchus mykiss* (rainbow trout) 96 h LL50 = 24 mg/l (Nominal concentration, Water accommodated fraction was tested.)

Aquatic invertebrates:

No effect up to the limit of solubility. *Daphnia magna* (Water flea) 48 h EL50 = 16 mg/l (Nominal concentration, Water accommodated fraction was tested.)

Algae:

No effect up to the limit of solubility. *Pseudokirchneriella subcapitata* (green algae) 72 h EL50 = 13 mg/l (Nominal concentration, Water accommodated fraction was tested.)

Microorganisms:

Respiration inhibition / Activated sludge 3 h NOEC = 800 mg/l

Data for Benzenepropanoic acid, 3-(1,1-dimethylethyl)-4-hydroxy-5-methyl-, 1,2-ethanediylbis(oxy-2,1-ethanediyl) ester (36443-68-2)**Aquatic toxicity data:**

No effect up to the limit of solubility. *Lepomis macrochirus* (Bluegill sunfish) 96 h LC50 = 43 mg/l

Aquatic invertebrates:

No effect up to the limit of solubility. *Daphnia magna* (Water flea) 48 h EC50 > 100 mg/l (Nominal concentration)

Algae:

No effect up to the limit of solubility. *Pseudokirchneriella subcapitata* (green algae) 72 h ErC50 > 6.66 mg/l

Microorganisms:

Respiration inhibition / Activated sludge 3 h IC50 > 100 mg/l (Nominal concentration)

Chronic toxicity to fish:

Very toxic. Early-life Stage / *Pimephales promelas* (fathead minnow) 32 d NOEC = 0.009 mg/l

Chronic toxicity to aquatic invertebrates:

Very toxic. Reproduction Test / *Daphnia magna* (Water flea) 21 d NOEC = 0.016 mg/l

Chronic toxicity to aquatic plants:

No effect up to the limit of solubility. *Pseudokirchneriella subcapitata* (green algae) 72 h NOEC r > 6.66 mg/l

SECTION 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. Pigmented, filled and/or solvent laden product may require special disposal practices 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.

Take appropriate measures to prevent release to the environment.

SECTION 14: TRANSPORT INFORMATION

US Department of Transportation (DOT): not regulated

International Maritime Dangerous Goods Code (IMDG): not regulated

SECTION 15: REGULATORY INFORMATION

Chemical Inventory Status

US. Toxic Substances Control Act	TSCA	The components of this product are all on the Active TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL
China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	All components of this product are listed or exempted
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	All components of this product are listed or exempted
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	All components of this product are listed or exempted
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	All components of this product are listed or exempted
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	All components of this product are listed or exempted
Australian Inventory of Industrial Chemicals	AU AIICL	All components of this product are listed or exempted
Taiwan Chemical Substance Inventory (TCSI)	TCSI	All components of this product are listed or exempted

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:

Fire Hazard

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SARA Title III – 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.

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.

United States – State Regulations

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.

<u>Chemical name</u>	<u>CAS-No.</u>
Benzene, ethenyl-	100-42-5
1,3-Butadiene	106-99-0

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<u>Chemical name</u>	<u>CAS-No.</u>
1,3-Butadiene	106-99-0

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

- H410 Very toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

Miscellaneous:

Other information: Refer to National Fire Protection Association (NFPA) Code 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

Latest Revision(s):

Reference number: 200007754
Date of Revision: 07/14/2023
Date Printed: 07/14/2023

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The Company adheres to a strict policy that applies to the use of any of its products in medical device applications. This policy can be found at <https://www.arkema.com/global/en/social-responsibility/innovation-and-sustainable-solutions/responsible-product-management/medical-device-policy/> which is incorporated herein by reference and made a part hereof. Except as expressly authorized, the Company (i) has designated specific medical grade compositions for products used in medical device applications and Company products not so designated are not authorized for use in medical device applications and (ii) strictly prohibits the use of any of its products in medical device applications that are implanted in the body or in contact with bodily fluids or tissues for greater than 30 days. The Company does not design, manufacture and/or directly sell any medical devices. The Company does not co-design, or offer assistance to any purchaser of its products, in their design, manufacture and/or sale of products for medical devices. It is the sole responsibility of the manufacturer of medical devices to determine the suitability of all raw material, products and components, including any medical grade products, in order to ensure that the medical device is safe for end-use and complies with all applicable legal and regulatory requirements and to conduct all necessary tests and inspections.