



MATERIAL SAFETY DATA SHEET

Section 1: Chemical Product and Company Identification

Product/Chemical Name: Kevlar, Spectra, Twaron, Technora, or Dyneema Fabric
Finish Types: CS-800, CS 802, CS-803, CS-811, CS-897, CS-898, CS-4410, CS-4763, F100 Greige or Scoured Finish
Chemical Formula: N/A
Other Designations: Woven Aramid (Kevlar®) or (Twaron®), Spectra®, Technora, or Dyneema® Fabric with a Water-Soluble, Lubricating, Anti-Static, Water Repellent Finish, Scoured or None Removed.
General Use: Industrial
Manufacturer: JPS Composite Materials Corp., 2200 S. Murray Ave., P.O. Box 2627, Anderson, SC 29624, Phone: 1-800-288-0577

Section 2: Composition/Information on Ingredients

Ingredient Name	CAS NUMBER	% Wt. OR % Vol.
Aramid® Fabrics: Poly (terephthaloylchloride/p-phenylenediamine) fiber	26125-61-1	88-99
Technora® Fabrics: Aramid Copolymer Fiber	60201-66-3	88-99
Spectra® Fabrics: Polyethylene, homo-polymer fiber	9002-88-4	97-99
Dyneema® Fabrics: Polyethylene	9002-88-4	97-99
Finish Information, as appropriate: Polyvinyl alcohol	9002-89-5	0-1.5

Trace Impurities: N/A

Ingredient	OSHA PEL	ACGIH TLV
Aramid® Fabrics: Poly (terephthaloylchloride/p-phenylenediamine) fiber	15 mg/m ³ (Total) 5 mg/m ³ (Respirable)	10 mg/m ³ (Inhalable) 3 mg/m ³ (Respirable)
Technora® Fabrics: Aramid Copolymer	N/E	N/E
Spectra® Fabrics: Polyethylene, homo-polymer fiber	15 mg/m ³ (Total) 5 mg/m ³ (Respirable)	10 mg/m ³ (Inhalable) 3 mg/m ³ (Respirable)
Dyneema® Fabrics: Polyethylene	15 mg/m ³ (Total) 5 mg/m ³ (Respirable)	10 mg/m ³ (Inhalable) 3 mg/m ³ (Respirable)
Finish Information, as appropriate: Polyvinyl alcohol	N/E	N/E

This product is not classified as a Hazardous Chemical as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

The exposure limits are for individual component and not for the total product.

The percentage will vary depending on the fabric style and the individual component variation.

Where specific exposure limits for component dusts are not established, the levels provided for (Total/Inhalable) dust and (Respirable) fraction reflect the classification of Particulate Not Otherwise Regulated (PNOR) by OSHA or Classified (PNOC) by ACGIH.

Section 3: Hazards Identification

***** EMERGENCY OVERVIEW*****

JPS Composite Materials Corp. coated and finished fabrics are stable under normal ambient conditions

Appearance and Odor: Woven into fabrics of varying weight, width and thickness, depending on the style, with and without finish, with no distinctive odor.

- Aramid®:** Gold to Yellow Fibers
- Technora®:** Gold to Yellow Fibers
- Spectra®:** White Fibers
- Dyneema®:** White Fibers

HMIS	
H	1
F	0
R	0
PPE	Sec. 8

Statement of Hazard: Warning! This may cause temporary mechanical irritation of the eyes, skin, or upper respiratory tract. Dust or particulate from machining, grinding, or sawing the cured product may cause skin, eye, and upper respiratory irritation and possible dermatitis.

Primary Entry Routes: Eyes—Yes Skin—Yes Inhalation—Yes Ingestion—No
HMIS Rating: Health—1 Flammability—0 Reactivity—0 Special—None

Potential Health Effects:

Eye: Contact may cause mechanical irritation to the eyes. Dust or particulate from machining, grinding, or sawing the cured product may cause mechanical irritation.

Skin: Contact may cause mechanical irritation to the skin and possible dermatitis at clothing contact pressure points such as cuffs or collars. Dust or particulate from machining, grinding, or sawing the cured product may cause mechanical irritation and possible dermatitis.

Inhalation: May cause mechanical irritation to the upper respiratory tract. Dust or particulate from machining, grinding, or sawing the cured product may cause mechanical irritation to the upper respiratory tract.

Ingestion: Very unlikely. If a large amount of the product or the dust or particulate from the machining, grinding, or sawing the cured is swallowed, seek medical attention immediately.

Medical Conditions Aggravated by Exposure: Pre-existing conditions, such as respiratory or skin disorders, may be aggravated by exposure to the product or to the dust, fibers or particulates from machining, grinding, or sawing the cured product.

Carcinogenic Information: None of the finish components present in this material at concentrations equal to or greater than 0.1% are listed or regulated by NTP, OSHA, or ACGIH as a carcinogen.

Other:	OSHA (PEL)	ACGIH (TLV)
Exposure limits for cured product	15 mg/m ³ (Total)	10 mg/m ³ (Inhalable)
Dust as [Particulates Not Otherwise Regulated (PNOR) by OSHA or Specified (PNOS) by ACGIH]:	5 mg/m ³ (Respirable)	3 mg/m ³ (Respirable)

Section 4: First Aid Measures

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, qualified personnel may administer oxygen. Get medical attention immediately.

Eye: In case of contact with the product or the cured product dust, fibers or particulates, immediately flush eyes with large amounts of water for at least 15 minutes, keeping the eyelids open. Get medical attention immediately.

Skin: In case of contact with the product or the cured product dust, fibers, or particulates, immediately wash skin with a mild soap and room temperature to cool running water. Use a washcloth to help remove the fibers. To avoid further irritation, do not rub or scratch irritated areas. Rubbing or scratching may force the dust, fibers, or particulates into the pores of the skin. Get medical attention immediately if the irritation persists.

Ingestion: Ingestion of the product or the dust, fibers, or particulates from it is unlikely. If swallowed, get medical attention immediately.

Section 5: Fire-Fighting Measures

Flash Point Method of Determination: Not Determined

Means of Extinction: Use water spray, dry chemical, alcohol resistant foam or CO₂ to extinguish fires.

Special Fire Hazard: Avoid exposure through use of a self-contained, positive-pressure breathing apparatus.

Section 6: Accidental Release Measures

Procedures in case of Accidental Release or Leakage: Avoid contact with skin, eyes or clothing (See Section 8). Clean up material, put into a suitable container and dispose of properly (See Section 13).

Section 7: Handling and Storage

Precautions to be taken in Handling and Storage: Store in a cool, dry place. Maintain sealed against contamination from dirt and moisture. Aramid fibers or fabric will be degraded by ultraviolet sunlight and discolored by fluorescent lighting.

Section 8: Exposure Controls/Personal Protection

Eye/Face Protection: Avoid eye and skin contact. Wear coverall goggles, as necessary, to prevent irritation, if airborne dust, fibers or particulate are present. Wear safety glasses with side shields, as necessary, if airborne dust, fibers or particulates are present when machining, grinding or sawing the cured product.

Skin Protection: Wear protective clothing such as a loose fitting, long sleeved shirt that covers to the base of the neck, long pants and gloves, as necessary, to prevent irritation. Skin irritation is known to occur primarily at pressure points such as around the neck, wrist, waist, and between fingers.

Respiratory Protection: Not ordinarily required. If sufficient dust, fibers or particulate are generated during use of the product or when machining, grinding or sawing the cured product, use a NIOSH approved dust respirator.

Ventilation: Use local exhaust sufficient to control dust, fibers or particulates generated. If exhaust ventilation is not available or is inadequate, use a NIOSH approved dust respirator.

General Hygiene Recommendations: Before eating, drinking, smoking or using toilet facilities, wash face and hands thoroughly with soap and water. Remove any contaminated clothing and launder before reuse. Use vacuum equipment to remove fibers, dust or particulates from clothing and work areas. Compressed air is not recommended.

Section 9: Physical and Chemical Properties

Appearance and Odor.....Aramid[®]: Gold to Yellow Fibers.

.....Technora[®]: Gold to Yellow Fibers

.....Spectra[®]: White Fibers

.....Dyneema[®]: White Fibers

Melting Point (°F/°C).....Aramid[®]: Does not melt, but will start to carbonize at around 800°F/427°C

.....Technora[®]: Does not melt, but will start to carbonize at around 800°F/427°C

.....Spectra[®]: 297°F/147°C

.....Dyneema[®]: 144 to 152°C

Boiling Point (°F/°C).....Dyneema[®]: Decomposes >300°C

Specific Gravity (Water=1).....Aramid[®]: 1.45

.....Technora[®]: 1390 kg/m³

.....Spectra[®]: 0.97

Density.....Dyneema[®]: 1.54 – 1.56

pH of Undiluted Product.....Not determined

Volatile [Percent (%) by Weight].....Aramid[®]: 0-9, equilibrium moisture

.....Technora[®]: Not determined

.....Spectra[®]: Not determined

.....Dyneema[®]: Not determined

Percent (%) VOC.....Same as the % Volatile Content

Solubility in Water.....Insoluble except for the finish as Greige

Section 10: Stability and Reactivity

Stability: Stable under proper handling and storage conditions.

Incompatible Materials: Aramid[®]: Not Determined

Technora[®]: Strong Oxidizing Agents

Spectra[®]: Strong Oxidizing Agents

Dyneema[®]: Strong Oxidizing Agents

Products Evolved from Heat of Combustion or Decomposition: The products of combustion and decomposition depend on other materials present in the fire and the actual conditions of the fire. Burning will produce the following, depending on the fiber, plus other unidentified gases and vapors that may be toxic. Avoid inhalation.

Aramid[®]: Carbon and nitrogen oxides, water, ammonia, aldehydes, aliphatic and various hydrocarbons, organic compounds and small amounts of hydrogen cyanide.

Technora[®]: Carbon Oxides, organic compound of low molecular and hydrogen, cyanide in low concentration.

Spectra[®]: Carbon oxides and various oxidized and non-oxidized hydrocarbons.

Dyneema[®]: Carbon Monoxide, carbon dioxide, (dense) black smoke, aldehydes, organic acids.

Hazardous Polymerization: Will not occur under proper conditions of use. This product, when heated rapidly or to an excessive temperature and/or in large mass or volume, may produce an uncontrolled exothermic reaction that may char and decompose the finish, if applicable, generating unidentified gases and vapors that may be toxic. Avoid inhalation.

Section 11: Toxicological Information

Component Toxicity Data:**Median Lethal Dose (Species):**

Oral (ALD)...Aramid®.....>7,600 mg/kg (Rat)

Oral (LD₅₀)...Not DeterminedInhalation (LC₅₀)...Not determinedDermal (LD₅₀)...Not determined**Irritation Index, Estimation of Irritation (Species):**

Skin...Not Determined

Eyes...Not Determined

Inhalation...Not Determined

Section 12: Ecological Information**Component Ecological Data:****Aramid® Fibers:** Essentially non-biodegradable. Do not leach, material toxic to flora or fauna.**Aramid® Finishes:** Not inhibitory or toxic to microbes commonly found in biological treatment systems. Are biodegradable. None appear to enhance foaming. Discharge of scoured finishes should not result in increased effluent toxicity.**Technora® Fibers and Finishes:** Fiber product (Polymer) is ecologically safe.**Spectra® Fibers and Finishes:** No ecological data has been determined.**Dyneema® Fibers and Finishes:** Is not biodegradable and not toxic to aquatic organisms.**Section 13: Disposal Considerations****Waste Disposal Methods:** Material for disposal should be placed in appropriate sealed containers to avoid potential human and environmental exposure. It is the responsibility of the generator to comply with all federal, state, provincial; and local laws and regulations. We recommend that you contact an appropriate waste disposal contractor and environmental agency for relevant laws and regulations. Under the U.S. Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets relevant waste classification.**Section 14: Transport Information****DOT:**

Proper Shipping Name.....Not Regulated

Hazard Class.....Not Regulated

Identification Number.....Not Regulated

Packing Group.....Not Regulated

Label Required.....None

Section 15: Transport Information**SARA Title III:**

Section 302/304 Extremely Hazardous Substance: None

Section 311 Hazardous Categorization: None

Section 313 Toxic Chemicals: None

CERCLA Section 102 (A) Hazardous Substance: None**RCRA Information:** Currently, this product is not listed in federal hazardous waste regulations 40 CFR, Part 261.33, paragraphs (e) or (f), i.e. chemical products that are considered hazardous if they become wastes. State or local hazardous waste regulations may also apply if they are different from the federal regulation. It is the responsibility of the user of the product to determine at the time of disposal, whether the product meets relevant waste classification and to assure proper disposal.**WHMIS (Canada):** Classification: None**“This product has been classified in accordance with hazard criteria of the “Controlled Products Regulations” and this MSDS contains all the information required by the “Controlled Products Regulations.”****Ingredient Disclosure List:** None**U.S., EPA. TSCA Information:** This product is an article as defined by TSCA and is not required to be listed in the TSCA Inventory.

Ozone Depletion Information: This product does not contain or is not manufactured with ozone depleting substances as identified in Title VI, Clean Air Act "Stratospheric Ozone Protection" and the regulations set forth in 40CFR, Part 82.

Section 16: Other Information

Explanation and Disclaimer: Wherever such words or phrases as "hazardous," "toxic," "carcinogen," etc. appear herein, they are used as defined or described under state employee right-to-know laws, Federal OSHA laws or the direct sources for these laws such as the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), etc. The use of such words or phrases should not be taken to mean that we deem or imply any substance or exposure to be toxic, hazardous or otherwise harmful.

Any exposure can only be understood within the entire context of its occurrence, which includes such factors as the substance's characteristics as defined in the MSDS, amount and duration of exposures, other chemicals present and pre-existing individual differences in response to the exposure.

The data provided in this MSDS is based on the information received from our raw material suppliers and other sources believed to be reliable. We are supplying you this data solely in compliance with the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200 and other Federal and state laws as described in Section 15: Regulatory Information.

The information contained in this MSDS is proprietary and confidential to JPS Composite Materials. This MSDS and the information in it are not to be used for purposes other than compliance with the Federal OSHA Hazard Communication Standard. If you have received this MSDS from any other source than JPS Composite Materials or its authorized agent, the information contained in it may have been modified from the original document and it may not be the most current revision.

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