



GHS SAFETY DATA SHEET (SDS)

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: Part #90 – Isophthalic Polyester Resin

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.**

RECOMMENDED USE: Standard Composite Manufacturing

SECTION 2 – HAZARDS IDENTIFICATION

GHS Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Acute toxicity (Dermal)	: Category 4
Acute toxicity (Inhalation-Vapors)	: Category 4
Skin corrosion/irritation	: Category 2
Serious eye damage/irritation	: Category 2A
Carcinogenicity	: Subcategory 1B
Reproductive toxicity	: Category 2
Specific target organ toxicity-sing exposure	: Category 3
Specific target organ toxicity-repeated exposure	: Category 1
Chronic aquatic toxicity	: Category 3
Flammable liquids	: Category 3

GHS Label element

Hazard pictograms



Appearance: Amber/Opaque

Physical State: Liquid

Odor: Pungent

Signal word

: Danger

Hazard statements

: Harmful in contact with skin.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause respiratory irritation.
Causes damage to hearing through prolonged or repeated exposure if inhaled.
Harmful to aquatic life with long-lasting effects.
Flammable liquid and vapor.

Precautionary statements - Prevention

: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use only outdoors or in a well-ventilated area.
Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves/clothing/eye protection/face protection.
Do not breathe mist, vapors, spray.
Do not eat, drink, or smoke when using product.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Keep cool.
Avoid release to environment.
Use personal protective equipment as required.

Precautionary statements-Response

: IF exposed or concerned: Get medical advice/ attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention. Call POISON CENTER/doctor/physician if you feel unwell
If skin irritation occurs: Get medical advice/ attention.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
In case of fire: Use CO₂, dry chemical, or foam to extinguish.

Precautionary Statements – Storage

Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements – Disposal

Dispose of contents/container to industrial incineration plant
Dispose of in accordance with federal, state and local regulations.

Hazards not otherwise classified (HNOC)

Other information

Unknown acute toxicity

51.5% of the mixture consists of ingredient(s) of unknown toxicity.

Unknown aquatic toxicity

51.5% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%	Trade Secret
Polyester Resin	Proprietary	51.5	
Styrene	100-42-5	48.5	
Cobalt Compounds	Proprietary	<0.3	

*The exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 – FIRST AID MEASURES

First Aid Measures

Eye Contact

: Immediately flush eyes for at least 15 minutes. Get medical attention.

Skin Contact

: Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

Inhalation

: Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Get medical attention immediately.

Ingestion

: Do not induce vomiting. Potential for aspiration if swallowed. This material may enter the lungs during vomiting. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms and effects, both acute and delayed

Most important Symptoms and Effects

: No information available

Indication of any immediate medical attention and special treatment needed

Notes to Physician

: Treat Symptomatically.

SECTION 5 – FIRE FIGHTING MEASURES

- Suitable Extinguishing Media** : Carbon dioxide (CO₂), Water spray, Foam, Dry chemical
- Unsuitable Extinguishing Media** : Do not use a solid water stream as it may scatter and spread fire.
- Specific hazards arising from the chemical**
- Hazardous combustion products** : Combustion may produce carbon dioxide, carbon monoxide, and irritating or toxic vapors and gases.
- Combustion/Explosion Hazards: Flammable** : Flammable. Vapors may form explosive mixture with air. Flash back possible over considerable distance. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death.

Protective Equipment and Precautions for Firefighters:

Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe location as soon as possible. Firefighters should be protected from potential explosion hazard while extinguishing the blaze. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to cool fire-exposed containers.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- Personal Precautions** : Remove all sources of ignition. Evacuate personnel to safe areas. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental Precautions**
- Environmental Precautions** : Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

- Methods for Containment** : Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage

systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for Clean-up

: Soak up with inert absorbent material. Remove from surface water (e.g. by skimming or siphoning). Dispose of contaminated material as waste according to item 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for Safe Handling

Handling

: Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoter sand catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed.

Conditions for safe storage, including any incompatibilities

Storage

: Keep away from heat and sources of ignition. No smoking. Keep away from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below

77°F (25°C).

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

Components with workplace control parameters

Styrene (CAS # 100-42-5)

ACGIH TLV

20 ppm TWA

40 ppm STEL

A4 Not Classifiable as a Human Carcinogen

OSHA PEL

100 ppm TWA

200 ppm Ceiling

Industry PEL

While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted

the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8-hour TWA and a short term exposure limit (STEL) of 100 ppm, 15 minute exposure.

Canada-Alberta OELs	40 ppm STEL 170 mg/m ³ STEL 20 ppm TWA
Canada-Ontario OELs	85 mg/m ³ TWA 35 ppm TWA 100 ppm STEL
Canada-British Columbia OELs	50 ppm TWA 75 ppm STEL
NIOSH IDLH	700 ppm immediately dangerous to life or health IDLH
Mexico OEL	100 ppm STEL 425 mg/m ³ STEL 50 ppm TWA 215 mg/m ³ TWA (skin)

Legend

ACGIH – (American Conference of Governmental Industrial Hygienists)
 TLV® – (Threshold Limit Value)
 TWA – (Time Weighted Average)
 STEL – Short Term Exposure Limit
 OSHA – Occupational Safety and Health Administration
 PEL – Permissible Exposure Limit
 NIOSH – National Institute for Occupational Safety and Health
 OEL – Occupational Exposure Limit
 IDLH – Immediately Dangerous to Life and Health
 SKIN – Skin Absorption

Appropriate Engineering Controls

Engineering Controls

: Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face Protection

: Safety glasses with side-shields. If splashes are likely to occur. Tight sealing safety goggles. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection

: Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Impervious clothing. Rubber or plastic boots.

Respiratory Protection

: None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General Hygiene Considerations

: Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Amber/Opaque
Odor	Pungent
Odor Threshold	0.2 ppm (Styrene)
Physical State	Liquid
pH	No information available
Flash Point	89°F/32°C
Flash Point Method	Seta closed cup
Auto-ignition temperature	914°F/490°C (Styrene)
Boiling point/boiling range	295°F/ 146°C (Styrene)
Melting point/range	No data available
Flammability Limit in Air	
Lower	1.1% (Styrene)
Upper	6.1% (Styrene)
Specific Gravity	1.04–1.08 @ 25°C
Solubility	Insoluble (water)
Evaporation Rate	0.49 (BuAc=1) (Styrene)
Vapor Pressure	5 mmHg @ 20°C (Styrene) 6.7 hPa (Styrene)
Vapor Density	3.6 (Air=1) (Styrene)
Explosive Properties	No information available
Oxidizing Properties	No information available
Percent Volatile, wt. %	47.0–50.0% by weight
VOC Content	514 g/l (calculated) product as supplied
Viscosity	450–650 cps @ 25°C
Partition Coefficient (n-octanol/water)	No information available
Decomposition Temperature	No information available

SECTION 10 – STABILITY AND REACTIVITY

<u>Reactivity</u>	: No dangerous reaction known under conditions of normal use.
Chemical Stability	: Stable under normal conditions. Stable under recommended storage conditions.
<u>Possibility of Hazardous Reactions</u>	: Hazardous Polymerization: Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Product will undergo hazardous polymerization at temperatures above 150°F (65°C).
<u>Conditions to Avoid</u>	: Heat, flames and sparks. Contamination by those materials referred to under.
Incompatible materials	: Strong acids. Strong oxidizing agents. Metal salts. Polymerization catalysts.
Hazardous Decomposition Products	: Hydrocarbons. Carbon monoxide. Carbon dioxide (CO ₂). Thermal decomposition can lead to release of irritating and toxic gases and vapors.

SECTION 11 – TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Primary Routes of Exposure : Eye contact, ingestion, inhalation, skin contact, skin absorption

Acute Toxicity

Styrene

Oral LD50 = 5000 mg/kg (Rat)

Dermal LD50 > 2000 mg/kg (Rat)

Inhalation LC50 = 11.8 mg/l (4 H) (Rat)

Cobalt Compounds

Oral LD50 = 3900 mg/kg (Rat)

Information on toxicological effects

Symptoms Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Eyes : Irritating to eyes.

Skin : Harmful by skin absorption. Contact causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.

Inhalation : Harmful if by inhalation. May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause CNS-depression and narcosis.

Ingestion : Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration hazard if swallowed – can enter lungs and cause damage. Ingestion is not an anticipated route of exposure for this material in industrial use.

Sensitization : No information available.

Repeated dose toxicity : In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

Mutagenic effects : Styrene has given mixed positive and negative results in a number of mutagenicity test. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

Carcinogenicity

Styrene

ACGIH

IARC

NTP

Cobalt Compounds

IARC

Group A4 – Not classifiable as a human carcinogen.

Group 2B – Possibly Carcinogenic to Humans

Reasonably anticipated to be human carcinogen.

Group 2B – Possibly Carcinogenic to Humans

Legends

IARC – International Agency for Research on Cancer

NTP – National Toxicology Program

Reproductive Toxicity	: No information available.
Neurological Effects	: No information available.
STOT – single exposure	: No information available.
STOT – repeated exposure	: No information available.
Target organ(s)	: Liver, Kidney, Central nervous system (CNS), Respiratory system.
Aspiration Hazard	: No information available.

Numerical measures of toxicity – Product information

Unknown acute toxicity : 51.5% of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document.

ATEmix (oral)	4957 mg/kg
ATEmix (dermal)	1984 mg/kg
ATEmix (inhalation-vapor)	11.7 mg/L

SECTION 12 – ECOLOGICAL INFORMATION

Eco toxicity

Styrene

Log Kow	: 2.95
Bio concentration factor (BCF)	: 74
Algae:	EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h) EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)
Fish:	LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-Through LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) Static LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static
Water Flea:	EC50 3.3 - 7.4 mg/L 48 h

Unknown aquatic toxicity : 51.6% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence/Degradability : No information available.

Bioaccumulation : No information available.

Other adverse effects : No information available.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Considerations : Hazardous waste. Can be incinerated, when in compliance with local regulations.

Contaminated packaging : Empty containers should be taken for local recycling, recovery or waste disposal.

US EPA Waste Number : D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristic of ignitability.

SECTION 14 – TRANSPORT INFORMATION

DOT

UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class: 3
Packing Group: III
NAERG: 127

TDG

UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class 3
Packing Group PG III
NAERG 127

MEX

UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class 3
Packing Group PG III
NAERG 127 IATA

IATA

UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class 3
Packing Group III
Packing Instructions 355; 366
NAERG 127

IMDG/IMO

UN-No UN1866
Proper Shipping Name RESIN SOLUTION
Hazard Class 3
Packing Group PG III
EmS-No F-E, S-E
NAERG 127

SECTION 15 – REGULATORY INFORMATION

International Inventories

TSCA Inventory Status : All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.

Canadian Inventory Status : All components of this material are listed on the Canadian Domestic Substances List (DSL)

Australian Inventory Status : This product contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances.

Korean Inventory Status : This product contains only chemicals which are currently listed on the Korean Chemical Substances List.

Philippine Inventory : All components of this material are listed on or are exempt from the Philippine Inventory of Chemicals and Chemical Substances.

Japan ENCS : This product contains only chemicals that are currently listed on the Japanese Inventory of Existing and New Chemical Substances.

Chinese IECS : This product contains one or more chemicals currently not on the Chinese Inventory of Existing Chemical Substances.

New Zealand Inventory : This product contains only chemicals which are currently listed on the New Zealand Inventory of Chemicals.

US Federal Regulations

TSCA 12(b) - Export Notification : This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification requirements.

SARA 313 : Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Component	CAS No	Weight-%	SARA 313 Status
Styrene	100-42-5	48.5	Listed

SARA 311/312 Hazardous Categorization

Acute Health Hazard : Yes
Chronic Health Hazard : Yes
Fire Hazard : Yes
Sudden Release of Pressure Hazard : No
Reactive Hazard : Yes

Clean Water Act

This product contains the following listed substances:

Component	CWA – Reportable Quantities	CWA – Toxic Pollutants	CWA – Priority Pollutants	CWA – Hazardous Substances
Styrene 100-42-5	1000 lb.			Listed

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following HAPs:

Component	CAS No	Weight - %	HAPs data
Styrene	100-42-5	48.5	

CERCLA

This product contains the following reportable quantities:

Component	40 CFR 302.4 RQ	40 CFR 355 EHS TPQs
Styrene	100 lb. 454 kg	

Chemical Weapons Convention (CWC)

This product contains a Schedule 3 Toxic chemical precursor.

State Regulations

California Proposition 65

WARNING: This material contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. The California Safe Drinking Water and Toxic Enforcement Act of 1986 requires that clear and reasonable warning be given prior to exposing any person to this chemical.

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

SECTION 16 – OTHER INFORMATION

NFPA Rating

Health 2

Flammability 3

Instability 1

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