

## ESSENTIUM PA

Thank you for your interest in Essentium's products. We are providing this safety data sheet [SDS] as a courtesy to your re-quest. We certainly expect you to read the entire SDS and to call us with any required points of clarification. Please follow all precautions identified in this document.

Copyright, August 2019, Essentium, Inc., all rights reserved. Copying and/or disseminating this information for the purpose of properly utilizing Essentium's products is allowed provided that: (1) no changes are made to the document and (2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit. This product is not regulated under, and a SDS is not required for this product by the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name:</b>	Essentium PA
<b>Supplier:</b>	Essentium, Inc.
<b>Address:</b>	19025 N. Heatherwilde Blvd. Suite 100 Pflugerville, TX 78660
<b>Manufacturer:</b>	Essentium, Inc.
<b>Address:</b>	19025 N. Heatherwilde Blvd. Suite 100 Pflugerville, TX 78660
<b>Supplier Emergency Contacts &amp; Phone:</b>	Essentium, Inc. Email: Sales@Essentium3D.com Website: Essentium3D.com
<b>Revision Date</b>	08/21/2019

## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

This product does not contain any components classified as hazardous under 29 CFR Part 1910.1200.

---

## SECTION 3: HAZARDS IDENTIFICATION

**Hazard statement:** Molten polymer will cause thermal burns. Please take all precautions necessary to avoid burns by the molten polymer. Use with local exhaust ventilation.

**Precautionary statement:** None

**Signal word:** None

**Potential health effects:** See section 11 for more information

**Environmental precautions:** See section 12 for more information

**Other hazards:** If small particles are generated during further processing, handling, or by other means, combustible dust concentrations in air may form. See sections 7 and 8 for additional information.

---

## SECTION 4: FIRST AID MEASURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial best practices are followed. Precautions should be taken to avoid inhalation and eye contact.

**General Advice:** Remove contaminated clothing. Burns caused by molten material may require hospital treatment.

**Eye contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

**Skin contact:** Adverse effects are not expected from accidental skin contact following occupational exposure. After contact with skin, wash with soap and water. If skin irritation persists, call a physician. Cool skin rapidly with cold water after contact with hot polymer. DO NOT attempt to remove hot polymer from skin or contaminated clothing as skin may be easily damaged. Call a physician immediately.

**Ingestion:** Drink water as a precaution. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Call a physician immediately.

**Inhalation:** Move to fresh air, keep person calm. Assist in breathing if necessary. Call a physician immediately.

---

## SECTION 5: FIRE-FIGHTING MEASURES

**Suitable extinguishing media:** Carbon dioxide, water spray, dry powder, and foam

**Unsuitable extinguishing media:** None known

**Special protective equipment for firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**Special hazards arising from substance:** Hazards during fire-fighting: carbon monoxide, hydrogen cyanide, can be emitted at > 300 C. Under special fire conditions traces of other toxic substances are possible. Formation of further decomposition and oxidation products depends upon the fire conditions.

**Further information:** Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions:** No special precautions necessary

**Environmental precautions:** No special precautions necessary

**Methods for cleaning up:** Spills should be contained and placed in suitable containers for disposal

---

## SECTION 7: HANDLING AND STORAGE

**Safe handling advice:** Use personal protective equipment. Avoid contact with skin and eyes. Low hazard for usual industrial or commercial handling. Workers should be protected from the possibility of contact with molten material during fabrication. Avoid dust formation. If small particles are generated during further processing, handling, or by other means, combustible dust concentrations in air may form. Protect from moisture and impurities. Keep the floor clear. Provide suitable exhaust for ventilation during the drying process.

**Storage:** Protect against moisture

**Suitable materials for containers:** Stainless steel 1.4301 (V2), stainless steel 1.4404, aluminum, HDPE

**Precautions:** No special precautions required

**Dangerous reaction:** No dangerous reactions are known

---

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure control:**

**Engineering measures:** Provide local exhaust ventilation to control dust

**Engineering Guidelines:**

Component	ACHGIH TLV	OSHA PEL
Caprolactam	TWA: 5 mg/m <sup>3</sup> Inhalable fraction and vapor	TW value 5 ppm 20 mg/m <sup>3</sup> vapor, TWA value 1 mg/m <sup>3</sup> dust; STEL value 10 ppm 40 mg/m <sup>3</sup> vapor; STEL value 3 mg/m <sup>3</sup> dust

**Personal protective equipment:**

**Eye protection:** Safety glasses or goggles with side-shields to protect from hot molten substance/product

**Skin and body protection:** Body protection is not required

**Respiratory protection:** Wear respiratory protection if ventilation is inadequate. Wear a NIOSH certified (or equivalent) particulate respirator. Wear a NIOSH certified (or equivalent) organic vapor/particulate respirator.

**Hand protection:** Preventive skin protection, gloves

**Hygiene measures:** Wear protective clothing to prevent contact during mechanical processing and or hot melt conditions. Avoid inhalation of dust. When using, do not eat, drink, or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin care agents applied.

**Special hazard:** Workers should be protected from the possibility of contact with molten material during fabrication

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Solid filament
<b>Appearance:</b>	White, translucent
<b>Color:</b>	White
<b>Odor:</b>	No apparent odor
<b>pH:</b>	Not applicable
<b>Vapor Pressure:</b>	Not determined
<b>Vapor Density:</b>	Not determined
<b>Evaporation Rate:</b>	Not applicable
<b>Relative Density:</b>	1.12 – 1.15 g/cm <sup>3</sup>

<b>Bulk Density:</b>	690 – 790 kg/m <sup>3</sup>
<b>Decomposition Temperature:</b>	> 300°C
<b>Boiling Point / Boiling Range:</b>	Not available
<b>Melting Point / Melting Range:</b>	191 – 197°C
<b>Flash Point:</b>	Not available
<b>Autoignition Temperature:</b>	> 400°C
<b>Water Solubility:</b>	Insoluble
<b>Solubility in Other Solvents:</b>	Not determined

## SECTION 10: STABILITY AND REACTIVITY

**Corrosive effect on metals:** No corrosive effect

**Oxidizing properties:** Not fire propagating

**Reactivity:** None expected under conditions of normal use

**Chemical stability:** Stable under recommended storage conditions

**Hazardous decomposition products:** Carbon monoxide, carbon dioxide, hydrogen cyanide, caprolactam

## SECTION 11: TOXICOLOGICAL INFORMATION

**Inhalation:** Low hazard for usual industrial handling

**Eyes:** Molten material will cause thermal burns

**Skin:** Molten material will cause thermal burns

**Ingestion:** Expected to be a low ingestion hazard

**Other:**

- No specific target organ toxicity (STOT)
- No sensitizing effect
- No aspiration hazard
- No known chronic effects
- Chemical structure does not suggest a specific alert to genetic toxicity
- Chemical structure does not suggest a specific alert to carcinogenicity
- Chemical structure does not suggest a specific alert to reproductive toxicity
- Chemical structure does not suggest a specific alert to teratogenicity

## SECTION 12: ECOLOGICAL INFORMATION

**Aquatic Toxicity:** There is a high probability that the product is not acutely harmful to aquatic organisms

**Biodegradable:** Inert and non-degradable

**Mobility:** No data available

**Other:** This product contains no organically-bound halogens

---

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste from residues / unused products:** In accordance with local, state, and national regulations. Should not be released into the environment. Do not contaminate ponds, waterways or ditches with chemical or used container. Incinerate or dispose in a licensed facility.

**Contaminated packaging:** Dispose of in accordance with national, state, and local regulations.

THE COMPANY HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION.

---

## SECTION 14: TRANSPORT INFORMATION

**U.S. DEPARTMENT OF TRANSPORTATION | PROPER SHIPPING NAME:** Not regulated for transportation

**WATER TRANSPORTATION | PROPER SHIPPING NAME:** Not regulated for transportation

**AIR TRANSPORTATION | PROPER SHIPPING NAME:** Not regulated for transportation

---

## SECTION 15: REGULATORY INFORMATION

Regulatory requirements are subject to change and may differ between locations. It is the User's responsibility to ensure that all activities comply with all federal, state or provincial and local laws and regulations. The following specific information is made for the purpose of complying with numerous national, federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

### U.S. REGULATIONS

<b>Sara 313 title III:</b>	Not listed		
<b>TSCA Inventory List:</b>	Listed		
<b>NFPA Hazard Codes:</b>	Health: 1	Fire: 1	Reactivity: 0
<b>HMIS III Rating:</b>	Health: 1	Flammability: 1	Physical hazard: 0

**INTERNATIONAL REGULATIONS:** Contact Essentium Inc. for more information.

Not meant to be all inclusive - selective regulations represented.

## **SECTION 16: OTHER INFORMATION**

### **DISCLAIMER:**

Essentium, Inc. nor any of its subsidiaries assumes any liability whatsoever for transporting/handling the product. It is the buyer's/ user's/licensee's responsibility to ensure that its activities comply with all federal, state, provincial, or local laws and import/export requirements. We assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Essentium, Inc. makes no warranties, expressed or implied, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose or course of performance or usage of trade. Final determination of suitability of any material is the sole responsibility of the user.