

**LF111****1. Product and Company Information**

Product Name CPS Resin: CPS LF111
Product Number CPS Resin: CPS LF111

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

Telephone Number 303-520-4107

Emergency Number 303-520-4107

Product Information

Product Name: LF111
Synonyms: Oligomer/Monomer Blend
Molecular Formula: Proprietary Mixture
Chemical Family: Mixture
Product Use: 3D printing

2. Hazard(s) Identification**Emergency Overview:**

Color: Clear
Physical state: Liquid
Oder: Acrylic-like

Classification of substance or mixture:

Skin Sens 1
Eye Irrit 2A

GHS07

H317 : May cause an allergic skin reaction.
H319 : Causes serious eye irritation.



GHS09 H411 : Toxic to aquatic life with long lasting effects.

Chronic Aquatic tox 2

Supplemental Hazard Statements:

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

Precautionary Statements - Prevention

P261: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264: Wash skin thoroughly after handling.

P272: Contaminated work clothing should not be allowed out of the workplace.

P273: Avoid release to the environment.

P280: Wear eye protection and face protection.

P280: Wear protective gloves.

Precautionary Statements - Response

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P333 + P313: If skin irritation or rash occurs: Get medical advice/ attention.

P337 + P313: If eye irritation persists: Get medical advice/ attention.

P363: Wash contaminated clothing before reuse.

P391: Collect spillage.

Precautionary Statements - Disposal

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

Supplemental information:

Potential Health Effects:

If swallowed may cause irritation of the digestive tract. Possible cross sensitization with other acrylates and methacrylates. May cause allergic respiratory reaction. Effects due to processing releases or residual monomer: 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:

Product not completely tested. Take maximum precautions when handling. This product may release fume and/or vapor of variable composition depending on processing time and temperature. Possible release of traces of residual monomer. Isocyanates may cause acute irritation and/or sensitization of the respiratory system leading to tightness of the chest, wheeziness and an asthmatic condition.

3. Composition/information on Ingredients

Chemical	CAS-No.	Wt/Wt	GHS Classification
Proprietary components	Proprietary*	0-100%	H317, H319, H400, H401, H410, H411
2-Propenoic acid	79-10-7	< 1 %	H226, H302, H332, H314, H318, H335, H400, H411

*The specific chemical identity is withheld because it is trade secret information of Colorado Photopolymer Solutions.

4. First-aid Measures

4.1. Description of necessary first-aid measures:

- General: Remove contaminated clothing. Do not ingest.
- Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
- Skin contact: In case of contact, immediately flush skin with soap and plenty of water. Get medical attention. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse.
- Ingestion: If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.
- Inhalation: If inhaled, remove victim to fresh air

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 immediate medical attention and special treatment needed, if necessary:

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

5. Fire-Fighting Measures

- Extinguishing media: 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 firefighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).
- Further firefighting advice: Fight fire from a protected location. Cool closed containers exposed to fire with water spray. Closed containers of this material

may explode when subjected to heat from surrounding fire. Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards: When burned, the following hazardous products of combustion can occur: Carbon oxides Hazardous organic compounds Amines hydrogen cyanide Isocyanates Nitrogen oxides (NO_x) Polymerization is exothermic and can degenerate into an uncontrolled reaction.

6. Accidental Release Measures

In case of spill: Prevent further spill or leak if possible to do so without risk. Evacuate area of all unnecessary personnel. Ventilate the area. Avoid generation of vapors. Contain and collect spilled chemical with non-combustible absorbent material such as clean sand, earth, diatomaceous earth or non-acidic clay and place into suitable properly labeled containers for prompt disposal. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. 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.

Personal precautions: Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Keep unprotected persons away from chemicals.

Environmental precautions: Keep out of drains and water courses. Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods for cleaning up: Absorb with an inert material and place in a chemical waste container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

7. Handling and Storage

Handling: Avoid breathing vapor or mist. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Storage: Keep in a dry, cool place. Store in closed containers, in a secure area to prevent container damage and subsequent spillage. Store out of direct sunlight in a cool well-ventilated place. Keep stabilizer levels constant to avoid explosive polymerization. An air space is required above the liquid in all containers; avoid storage under an oxygen-free atmosphere.

Inhibitor levels should be maintained. The typical shelf-life for this product is 6 months.

8. Exposure Controls/ Personal Protection

Airborne Exposure Guidelines:

General Measures:	Keep away from foodstuff, beverages, and feed. Wash hands before breaks and at the end of work.
Engineering Controls:	Ensure adequate ventilation to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Safety shower and eye bath must be nearby.
Eye Protection:	Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment immediately available.
Respiratory Protection:	Avoid breathing vapor or mist. 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. Respiratory protection programs must comply with 29 CFR § 1910.134.
Skin and Body Protection:	Wear appropriate chemical resistant skin protection and chemical-resistant gloves. Consult glove manufacturer to determine appropriate type glove material for given application. Avoid natural rubber gloves. Rinse immediately if skin is contaminated. Remove contaminated clothing immediately and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.
Ventilation:	Provide natural or mechanical ventilation to minimize exposure.

9. Physical and Chemical Properties

Appearance:	Clear
Physical State:	Liquid
Odor:	Acrylic-like
pH Value:	Not determined
Melting Point:	Not determined
Boiling Point:	Not determined

Flash Point:	Not applicable
Flammability:	Not applicable
Decomposition Temp.:	Not determined
Danger of explosion:	Product does not present an explosion hazard.

10. Stability and Reactivity

Chemical Stability:	Stable under recommended storage conditions. However, this material can undergo hazardous polymerization.
Hazardous Polymerization:	Hazardous polymerization may occur. Polymerization is exothermic and can degenerate into an uncontrolled reaction.
Incompatible materials:	Strong reducing agents Free radical generators Inert gas Oxygen scavenger. Peroxides Strong oxidizing agents
Hazardous Decomposition Products:	Thermal decomposition giving flammable and toxic products : Carbon oxides Acrylates Methacrylates Amines Nitrogen oxides (NOx) Isocyanates Hazardous organic compounds Hydrogen cyanide

11. Toxicological Information

Data for Proprietary Components

Acute toxicity

Oral:	Harmful if swallowed. (rat) LD50 > 300 mg/kg.
Dermal:	No deaths occurred. (rat) LD50 > 2,000 mg/kg
Inhalation:	No deaths occurred. (rat) 4 h LC0 = 3.4 mg/l. (dust/mist)
Skin Irritation:	Causes mild skin irritation. (rabbit) Irritation Index: 2.2 - 3.8 / 8. (4 h) Causes skin irritation. (rabbit) (6 h) (Repeated skin exposure)
Eye Irritation:	Causes serious eye irritation. (rabbit) Irritation Index: 44/110.
Skin Sensitization:	May cause an allergic skin reaction. Guinea pig maximization test. Skin allergy was observed. (Strong sensitizer)

Repeated dose toxicity

Subchronic oral administration to rat / affected organ(s): forestomach / signs: Local irritation, changes in organ structure or function

Genotoxicity

Assessment in Vitro: No genetic changes were observed in a laboratory test using: bacteria, animal cells

Reproductive effects: Reproductive/Developmental Effects Screening Assay. Oral (rat) /
No effects on reproduction parameters

12. Ecological Information

Chemical Fate and Pathway

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

Data for Proprietary Components (Proprietary)

Biodegradation: Inherently biodegradable. (28 d) biodegradation 28 % / OECD Test Guideline 301F

Octanol Water Partition Coefficient: log Pow: 4.6(Method: OECD Test Guideline 117)

Data for 2-Propenoic acid (79-10-7)

Biodegradation: Readily biodegradable. (28 d) biodegradation 81 %

Octanol Water Partition Coefficient: log Pow: 0.46, at 77 °F (25 °C) (Method: OECD Test Guideline 107)

Ecotoxicology

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

Data for Proprietary Components (Proprietary)

Aquatic toxicity data:	Toxic. Danio rerio (zebra fish) 96 h LC50 = 1.65 mg/l Very toxic. Oncorhynchus mykiss (rainbow trout) 96 h LC50 = 0.034 mg/l
Aquatic invertebrates:	Toxic. Daphnia magna (Water flea) 48 h EC50 2.4 mg/l No effect up to the limit of solubility. Daphnia magna (Water flea) 48 h EC50 > 0.35 mg/l
Algae:	Toxic. Pseudokirchneriella subcapitata (green algae) 72 h EC50 (growth rate) 1.6 mg/l No effect up to the limit of solubility. Desmodesmus subspicatus (green algae) 72 h ErC50 > 0.12 mg/l
Microorganisms:	Respiration inhibition / Activated sludge NOEC (Respiration inhibition) = 100 mg/l Activated sludge 28 d EC0 = 23.9 mg/l
Chronic toxicity to aquatic plants:	Toxic. Pseudokirchneriella subcapitata (green algae) 72 h EC10 (growth rate) 0.6 mg/l No effect up to the limit of solubility. Desmodesmus subspicatus (green algae) 72 h NOEC r = 0.12 mg/l

Data for 2-Propenoic acid (79-10-7)

Aquatic toxicity data:	Harmful. Oncorhynchus mykiss (rainbow trout) 96 h LC50 = 27 mg/l
Aquatic invertebrates:	Harmful. Mysid shrimp 96 h LC50 = 97 mg/l Harmful. Daphnia magna (Water flea) 48 h EC50 = 95 mg/l
Algae:	Very toxic. Pseudokirchneriella subcapitata (green algae) 72 h EC50 = 0.13 mg/l

Microorganisms:	Practically nontoxic. <i>Daphnia magna</i> (Water flea) 21 d NOEC (Reproduction inhibition) = 19 mg/l
Chronic toxicity to aquatic plants:	Toxic. <i>Desmodesmus subspicatus</i> (green algae) 72 h EC10 (Growth inhibition) 0.03 mg/l

13. Disposal Considerations

Waste Disposal:

Disposal via incineration is recommended. 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.

Take appropriate measures to prevent release to the environment.

14. Transport Information

US Department of Transportation (DOT):	Not regulated
Special Shipping Information:	Not regulated due to package size as per 49 CFR 171.4 (c)(2).
International Maritime Dangerous Goods Code (IMDG):	Not regulated

15. Regulatory Information

Chemical Inventory Status

US. Toxic Substances Control Act	TSCA	This product complies with the TSCA inventory requirements.
Canadian Domestic Substances List	DSL	This product contains one or several components that are not on the Canadian DSL nor NDSL lists.
China. Inventory of Existing Chemical Substances in China	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Does not conform
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Does not conform

Korea. Korean Existing Chemicals Inventory KECI (KR) Conforms to

Philippines Inventory of Chemicals and Chemical Substances PICCS (PH) Conforms to

Australia Inventory of Chemical Substances AICS 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:

Reactivity Hazard, Acute Health Hazard

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):

<u>Chemical name</u>	<u>CAS-No.</u>	<u>Reportable quantity</u>
2-Propenoic acid	79-10-7	5000 lbs

United States – State Regulations

New Jersey Right to Know

No components are subject to the New Jersey Right to Know Act.

Pennsylvania Right to Know – Environmentally Hazardous Substance(s)

<u>Chemical name</u>	<u>CAS-No.</u>
2-Propenoic acid	79-10-7
Benzene, methyl-	108-88-3

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>
Benzene, methyl-	108-88-3

16. Other Information

Revision Date: 9/19/2020

Disclaimer:

The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, ARKEMA expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information; **NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE GOODS DESCRIBED OR THE INFORMATION PROVIDED HEREIN.** The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. The user should thoroughly test any application before commercialization. Nothing contained herein constitutes a license to practice under any patent and it should not be construed as an inducement to infringe any patent and the user is advised to take appropriate steps to be sure that any proposed use of the product will not result in patent infringement. See SDS for Health & Safety Considerations.

Arkema has implemented a Medical Policy regarding the use of Arkema products in Medical Devices applications that are in contact with the body or circulating bodily fluids (<http://www.arkema.com/en/social-responsibility/responsible-product-management/medicaldevice-policy/index.html>) Arkema has designated Medical grades to be used for such Medical Device applications. Products that have not been designated as Medical grades are not authorized by Arkema for use in Medical Device applications that are in contact with the body or circulating bodily fluids. In addition, Arkema strictly prohibits the use of any Arkema 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 Arkema trademarks and the Arkema name shall not be used in conjunction with customers' medical devices, including without limitation, permanent or temporary implantable devices, and customers shall not represent to anyone else, that Arkema allows, endorses or permits the use of Arkema products in such medical devices.

It is the sole responsibility of the manufacturer of the medical device to determine the suitability (including biocompatibility) of all raw materials, products and components, including any medical grade Arkema products, in order to ensure that the final end-use product is safe for its end use; performs or functions as intended; and complies with all applicable legal and regulatory requirements (FDA or other national drug agencies) It is the sole responsibility of the manufacturer of the medical device to conduct all necessary tests and inspections and to evaluate the medical device under actual end-use requirements and to adequately advise and warn purchasers, users, and/or learned intermediaries (such as physicians) of pertinent risks and fulfill any postmarket surveillance obligations. Any decision regarding the appropriateness of a particular Arkema material in a particular medical device should be based on the judgment of the manufacturer, seller, the competent authority, and the treating physician.

CPS LF053 Last Revision Date 9/19/2020