

## ESSENTIUM TPU 90A FR

Thank you for your interest in Essentium, Inc. products. We are providing this safety data sheet [SDS] as a courtesy to your request. 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.

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### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name:</b>	Essentium TPU 90A FR
<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@Essentium.com Website: Essentium.com
<b>Revision Date</b>	01/09/2018

## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	WT%
Thermoplastic Urethane	75701-44-9	< 70%
Flame Retardant		
1,3,5-Triazine-2,4,6(iH,3H,5H)-trione,		

All ingredients in quantities > 1.0% (0.1% for carcinogens) that are potentially hazardous per OSHA definitions.

## SECTION 3: HAZARDS IDENTIFICATION

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

**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

**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, carbon dioxide, hydrogen cyanide, nitrogen oxides, phosphorus compounds, isocyanate

**Further information:** Do not breathe in fumes

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## 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.

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## 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 and in the area surrounding the melt outlet and processing machines.

**Storage:** Segregate from foods and animal feeds. Avoid extreme heat and deposition of dust.

**Suitable materials for containers:** Paper/Fiberboard, HDPE, LDPE

**Precautions:** No special precautions required

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

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## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure control:**

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

**Exposure guidelines:**

COMPONENT	ACHGIH TLV	OSHA PEL
Triphenyl phosphate	TWA: 3 mg/m <sup>3</sup>	PEL 3 mg/m <sup>3</sup>

**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:** Respirator must be worn if exposed to dust. Wear respirator with dust filter. Consult an industrial hygiene professional prior to respirator selection and use. Use a positive-pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

**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>Bulk Density:</b>	500 - 700 kg/m <sup>3</sup>
<b>Color:</b>	White to light beige	<b>Decomposition Temperature:</b>	> 230°C
<b>Odor:</b>	No apparent odor	<b>Boiling Point / Boiling Range:</b>	Not available
<b>pH:</b>	Not applicable	<b>Melting Point / Melting Range:</b>	170 - 230°C
<b>Softening Temperature</b>	> 120 °C	<b>Flash Point:</b>	Not available
<b>Vapor Pressure:</b>	Not determined	<b>Autoignition Temperature:</b>	> 400 °C
<b>Vapor Density:</b>	Not determined	<b>Water Solubility:</b>	Insoluble
<b>Evaporation Rate:</b>	Not applicable	<b>Solubility in Other Solvents:</b>	Not determined
<b>Relative Density:</b>	1.12 - 1.20 g/cm <sup>3</sup>		

## 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

## SECTION 11: TOXICOLOGICAL INFORMATION

**Inhalation:** Low hazard for usual industrial handling, may cause respiratory tract irritation

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

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

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

**Oral:** Type of Value: LD50  
Species: Rat  
Value: >5000 mg/kg

**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

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## SECTION 12: ECOLOGICAL INFORMATION

**Water toxicity:** There is a high probability that the product is not acutely harmful to aquatic organisms.

**Toxicity to fish:**

Information on triphenyl phosphate  
LC50 (96 h) 0.4 mg/L, *Oncorhynchus mykiss* (other, static)  
Literature data

**Aquatic invertebrates:**

Information on triphenyl phosphate  
EC50 (48 h) 1.0 mg/L, *Daphnia magna* (See user defined text., static)\_  
Literature data

**Aquatic plants:**

Information on: triphenyl phosphate  
EC50 (96 h) 2 mg/L, *Selenastrum capricornutum* (other, static)  
Literature data

**Biodegradable:** Poorly biodegradable

**Mobility:** No data available

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

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## 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.

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## 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>EPCRA 311/312:</b>	Not hazardous		
<b>NFPA Hazard Codes:</b>	Health: 1	Fire: 0	Reactivity: 0
<b>HMIS III Rating:</b>	Health: 1	Flammability: 0	Physical hazard: 0

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

Not meant to be all inclusive - selective regulations represented.

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## 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.