



Safety Data Sheet

1. PRODUCT AND COMPANY INFORMATION

Chemical Product Identification / Product Name

ThermalStar One
EPS - Expanded Polystyrene
Wood Products, Oriented Strand Board (OSB)

Recommended use and restrictions

Insulation as structural sheathing

Manufacturer Information

Atlas EPS, Division of Atlas Roofing Corporation
8240 Byron Center Ave SW
Byron Center, Michigan 49315
Telephone: 800-917-9138 (8am – 5pm EST weekdays)

Emergency Telephone

CHEMTREC (24 hours every day): 800-424-9300

2. HAZARDS IDENTIFICATION

Classification

Eye effects: Category 2B
TOST: Single Exposure, category 3
Carcinogenicity: Category 2

Hazard Symbol



Signal Word

Warning

Hazard Statements

EPS - Freshly expanded or heated foam may off-gas pentane which can accumulate at hazardous concentrations above the Lower Explosion Limit (LEL) if stored in closed containers or confined areas.

No unusual conditions are expected from this product after it is aged.

OSB – Sawing, sanding or machining wood or wood products can generate dust. Wood dust may ignite or form explosive mixture with air in the presence of an ignition source. Product dust may be irritating to eyes, skin, or respiratory system. Dust of this product may cause irritation to the eyes, nose, throat, or respiratory tract. Splinters may cause irritation to eyes and skin.

Precautionary Statements

EPS - To prevent ignition, avoid smoking, keep from open flames and high temperatures. If heated above decomposition temperature or burned, product can emit an irritating dense black smoke and acid gases. Grinding, sawing or fabrication activities can produce dust particles which under certain conditions may ignite or form explosive dust atmospheres.

OSB – Avoid creating any dust particulate in any area that is not well ventilated.

Wear gloves, long sleeved shirt and long pants, as needed, to reduce skin contact or irritation

Appearance and Odor

EPS – Orange panels with slight hydrocarbon odor.

OSB – Brown with a resinous wood odor.

Emergency Overview

	<u>Health</u>	<u>Fire</u>	<u>Reactivity</u>	<u>Degree of Hazard</u>
NFPA Rating:	2	2*	0	0 – Minimal (Insignificant)
HMIS Rating:	1	2*	0	1 – Slight (Minor)
				2 – Moderate
				3 – Serious (High)
				4 – Severe (Extreme)

Potential Health Effects Summary:

EPS - Inhalation or eye exposure to dust from this product may cause temporary irritation. Skin exposure to the product may cause mechanical irritation, cuts or punctures.

OSB – Dust or splinters may cause irritation or injury to the eyes. Contact with skin may cause irritation. Dusts of this product may cause irritation of the nose, throat, or respiratory tract. Due to material form and application, ingestion is considered unlikely. May result in irritation of the digestive tract.

Routes of Entry: Inhalation, skin and eye contact, and ingestion.

Target organs: Eyes, skin, gastrointestinal tract, and respiratory system.

Acute Inhalation:

EPS - Breathing dust may cause temporary mechanical irritation and coughing. Overexposure to extremely high concentrations of pentane can cause narcotic effects. Signs and symptoms of overexposure to pentane include headache, nausea, dizziness, difficulty walking or sleepiness.

OSB – Dust of this product may cause irritation to nose, throat, or respiratory tract.

Chronic Inhalation: None identified.

Acute Skin Contact:

EPS - Direct contact with rough cut foam can cause mechanical abrasion to exposed skin.

OSB – Contact with skin may cause irritation (splinters).

Chronic Skin Contact:

EPS - None identified.
OSB – None identified

Acute Eye Contact:

EPS - Eye contact may cause mild mechanical irritation, redness, tearing and blurred vision.
OSB – Dust or splinters may cause irritation or injury to the eyes.

Chronic Eye Contact:

EPS - None identified.
OSB – None identified

Acute Ingestion:

EPS - Ingestion of this material is unlikely if used as intended. However, ingestion of this product may produce gastrointestinal irritation and disturbances.

OSB – Due to material form and application, ingestion is considered unlikely. May result in irritation of the digestive tract.

Chronic Ingestion:

EPS - None identified.
OSB - None identified.

Carcinogenicity:

EPS/Styrene monomer

ACGIH: A4 – Not classifiable as a Human Carcinogen

IARC: 2B – Possibly Carcinogenic to Humans (Vol. 60, 1994)

OSB – (Wood/Wood dust)

ACGIH: A1 Confirmed human carcinogen

IARC: 1 volume 62, Volume 100C

US NTP Report – Known Carcinogen

Medical Conditions Aggravated by Exposure: Treat symptomatically. Specific data that address medical conditions that are generally recognized as being aggravated by exposure to this product are not available. However, chronic respiratory or eye conditions may worsen from exposure to these products.

3. COMPOSITION AND INGREDIENT INFORMATION

<u>Common Name</u>	<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt. %</u>
Polystyrene Foam	Ethenylbenzene homopolymer	9003-53-6	5-10%
Pentanes* (isomers)	n-pentane	09-66-0	≤ 1%
	Isopentane	78-78-4	
	Cyclopentane	287-92-3	
Styrene (residual)	Vinyl Benzene	100-42-5	0 – 0.1%

**This is a flammable blowing agent that off-gasses from product. Most of the pentane off-gasses prior to shipment. However, residual blowing agent may gradually off-gas from the foam during storage or use.*

<u>Common Name</u>	<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt. %</u>
OSB board	Wood/Wood dust	Not assigned	90-95%

4. FIRST AID MEASURES

Inhalation: Move person to fresh air. If irritation persists, seek medical attention.

Skin: Wash with mild soap and running water. Remove and launder contaminated clothing before reuse. If irritation develops, seek medical attention.

Eyes: Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation develops.

Ingestion: Ingestion of this material is unlikely. If it does occur, do not induce vomiting; seek medical attention.

Fire: Move to fresh air. Administer oxygen and seek medical attention.

5. FIRE FIGHTING MEASURES

Flash Point and Method:

EPS: Not applicable

OSB: Not applicable

Upper Flammable Limit (UFL):

EPS: Not applicable

OSB: Not applicable

Lower Flammable Limit (LFL):

EPS: Not applicable

OSB: ≥ 40 g/m³ for wood dust

Auto Ignition:

EPS: 880° F (ASTM D-1929) for expanded polystyrene

OSB: 399.3 - 500°F (204.4 – 260°C) for wood.

Extinguishing Method:

EPS: Use water spray, water fog, fire-fighting foam or dry chemical or CO₂ extinguishing media.

OSB: Use methods for the surrounding fire.

Unusual Fire and Explosion Hazards:

EPS: Pentane vapors may be emitted from freshly expanded or processed foam or when product is heated. Hazardous concentrations may accumulate inside a sealed container or within confined space areas. Electrostatic discharge can be a source of ignition of accumulated pentane vapors exceeding the L.E.L (lower explosion limit) of 1.5% (15,000 ppm). If ignited, there may be a very high rate of flame propagation and/or an associated explosion. Assure proper ventilation of storage or shipping containers to prevent accumulation of hazardous concentrations of off-gassed pentane.

OSB: Not available.

Hazardous Combustion Products:

EPS: Burning foam emits a dense, black, irritating smoke with acid gases. Primary combustion products are carbon monoxide, carbon dioxide, and styrene. Other undetermined hydrocarbon fraction could be released in small quantities.

OSB: Hazardous decomposition products may include irritating fumes or gases including carbon monoxide, aldehydes or organic acids.

6. ACCIDENTAL RELEASE MEASURES

Land Spill: EPS: Scoop up material and put into suitable container for recycling or disposal as a non-hazardous waste in an appropriate recycling or disposal facility.

Water Spill: EPS: This material will float and disperse with wind and current. Contain the material with brooms, pick up or remove with a vacuum truck.

Air Release: EPS: This material will settle out of the air. If concentrated on land, it can then be scooped up for recycling or disposal as a non-hazardous waste.

OSB: Personal precautions – Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Avoid inhalation of dust during clean-up.
Methods for cleaning up – Vacuum or wet sweep small wood pieces and dust; place in appropriate container for disposal. Gather larger pieces by an appropriate method. Reduce airborne dust by use of wet methods and prevent scattering by moistening with water.

7. HANDLING AND STORAGE

Storage Temperature:

EPS: Below 170° F.

OSB: 399.3 - 500°F (204.4 – 260°C)

Storage Pressure:

EPS: Not applicable.

OSB: Not applicable.

General Storage:

EPS: Store in a well-ventilated area. Assure storage containers or areas and shipping containers are adequately ventilated. The flammable vapors of pentane (blowing agent) are heavier than air and may accumulate in low places. "No Smoking – No Matches – No Lighters – No Welding" rules should be enforced.

OSB: Avoid frequent or prolonged inhalation of wood dust. Protect eyes from flying particles. Avoid contact with skin and wash exposed areas thoroughly. Change protective clothing and gloves when signs of contamination appear.

Wear gloves, long sleeved shirt and long pants, as needed, to reduce skin contact or irritation

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Work Practices and Engineering Controls:

EPS Avoid unnecessary dust exposures when cutting or abrading by using adequate local exhaust or general ventilation. General dilution ventilation and/or local exhaust ventilation should be provided as necessary to maintain exposures below occupational exposure limits and to prevent accumulation of hazardous concentrations of off-gassed pentane (see section 5).

OSB Due to the explosive potential of dust when suspended in air, precautions should be taken when sawing, sanding, or machining wood or wood products to prevent sparks or other ignition sources in ventilation equipment. Local exhaust ventilation is recommended when sawing, sanding, or machining this product. General dilution ventilation is recommended in processing and storage areas. Use wet methods, if appropriate, to reduce generation of dust.

Personal Protective Equipment:

EPS

Eye: Safety glasses or goggles may be worn to reduce the risk of eye injury or irritation.

Respirators: Respiratory protection is not normally required. If dusts are generated up to 10 times above occupational exposure limits, use a NIOSH-approved particulate respirator (disposable filtering dust mask type) with an efficiency rating of N95 or higher (e.g. 3M's 8210, Moldex 2300). Wear an air-purifying respirator with charcoal cartridges or a supplied air respirator when exposure to pentane exceeds exposure limits.

Skin: Gloves, long sleeved shirt and long pants may be worn, as needed, to prevent skin contact and irritation.

Other: None.

OSB

Eye/face: Safety glasses or goggles are recommended when using this product.

Respiratory System: A NIOSH approved dust mask or filtering face piece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional.

Skin: Impervious protective clothing and gloves recommended to prevent drying or irritation of skin.

<u>INGREDIENT</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>NIOSH REL</u>
Expanded Polystyrene			
PNOC:			
Inhalable	-	10 mg/m ³	-
Respirable	5 mg/m ³	3mg/m ³	-
Total Particulate	15 mg/m ³	-	-
Pentanes			
Pentane	1000 ppm	600 ppm	120 ppm 610 (Ceiling)
Cyclopentane	-	600 ppm	600ppm
Styrene			
	100 ppm	20 ppm	50 ppm
	200 ppm (Ceiling)	40 ppm (STEL)	100 ppm (STEL)
	600 ppm (5 minute peak)		

Additional Information: The products listed in this SDS do not contain any form of Asbestos.

U.S. ACGIH Threshold Limit Values

<u>Common Name</u>	<u>Chemical Name</u>	<u>Type</u>	<u>CAS No.</u>	<u>Value</u>	<u>Form</u>
OSB Board	Wood/Wood dust	TWA	NA	0.5 mg/m ³	Inhalable Fraction 1 mg/m ³ (Inhalable)

U.S. OSHA

<u>Common Name</u>	<u>Chemical Name</u>	<u>Type</u>	<u>CAS No.</u>	<u>Value</u>	<u>Form</u>
OSB Board	Wood/Wood dust	STEL	NA	10 mg/m ³	(Vacated)
		TWA	NA	5 mg/m ³	(Total dust)

(Vacated)

9. PHYSICAL AND CHEMICAL

EPS

Appearance: Orange

Vapor Density (Air=1): Not applicable (Pentane blowing agent – 2.5)

Physical State: Solid

pH: Not applicable

Vapor Pressure (mm Hg @ 20 o C): 400 mm Hg

Boiling Point: Not applicable

Odor: Slight hydrocarbon odor

Odor threshold: Not determined

Flash Point: 700 F

Viscosity: Not applicable

Specific Gravity (Water=1): 1.05 to 1.18

Freezing Point: Not applicable

Solubility in Water: Very slight

Melting Point: Not determined

Evaporation rate: NA

Relative Density: 0.5-4 pcf

Partition coefficient: N-octanol/water NA

Auto-ignition temperature: 750 F

Decomposition temperature: 900 F

OSB

Appearance: Rigid boards or panels

Color: Various

Form: Solid wood

Odor: Resinous wood

Odor threshold: Not available

pH: Not applicable

Freezing point: Not available

Boiling point: Not applicable

Flash point: No applicable

Evaporation rate: Not applicable

Flammability: Combustible

Flammability limits in air, Upper% by volume: Not available

Flammability limits in air, Lower, % by volume: >40 g/m³ for wood dust.

Vapor pressure: Not applicable

Vapor density: Not applicable

Specific gravity: Variable

Partition coefficient: Not applicable

Solubility (water): Insoluble

Auto-ignition temps: 399.2-500°F

10. STABILITY and REACTIVITY

EPS

Stability: This is a stable material; avoid sources of ignition.

Reactivity: Refractive with oxidizing agents.

Incompatible Materials and Conditions to Avoid: Organic solvents, esters, amine and aldehydes will dissolve product. High temperature, poor ventilation combined with freshly expanded product may create hazardous, explosive or fire conditions.

Hazardous Decomposition Products: May decompose in a fire. See Section 5 of SDS for combustion products statement.

Hazardous Polymerization: Will not occur.

OSB

Stability: Stable at normal conditions

Reactivity: None known

Incompatible materials: Strong acids, alkalis, oxidizing agents and drying oils.

Hazardous decomposition products: Thermal decomposition may emit irritating fumes or gases of carbon monoxide, carbon dioxide, aldehydes, or organic acids.

Possibility of hazardous reactions: Will not occur.

11. TOXICOLOGICAL INFORMATION

EPS

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of the individual ingredients, and those hazards must be assumed to be additive in the absence of complete information. The hazards described in this document have been evaluated on a threshold of 1.0% for all hazardous ingredients and 0.1% for all carcinogens.

Possible routes of exposure: See Section 2

Acute Effects: Acute health effects from this product are unlikely when used as intended.

Chronic Effects: Chronic health effects from this product are unlikely when used as intended.

Styrene Monomer

In March 1987, the International Agency for Research on Cancer (IARC) reclassified styrene as possibly carcinogenic to human (Group 2B) due to "inadequate evidence in humans", "limited evidence in animals" and "other relevant data". Previously, styrene was classified as a Group 3 compound (not classified as to carcinogenicity to humans). The IARC working group determined that the weight of data on genetic and related effects, together with the consideration that styrene metabolized in humans and animals to styrene oxide for which there is sufficient evidence of carcinogenicity in experimental animals and has been classified by IARC as probably carcinogenic to humans (Group 2A), was sufficient reason to recommend the change in classification.

OSB

No toxicological data available for this product. Toxicological information for components of this product is listed below. Repeated inhalation of dust from this product may result in respiratory irritation. WOOD DUST. Wood dust may cause dryness, irritation, coughing or sinusitis. IARC and NTP classify wood dust as a carcinogen. This classification is based on the increased occurrence of adenocarcinomas of the nasal cavities and paranasal sinuses associated with exposure to wood dust. The evaluation noted insufficient evidence to associate cancer of the oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon or rectum with exposure to wood dust.

Routes of exposure: Not available

Sensitization: Not applicable for softwoods.

Carcinogenicity

WOOD/WOOD DUST (CAS # Not Assigned)

IARC - Group 1 (Carcinogenic to Humans) Monograph 62 [1995]

NTP (National Toxicology Program) - Report on Carcinogens - Known Known Human Carcinogen
Human Carcinogens

U.S. - OSHA - Hazard Communication Carcinogens Present

Mutagenicity: Not available.

Reproductive effects: Not available.

Teratogenicity : Not available.

Synergistic materials: Not applicable

12. ECOLOGICAL INFORMATION

EPS - This material is not expected to cause harm to animals, plants or fish. Fish or animals may eat product and obstruct their digestive tract. It is not expected to harm ecosystems through its applied use.

OSB – Not available

13. WASTE DISPOSAL CONSIDERATIONS

EPS

RCRA Hazard Class: Non-hazardous

Waste Disposal: Incinerate, recycle or dispose in a licensed facility. Do not discharge into waterways or sewer systems without proper authority.

OSB

Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose of material according to Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

EPS

US DOT Information: For domestic transportation purposes, this product is not regulated as a hazardous material by the US Department of Transportation (DOT) under Title 49 of the Code of Federal Regulations.

OSB

Department of Transportation (DOT) Requirements

This product is not regulated as a hazardous material by the United States (DOT) transportation regulations.

Canadian Transportation of Dangerous Goods (TDG) Requirements

Not regulated as dangerous goods.

15. REGULATORY INFORMATION

EPS

Clean Air Act

This product contains styrene, which is listed as a hazardous air pollutant

SARA Title III Regulations

This product contains pentane and residual styrene monomer, which OSHA defines as a hazardous chemical. This product may be portable under SARA sections 311 and 312, depending on the maximum on-site storage volumes. This product does not contain any substance(s) subject to the reporting requirements (i.e., at or above de minimis quantities) of sections 302 and 304 of Title III of the Superfund Amendments and Reauthorization Act (SARA-40 CFR 355). This product does not contain any substance(s) subject to reporting requirements (i.e., at or above de minimis quantities) of sections 302 and 304 of Title III of the Superfund Amendments and Reauthorization Act (SARA-40 CFR 372).

Toxic Substance Control Act (TSCA)

All ingredients are listed on the TSCA inventory.

California Proposition 65

This material contains detectable amounts of some chemicals known to the State of California to cause cancer. Styrene oxide is listed as known to the State of California to cause cancer. Styrene oxide is a metabolite of styrene monomer.

Component Analysis: State

The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	CA	MA	MI	MN	NJ	PA
Pentane (Isomers)	109-66-0						
	78-78-4	✓	✓		✓	✓	✓
	287-92-3						
Styrene	100-42-5	✓	✓	✓	✓	✓	✓

Component Analysis: WHMIS IDL

The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	Minimum Concentration
Pentane (Isomers)	109-66-0	
	78-78-4	1% English Item 1243; French Item 1348
	287-92-3	
Styrene	100-42-5	0.1% English Item 1473; French Item 1508

OSB**Superfund Amendments and Reauthorization Act of 1986 (SARA)****Hazard categories**

Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - Yes

Pressure Hazard - No

Reactivity Hazard - No

Section 302 extremely hazardous substance

No

Section 311 hazardous chemical

Yes

Section 313 hazardous chemical

No

California Proposition 65: WARNING: This product contains wood dust, a chemical known to the State of California to cause cancer.

US federal regulations: Wood and wood products are considered manufactured articles and are exempt under OSHA's Hazard Communication Standard 29 CFR 1910.1200. Wood dust, a by-product generated from sawing, sanding or machining wood and wood products, is considered hazardous and is regulated under the Hazard Communication Standard 29 CFR 1910.1200.

California Proposition 65: WARNING - This product may generate wood dust, a chemical known to the state of California to cause cancer. Drilling, sawing, sanding, or machining wood products generates wood dust and titanium dioxide particles, both chemicals are known to the state of California to cause cancer. Avoid inhaling such dust and particles; use a dust mask or other safeguards.

WHMIS status: Exempt

Canadian regulations This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)	
Canada	Domestic Substances List	Yes	
Canada	Non Domestic Substances List	No	No
USA & Puerto Rico	Toxic Substance Control Act Inventory	Yes	

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)/

16. ADDITIONAL COMMENTS

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

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