

Essentium Altitude SAFETY DATA SHEET

ESSENTIUM ALTITUDE

Thank you for your interest in Essentium's products. We are providing this material safety data sheet [MSDS] as a courtesy to your request. We certainly expect you to read the entire MSDS 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

Product Name:	Essentium Altitude
Supplier:	Essentium Inc.
Address:	19025 N. Heatherwilde Blvd. Suite 100 Pflugerville, TX 78660
Manufacturer:	Essentium Inc.
Address:	19025 N. Heatherwilde Blvd. Suite 100 Pflugerville, TX 78660
Supplier Emergency Contacts & Phone:	Essentium Inc. Email: Sales@Essentium.com Website: Essentium.com
Revision Date	05/31/23

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT</u>	<u>CAS NO.</u>	<u>WT%</u>
Carbon black	NA	0.1 – 1.0%

Components which are considered potential hazards to health or the environment, if present above minimum concentrations, are listed above. Any concentration shown as a range is to protect confidentiality and/or is due to batch variation. Any non-hazardous components are being withheld as a trade secret. This product consists primarily of high molecular weight polymers which are not expected to be hazardous. Furthermore, any additives in this product are present within the polymer matrix and are not expected to be hazardous under recommended use conditions.

SECTION 3: HAZARDS IDENTIFICATION

Hazard Statement: Molten polymer will cause thermal burns. Please take all precautions necessary to avoid burns by the molten polymer. The additives in this product (if any) are bound in a thermoplastic resin matrix. In accordance with GHS for the classification of the product, the hazard potential may be assessed with respect to the physico-chemical form and/or bioavailability of the individual components in the thermoplastic resin. UN GHS says, that even if adverse effects are seen in animal studies or in-vitro tests, no classification is needed if the mechanism or mode of action is not relevant to humans. The European CLP Regulation also mentions, that no classification is indicated if the mechanism is not relevant to humans. Where GHS classifications are shown below, these are based on the individual components in the thermoplastic resin matrix. Under the typical use conditions for the filament, these hazardous components are unlikely to contribute to workplace exposure. Please read the entire safety data sheet and/or consult an EHS professional for a complete understanding.

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. Can burn in a fire creating dense, toxic smoke. Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills, and fever. Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard. See Section 7 and 8 for additional information.

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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.

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. Call a physician immediately.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water, dry chemical, carbon dioxide, and sand. Water is the best extinguishing medium. Carbon dioxide and dry chemical are not generally recommended because their lack of cooling capacity may permit re-ignition on larger resin fires

Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.

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.

Dangerous product after decomposition: Combustion will produce carbon dioxide, carbon monoxide nitrogen oxides, ammonia, smoke particulates.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Avoid contact with skin and eyes. Avoid dust formation. Remove all sources of ignition. Sweep up and remove to prevent slipping hazard.

Environmental precautions: Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Methods for cleaning up: Clean up promptly by scoop or vacuum. Sweep up and shovel into 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: Store the material in a cool and dry closed container.

Precautions: No special precautions required.

Dangerous Reaction: No dangerous reactions are known.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

EXPOSURE LIMITS

Chemical Name	US OSHA PEL (8 Hr)	Canada - Alberta (8 Hr)	Mexico OEL Data
Carbon black (1333-86-4)	FRL_TWA: 3.5 mg/m ³ ; TL_PEL: 3.5 mg/m ³	OEL_8 hr: 3.5 mg/m ³	LMPE-PPT: 3.5 mg/m ³ ; LMPE-CT: 7 mg/m ³ ; CONN: A4

Exposure control: Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide appropriate exhaust ventilation at places where dust is formed.

Engineering measures: Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide appropriate exhaust ventilation at places where dust is formed.

Exposure limits: None established. This material can generate Particulates Not Otherwise Classifiable (PNOC). The Occupational Safety and Health Administration (OSHA) PEL/TWA for PNOC is 15 mg/m³ for total dust and 5 mg/m³ for the respirable fraction. The American Conference of Governmental Industrial Hygienists (ACGIH) TLV/TWA for PNOC is 10 mg/m³ for respirable particulates and 3 mg/m³ for respirable particulates.

Threshold Limit Value (TLV): Not established

Personal protective equipment:

- **Eye protection:** Safety glasses with side-shields, goggles
- **Skin and body protection:** Impervious clothing, gloves

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- **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:** Avoid contact with skin, eyes, and clothing.
- **Special hazard:** Workers should be protected from the possibility of contact with molten material during fabrication.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Solid Filament
Appearance:	Filament
Color:	Black
Odor:	No apparent odor
pH:	Not applicable
Vapor pressure:	Not determined
Vapor density:	Not determined
Evaporation rate:	Not applicable
Relative density:	> 1 g/cm ³
Bulk density:	Not available
Decomposition temperature:	Not available
Boiling point / boiling range:	Not available
Melting point / melting range:	Not Applicable
Flash point:	Not available
Autoignition temperature:	630 OC
Water solubility:	Insoluble
Solubility in other solvents:	Not determined

SECTION 10: STABILITY AND REACTIVITY

Reactivity: None expected under conditions of normal use

Chemical stability: Stable under recommended storage conditions

Dangerous reaction: Will not occur

Hazardous Decomposition Products: Process vapors under recommended processing conditions may include trace levels of hydrocarbons, phenols, alkylphenols, diarylcarbonates.

SECTION 11: TOXICOLOGICAL INFORMATION

Inhalation: Low hazard for usual industrial handling and due to the physical solid form

Eyes: Molten material will cause thermal burns

Skin: Molten material will cause thermal burns

Ingestion: Expected to be a low ingestion hazard

Notes:

Carbon Black: The International Agency for Research on Cancer (IARC) has determined that carbon black is a class 2B known animal and possible human carcinogen by the route of inhalation. Rats exposed to high doses of carbon black by inhalation developed statistically significant increases in lung fibrosis and lung tumors.

Carbon Black: The scientific discussions about the carcinogenic potential of inorganic low solubility particles (fine dust) including carbon black has not been concluded. Many inhalation toxicologists believe the lung fibrosis and tumors that developed in rats following exposure to carbon black result from massive accumulation of small dust particles that overwhelm the clearance mechanism and produce what is termed "lung overload," an effect considered to be rat specific and not relevant to humans. In addition, based on epidemiological studies, no causal link between carbon black exposure and cancer risk in humans has been demonstrated.

SECTION 12: ECOLOGICAL INFORMATION

Water Toxicity: Not Applicable

Biodegradable: Not expected to biodegrade

Mobility: No data available

Additional ecological information: Do not flush into surface water or sanitary sewer system. Ecological injuries are not known or expected under normal use.

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. Contact manufacturer.

Contaminated packaging: Empty remaining contents. Do not re-use empty containers. Empty containers should be transported/delivered using a registered waste carrier to local recyclers for disposal.

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

Sara 313 title III: Not Listed

TSCA Inventory List: Not Listed

INTERNATIONAL REGULATIONS: Contact Essentium Inc. for more information.

Not meant to be all inclusive - selective regulations represented

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California Prop 65

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

Components

Concentration (wt.%)

Carbon black (1333-86-4) 1.0

California Proposition 65:

Listed: February 21, 2003 Carcinogenic. (airborne, unbound particles of respirable size)

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.