BayMaterials®

Safety Data Sheet (SDS)
Zendura® A

Section 1. Identification

Bay Materials, LLC 48450 Lakeview Blvd Fremont, CA 94538 (650) 566-0800

Product Family: Thermoplastic Polymer
Trade Name(s): Zendura A **Other Means of Identification:** CAS# 137873-51-9
Recommended Uses: May be used as received, processed or thermoformed to produce other articles, or as a component of other products.

Emergency Phone Number
for Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
1-800-424-9300

Section 2. Hazard(s) Identification

EMERGENCY OVERVIEW			HMIS	NFPA
Hazard Classification **Prepared according to Global Harmonized System (GHS) standards**	Skin Sensitizer Category 1 acute hazards Category 3 To the aquatic environment Chronic hazards to the aquatic environment Category 3	HEALTH	0	2
		FLAMMABILITY	1	1
		REACTIVITY	0	0
		OTHER		
Signal Word	Warning			
Pictogram				
Hazard Statement	H317: May cause an allergic skin reaction. H412: Harmful to aquatic life with long lasting effects.			
Precautionary Statement	P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P280: Wear protective gloves			

Primary Routes of Exposure	Eyes or skin contact
Potential Health Effects	
Acute Effects	
Inhalation	Processing fumes may cause irritation to the eyes, skin and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing fume condensates on ventilation ductwork, molds and other surfaces.
Skin Contact	Not likely to cause irritation
Eye contact	Resin particles or dust are mechanically irritating
Ingestion	Ingestion not likely due to physical form
Chronic effects	Ongoing exposure may aggravate acute effects
Carcinogenicity	See Section 11
Medical conditions	There are no known health effects aggravated by exposure to this product.

aggravated by long term exposure	However certain sensitive individuals or individuals with respiratory impairments may be affected by exposure to components in the processing vapors

Section 3.Composition/Information on Ingredients

Component Polyurethane	**CAS Number:**	Proprietary	**Percentage:**	> 98%
Mixtures Nonhazardous Ingredients	**CAS Number:**	Proprietary	**Percentage:**	< 2%
Mixtures Nonylphenol phosphite	**CAS Number:**	.26523-78-4	**Percentage:**	0.1%-0.05%

Section 4. First-Aid Measures

Description of first aid measures

Inhalation: Remove exposed person to fresh air if adverse effects are observed.

Eye contact: Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. If hot melted material should splash into the eyes, flush eyes immediately with water for 15 minutes while holding the eyelids open. Immediately call a poison center or doctor.

Skin contact: Wash skin thoroughly with soap and water. If skin irritation or rash occurs: Get medical attention. Launder contaminated clothing before reuse. For contact with molten product, do not remove contaminated clothing. Flush skin immediately with large amounts of cold water. If possible submerge area in cold water. Pack with ice. DO NOT attempt to peel polymer from skin. Seek medical attention immediately.

Ingestion: No specific first aid measures noted. Treat symptomatically. Get medical attention.

Personal Protection for First-aid Responders: When providing first aid always protect yourself against exposure to chemicals or blood born diseases by wearing gloves, masks and eye protection. After providing first aid wash your exposed skin with soap and water.

Most important symptoms and effects, both acute and delayed: See section 11.

Indication of any immediate medical attention and special treatment needed

Treatment: Note to physician: Treat symptomatically.

Section 5. Fire-Fighting Measures

General fire hazards: No unusual fire or explosion hazards noted.

Extinguishing media

Suitable extinguishing media: Use water spray, dry chemical or foam for extinction. CO2 may be ineffective on large fires.

Unsuitable extinguishing media: Not determined.

Specific hazard arising from the chemical: See section 10 for additional information.

Advice for firefighters

Special fire fighting procedures:	Thermoplastic polymers can burn. Protect product from flames; maintain proper clearance when using heat devices, etc. Irritating or toxic substances will be emitted upon burning, combustion or decomposition. Large masses of molten polymer held at elevated temperatures for extended periods of time may auto-ignite.
Special protective equipment for fire-fighters:	Wear full protective firegear including self-containing breathing apparatus operated in the positive pressure mode with full facepiece, coat, pants, gloves and boots.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. See Section 8 of the MSDS for Personal Protective Equipment.
Environmental precautions:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so.
Methods and material for containment and cleaning up:	Pick up free solid for recycle and/or disposal.
Reference to other sections:	See sections 8 and 13 for additional information.

Section 7. Handling and Storage

Precautions for safe handling:

Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Launder contaminated clothing before reuse. Avoid environmental contamination. Contact with heated material may cause thermal burns.

Refer to Processing Guide and/or contact your local Technical Service representative for melt processing temperature range. For most thermoplastic polyurethanes, melt processing is in the range of 177 - 232 deg. C (350 - 450 deg. F), however, some products may process at different temperatures. Heating above the maximum handling temperature can generate hazardous decomposition products (see Section 10). Review the temperature data in the “Maximum Handling Temperature” included in this section for processing temperature not to be exceeded.

Fume condensates may include hazardous contaminants from additives. Condensate may be combustible and should be periodically removed from exhaust hoods, ductwork, and other surfaces. Impervious gloves should be worn during cleanup operations to prevent skin contact.

Post thermal processing activities necessary to produce molded articles (such as cutting, sanding, sawing, grinding, drilling, or regrinding) may create dust or "fines." Powders, dust, and/or fines may pose a dust explosion hazard. Avoid breathing dust.

Precautions for safe handling:	Loading and unloading operations may cause nuisance dust to form. Electrostatic buildup may occur when pouring or transferring this product from its container. The spark produced may be sufficient to ignite vapors of flammable liquids. Always transfer product by means which avoid static buildup. Avoid pouring product directly from its container into combustible or flammable solvent. Conduct any operations emitting fumes or vapors (including thermo-forming, heat joining, cutting and or sealing of articles and clean up) under well-ventilated conditions. Avoid breathing process vapors. Do not hold product for extended periods of time at elevated temperatures or allow thick masses of hot polymer to accumulate because they can decompose emitting hazardous gasses. Do not taste, swallow, or chew products. Wash thoroughly after processing. Do not store or consume food in processing areas. The major off-gasses from normal melt processing are expected to be water vapor and carbon dioxide. Other trace volatile organic components may also be emitted. Do not steam sterilize articles made with Zendura® A sheet. Methylene dianinline can be formed under these conditions.
Maximum Handling Temperature:	232 °C (450 °F)
Conditions for safe storage, including any incompatibilities:	Store away from incompatible materials. See section 10 for incompatible materials. Store in dry, well ventilated place away from sources of heat and direct sunlight.
Maximum Storage Temperature:	Not determined.

Section 8. Exposure Controls / Personal Protection

Control parameters:

Occupational exposure limits:	None of the components have assigned exposure limits.
Appropriate engineering controls:	Thermal processing operations should be ventilated to control gases and fumes given off during processing.

Individual protection measures, such as personal protective equipment

General information:	Use personal protective equipment as required.
Eye/face protection:	If contact is likely, safety glasses with side shields are recommended.
Skin protection	
Hand protection:	To avoid burns from contact with molten product, use thermal insulating gloves. Suitable gloves can be recommended by the glove supplier.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	
Physical State:	Solid
Form:	Sheet
Color:	Colorless
Odor:	Odorless
Odor Threshold:	No data available.
pH:	No data available.
Melting Point:	No data available.
Boiling Point:	No data available.
Flash Point:	The product is combustible, but not flammable.
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability Limit - Upper (%):	No data available.
Flammability Limit - Lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density (air=1):	No data available.
Relative density:	1 - 1,1 (20 °C)
Solubility(ies)	
Solubility in Water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Viscosity:	No data available.
Explosive properties:	No data available.
Oxidizing properties:	No data available.
Pour Point Temperature	No data available.
Other information	
Bulk Density:	43 lb/cft (25 °C)

Section 10. Stability and Reactivity

Reactivity:	No data available.
Chemical stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Will not occur.
Conditions to avoid:	Do not exceed 232 °C (450 °F) when thermoforming
Incompatible materials:	None known, avoid contact with reactive chemicals.
Hazardous decomposition products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Nitrogen Oxides May also include isocyanates and small amounts of hydrogen cyanide.

Section 11. Toxicological Information

Information on likely routes of exposure

Inhalation:	No data available.
Ingestion:	No data available.
Skin contact:	No data available.
Eye contact:	No data available.

Information on toxicological effects

Acute Toxicity

Oral

Product:	May cause irritation of the gastrointestinal tract. Not classified for acute toxicity based on available data.

Dermal

Product:	Not classified for acute toxicity based on available data.

Inhalation

Product:	Overexposure to vapors or mist may cause dizziness, headache, nausea, and/or flu-like symptoms. Persons with sensitive airways (e.g., asthmatics) may react to vapors.

Skin corrosion/irritation:

Product:	Contact with heated material may cause thermal burns. Pre-existing skin conditions may be aggravated by prolonged or repeated exposure. Remarks: Not expected to be a primary skin irritant.

Serious eye damage/eye irritation:

Product:	Remarks: Not expected to cause eye irritation.

Respiratory sensitization:

Product:	Remarks: Under decomposition conditions, isocyanates may be generated from this product. Isocyanates can cause skin sensitization and/or respiratory sensitization.

Skin sensitization:

Nonylphenol phosphite	Classification: May cause sensitization by skin contact. (Literature)

Specific target organ toxicity - single exposure:	No data available
Aspiration hazard:	No data available

Chronic Effects

Carcinogenicity:	No data available

Germ cell mutagenicity:

Nonylphenol phosphite	This material has not exhibited mutagenic or genotoxic potential in laboratory tests.

Reproductive toxicity:	No data available
Specific target organ toxicity - repeated exposure:	No data available

Section 12. Ecological Information

Ecotoxicity

Fish

Nonylphenol phosphite	LC 50 (Zebra Fish, 4 d): 7,1 mg/l

Aquatic invertebrates

Nonylphenol phosphite	EC 50 (Water flea (Daphnia magna), 2 d): 0,42 mg/l
Toxicity to Aquatic Plants	No data available
Toxicity to soil dwelling organisms	No data available
Sediment Toxicity	No data available
Toxicity to Terrestrial Plants	No data available
Toxicity to Above-Ground Organisms	No data available
Toxicity to microorganisms	No data available

Persistence and degradability

Biodegradation

Nonylphenol phosphite	OECD TG 301 B, 1 %, 28 d, Not readily degradable.

Bioaccumulative potential

Bioconcentration factor (BCF)	No data available

Partition coefficient n-octanol / water (log Kow)

Nonylphenol phosphite	Log Kow: 7 (Measured)
Mobility:	No data available
Other adverse effects:	No data available.

Section 13. Disposal Considerations

Waste disposal: Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fuel condensates and incinerator ash should be tested to determine waste classification

US EPA Waste Number: None

Section 14. Transport Information

IATA	Not regulated.
ADR	Not regulated.
International standards	
IMDG	Not regulated.
Code of Emergency Measure:	
Domestic Standard: In compliance with domestic law.	
Environmental hazards:	Not regulated.
Special precautions for user:	No special precautions.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	None known.

Section 15. Regulatory Information

International Inventories: These films and sheet products are considered articles and thus exempt from inventory listing.

CERCLA/SARA 311/312/313 (40 CFR 370) This product is non-hazardous article and therefore not subject to the requirements of Title III of SARA (Emergency Planning and Community Right-To-Know Act.)

WHMIS hazard class: Non-controlled

California Proposition 65: This product does not contain components know to the State of California to cause cancer and/or reproductive effects.

RoHS EU Directive 2002/95/EC: This product complies with RoHS – It does not intentionally contain banned chemicals.

Section 16. Other Information

Zendura® A Thermoformable sheet is a registered trademark of Bay Materials, LLC

Prepared by: Aimee Luthringer

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