



FIBRE GLAST DEVELOPMENTS CORP.
385 CARR DRIVE
BROOKVILLE, OH 45309

TELEPHONE: (937) 833-5200
FAX: (937) 833-6555
**FOR CHEMICAL EMERGENCY
CALL (800) 424-9300 24 HRS.**

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME: PART #70 Styrene Monomer

CHEMICAL NAME: Styrene

CHEMICAL FAMILY: Aromatic hydrocarbons

SYNONYMS: Cinnamene, Vinylbenzene, Ethenylbenzene

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT NAME	CASE #	EUROPEAN UNION INVENTORY NUMBER	CONCENTRATION BY WEIGHT/MOL %		
			AVG.	MIN.	MAX.
Styrene	100-42-5	EINECS 202-851-5		99.8	
P-Tertiary Butyl Catechol	98-29-3	EINECS 202-653-9			0.01

SECTION 3 - HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This material is HAZARDOUS by OSHA Communication definition.

SIGNAL WORD: DANGER

HAZARDS: Potential cancer hazard. CNS depressant. Moderate skin irritant. Aspiration hazard. Avoid heat, high temperatures and shocks.

HEALTH: 2

FLAMMABILITY: 3

REACTIVITY: 2

PHYSICAL STATE: Liquid

COLOR: Colorless

ODOR: Aromatic, sweet odor

POTENTIAL HEALTH EFFECTS

ROUTES OF EXPOSURE: Skin. Eye Inhalation.

SIGNS AND SYMPTOMS OF ACUTE EXPOSURE: See component summary

- Styrene: It may cause irritation to the respiratory tract and to other mucous membranes. Moderate eye irritant. Moderate skin irritant. Slight ingestion hazard.

SKIN: May cause delayed skin irritation and blistering.

INHALATION: Overexposure may cause irritation to the respiratory tract and to other mucous membranes.

EYE: May cause moderate irritation including burning sensation, tearing, redness or swelling.

INGESTION: This material may be a slight health hazard if ingested in large quantities.

CHRONIC HEALTH EFFECTS: See component summary.

- Styrene: This material has been classified by IARC as a group 2B substance (possibly carcinogenic to humans). Repeated or prolonged exposure to styrene may cause nausea, loss of appetite, CNS depression and general weakness.

CONDITIONS AGGRAVATED BY EXPOSURE: This material or its emissions may affect the central nervous system (CNS) and/or aggravate pre-existing CNS disorders.

SECTION 4 - FIRST AID MEASURES

GENERAL: After adequate first aid, no further treatment is required unless symptoms reappear.

INHALATION: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain medical attention if breathing difficulty persists.

EYE: Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

SKIN: Promptly remove soiled clothing/wash thoroughly before reuse. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

INGESTION: If large quantity swallowed, give lukewarm water (pint/½ liter) if victim completely conscious/alert. Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

PHYSICIAN'S DETOXIFICATION PROCEDURES: No detoxification information available. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Treat symptomatically.

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABILITY: OSHA/NFPA Class IC flammable liquid.

CLASSIFICATION FLASH POINT/METHOD: ~32°C (90°F) (Closed Cup)

AUTO-IGNITION TEMPERATURE: 490°C (914°F)

FLAMMABLE LIMITS: Lower – 1.1 vol% Upper – 6.1 vol%

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition may produce carbon monoxide and other toxic vapors.

SPECIAL CONDITIONS TO AVOID: Releases flammable vapors below normal ambient temperatures. May polymerize explosively when involved in a fire.

EXTINGUISHING MEDIA: Suitable – SMALL FIRE: Use dry chemical CO₂, water spray or regular foam. LARGE FIRES: Water spray, water fog and/or foam.
Unsuitable – Do not use solid water stream.

FIRE FIGHTING INSTRUCTIONS: Protective Equipment/Clothing – Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighter's protective clothing will only provide limited protection.

Instructions – Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles, if this is impossible, withdraw from area and let fire burn.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

RELEASE RESPONSE: Eliminate all sources of ignition. All equipment used when handling this product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material.

REGULATION	COMPONENT	TPQ	REPORTED QUANTITY
EPA/DOT RQ	Styrene/Case #100-42-5	-	454 KG/ 1,000 lbs

SECTION 7 - HANDLING AND STORAGE

HANDLING: Do not handle near heat, sparks or flame. Avoid contact with incompatible agents. Use only with adequate ventilation/personal protection. Avoid contact with eyes, skin and clothing. Do not enter storage area unless adequately ventilated. Metal containers involved in the transfer of this material should be grounded and bonded.

STORAGE: Keep containers tightly closed when not in use and store in a well-ventilated area. Isolate incompatible materials such as oxidizers. Containers should be clearly labeled. Metal containers used to store this material should be grounded. Monitor inhibitor to maintain appropriate concentration.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits.

PERSONAL PROTECTION

INHALATION: A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use.

SKIN: Wear chemical resistant gloves such as: Viton(TM). When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn.

EYE: Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles or vapor.

OTHER HYGIENIC PRACTICES: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use and the hazards and/or potential hazards that may be encountered during use.

RECOMMENDED WORK PRACTICES: Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse.

OCCUPATIONAL EXPOSURE LIMITS:

COMPONENT NAME:	SOURCE/DATE	VALUE/UNITS	TYPE	NOTATION	CARCINOGENIC LISTING*
Styrene	US(ACGIH)/2001	20 ppm 85 mg/m ³	8 HRS/TWA	NO	2
	US(ACGIH)/2001	40 ppm 170 mg/m ³	15 MIN/STEL	NO	
	US(OSHA)/2001	100 ppm	8 HRS/TWA	NO	
	US(ACGIH)/2001	200 ppm	CEILING	NO	
P-Tertiary Butyl Catechol	US(ACGIH)	N/L			N/L
	US(OSHA)	N/L			

*1 = OSHA 2=IARC 3=NTP 4=OTHERS,N/L = NOT LISTED See Section 11 for more information

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

DENSITY: ~900 kg/m³, @ (25°C/77°F)

SPECIFIC GRAVITY: ~ .90, @ (25°C/77°F), (Water=1)

BOILING POINT: ~146°C/295°F, @ 760 mm Hg

VAPOR PRESSURE: ~4.5 mm Hg, @ (20°C/68°F)

SOLUBILITY (WATER): Negligible (Less than .1 percent)

OCTANOL/WATER PARTITION COEFFICIENT IN KOW: No data available

MOLECULAR WEIGHT: 104.16 g/mol

OTHER PHYSICAL & CHEMICAL PROPERTIES: Additional properties may be listed in Sections 3 & 5

VAPOR: ~3.6, @ (15-20°C/59-68°F)
(Air = 1.0)

pH: Not applicable

VISCOSITY: No data available

Melting/Freezing Point: ~ -31°C/-23°F)

EVAPORATION RATE: Not data available

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: This product is stable with an appropriate level of TBC inhibitor (minimum 10 ppm), but reactive (unstable) without. Contact a company sales representative for information regarding adequate inhibitor levels and methods of making inhibitor level determinations.

CONDITIONS TO AVOID: Avoid static discharge or other sources of ignition. Depleted inhibitor levels. Extended contact with air or oxygen. Contaminants. High temperatures and severe oxidizing conditions.

INCOMPATIBILITY WITH: Peroxides. Strong oxidizing agents. Pure oxygen. Contaminants and catalysts for vinyl polymers. Sulfuric acid. Alkali metal-graphite compounds. Aluminum chloride. Strong acids. Strong alkalies. Copper. Copper alloys. Rubber.

DECOMPOSITION PRODUCTS: On decomposition, emits acrid fumes.

HAZARDOUS POLYMERIZATION: May occur.

REACTIONS WITH AIR AND WATER: May react with oxygen to form peroxides.

SECTION 11 - TOXICOLOGICAL INFORMATION

PRODUCT SUMMARY: See component summary

CARCINOGENICITY: See component summary

COMPONENT SUMMARY:

Styrene

LC50 (inhl)	Mouse	9,500 GM/M3	4 Hours
	Rat	12 GM/M3	4 hours
LD50 (Oral)	Rat	2,650 GM/KG	
	Mouse	316 MG/KG	

TARGET ORGAN EFFECTS: Mucous membrane irritant. Moderate eye irritant.

CARCINOGENICITY: The International Agency for Research on Cancer (IARC, 1987) states that styrene is 'possibly carcinogenic to humans' (Group 2B) based on 'inadequate evidence' in humans, "limited evidence" in animals and 'other relevant data'. According to the IARC report, these 'other relevant data' include studies demonstrating that styrene is metabolized in humans to styrene oxide, an agent which is know to induce cancers in two animal species. Subsequent to this IARC evaluation, a long-term bioassay in CD-1 mice exposed to styrene vapors at 20, 40, 80 and 160 ppm

showed a statistically significant increase in the incidence of lung adenomas, as well as degenerative changes in the cell lining of the nasal tract. Additionally, styrene has been shown to be mutagenic in several 'in vitro' assays. However, unlike some animal species, man apparently is able to readily detoxify the styrene oxide generated from styrene exposures. Moreover studies in humans exposed to styrene for long periods of time have not demonstrated any carcinogenic effects.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY: This material may be harmful to aquatic species.

TOXICITY TO FISH:/AMPHIBIANS

<u>Test Type</u>	<u>Species</u>	<u>Value/Units</u>
LC50/96 Hours	Fathead minnow	32 mg/l

TOXICITY TO AQUATIC: INVERTERBRATES:

<u>Test Type</u>	<u>Species</u>	<u>Value/Units</u>
EC50/48Hours	Daphnia	23 mg/l

TOXICITY TO AQUATIC: Plants

<u>Test Type</u>	<u>Species</u>	<u>Value/Units</u>
NOEC/192 Hours	Algae	>200 mg/l

ENVIRONMENTAL FATE: This material is volatile and of low water solubility. Oxidation Half-Life: 0.528 days. Abiotic degradability: Hydrolysis Half-Life 0.3 days. Biotic Degradability: BOD 65%.

BIOACCUMULATION: This material is not expected to bioaccumulate.

BIODEGRADATION: This material is expected to be readily biodegradable.

SECTION 13 - DISPOSAL CONSIDERATION

Contaminated product, soil, water, container, residues and spill cleanup materials may be hazardous wastes. Comply with federal/state/local regulations for container disposal.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: Styrene monomer, stabilized

UN/NA ID: UN 2055

NAER GUIDEBOOK: 128P

MARINE POLLUTANT: No

LABELS: Flammable liquid.

DOT HAZARD CLASS: 3, PG III

IMDG HAZARD CLASS: 3, PG III

ADR/VLG HAZARD CLASS: 3

ICAO/IATA HAZARD CLASS: 3, PG III

ADNR/VBG HAZARD CLASS: 3

RID/VSG HAZARD CLASS: 3

SECTION 15 - REGULATORY INFORMATION

REGULATORY ADVISORY: This material contains a component(s) with known CAS numbers classified as hazardous substances subject to the reporting of CERCLA (40CFR 302) and/or to the release reporting requirements of SARA (Section 302) based on reportable quantities (RQs) (SEE SECTION 6).

REGULATORY STATUS: All components of this product are listed or are exempt from listing on the TSCA 8(b) inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

SARA – SECTION 313 EMISSIONS REPORTING: The material contains the following chemicals with known CAS numbers subject to the reporting requirements of SARA Title III, Section 313 and 40 CFR 372.

<u>Component Summary</u>	<u>Reporting Threshold</u>
Styrene/CAS#100-42-5	0.1%

SARA – SECTION 311/312: Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312.

Immediate (Acute) Health Hazard
Delayed (Chronic) Health Hazard
Fire Hazard
Reactive

STATE REPORTING

- This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.
- Hazardous Substances listed by the State of Pennsylvania must be identified when present in materials at levels greater than the state specified criterion. The criterion is $\geq 1\%$. Components with CAS numbers in this material at a level which could require reporting under the state are:

Styrene/CAS#100-42-5

- Environmentally Hazardous Substances listed by the State of Pennsylvania must be identified when present in materials at levels greater than the state specified criterion. The criterion is $\geq 1\%$. Components with CAS numbers in this material at a level which could require reporting under the state are:

Styrene/CAS#100-42-5

- Massachusetts Substances List (MSL) – Extraordinarily hazardous substances on the MSL-EHL must be identified when present in materials at levels greater than state specified criterion. The criterion is $\geq 0.0001\%$. Components with CAS numbers present in this material at a level which could require reporting under the statute are:

Styrene/CAS#100-42-5

- Massachusetts Substances List (MSL) – Hazardous substances on the MSL must be identified when present in materials at levels greater than state specified criterion. The criterion is $\geq 1\%$. Components with CAS numbers in this material at a level which could require reporting under the state are:

Styrene/CAS#100-42-5

SECTION 16 – OTHER INFORMATION

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SECTION 17 - COMMENTS

The information accumulated herein is believed to be accurate, but is not warranted to be whether originating with Fibre Glast Developments or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.