Appendix A.1—Fox Blocks ICF MSDS Information



6110 Abbott Dr. Omaha, NE 68110 1-877-369-2562 www.FoxBlocks.com

Material Safety Data Sheet (MSDS)

Original Date: August 1, 2008 Contact Information:

Revision Date: Version 2.0, August 1, 2011 Safety Kleen 1-888-375-5336 (USA)

1. Product Information and Company Identification

Product Name: Fox Blocks, 525 Kansas Avenue, Omaha, NE 68110, 1-877-369-2562

Company Name: Airlite Plastics Co. dba Fox Blocks

Product Type: Manufactured Insulating Concrete Forms (ICF) for the Construction Industry

Fox Blocks Products:

Fox Block, pre-assembled ICF product

- Fox 1440, field-assembled knockdown ICF product
- Silver Fox, pre-assembled ICF product (graphite modified EPS resin)
- Fox Tilt-up, panelized ICF product

CAS Numbers: See Composition and Information on Ingredients (Section 3) for more information.

Material Names:

- Expandable Polystyrene (EPS) resin that during the manufacturing process produces the finished Fox Blocks product, which is a foam plastic insulation form.
- Polypropylene (PP) Copolymer Resin Materials that is recycled during the manufacturing process to produce Regrind Resin (hard plastic) used to manufacture the cross-tie components that are embedded in the Fox Blocks forms.

Expandable Polystyrene (EPS) Resin Materials: Fox Blocks has listed several EPS Material Manufacturing Companies that supply resin to produce its foam ICF wall system products in North America. Fox Blocks ICF walls system products are manufactured at several locations and it may be necessary to use more than one type of EPS Resin material. Please refer to the EPS Resin Material Manufacturers MSDS information below for additional information to support the Fox Blocks product line and MSDS document.

- Flint Hills Resources, MSDS Ref. # 21503, Grade 40 & 54 EPS Resin, Peru, IL, USA @ 1-316-828-7988
- BASF Corporation, Styropor BFL & Neopor EPS Resin, Florham Park, NJ, USA @ 1-800-832-4357
- Samsung Cheil Industries Inc, Starex EPS Resin SF Series, Korea @ 011-82-61-689-1531

NFPA Ratings
Health: 1
Flammability: 2
Instability: 0
Hazardous Material Identification
System (HMIS) III Ratings
Health: 1
Flammability: 2
Flammability: 2
Physical Hazard: 0
Hezardous Material Identification
Health: 1
2 = Moderate
3 = Serious
4 = Severe

NFPA and HMIS use a similar numbering scale ranging from 0 to 4 to indicate the degree of hazard. The NFPA system is developed to provide an on-the-spot alert to the hazards of the material. The HMIS system is designed to communicate workplace hazardous chemical information to employees.

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Polypropylene (PP) Resin Materials: The Fox Blocks cross-tie components are primarily manufactured from 1st Generation 100% Polypropylene (PP) Copolymer Reprocessed (Repro) resin, sourced internally from Airlite Plastics Co. food container injection molding business. Rejected containers are collected from the production area, reprocessed into flakes and then pelletized. The material is stored until used in the ICF cross-tie injection molding manufacturing process. Airlite Plastics Co. sources virgin PP resin materials for its containers from several different resin manufacturing companies. Airlite Plastics Co. can also externally source PP Repro resin for its cross-tie components to be used (straight or blended) as a supplemental supply with our internal PP Repro resin source. Please refer to the PP Resin Material Manufacturers MSDS information below for additional information to support the Fox Blocks product line and MSDS document.

- Basell USA Inc., MSDS Ref. # SC973X, Propylene/Ethylene Copolymer Resin, Elkton, MD, USA @ 1-420-996-1600
- Equistar Chemicals, LP USA Inc., MSDS Ref. # SG802N, Propylene/Ethylene Copolymer Resin, Houston, TX, USA @ 1-800-700-0946 or 1-800-245-4532
- The Dow Chemical Company, MSDS Ref. # DC7074.00 & # C758-80NA Polypropylene Resins, Midland, MI, USA @ 1-800-258-2436
- ABSA Resin Technologies Inc., PP Reprocessed (Generic Series that includes PP 4MI, PP 18 IMR, CP Repro, HP Repro & PPRLTP) Resins, Cambridge, Ontario, CAN @ 1-519-653-5575

2. Health Hazards and Identification

Emergency Overview The EPS resin material is a white or graphite solid with

hydrocarbon odor. The PP resin regrind material is colored to a

charcoal to black solid that is odorless to mild odor.

Reactivity Hazard The materials are stable.

Potential Health Effects

Routes of Exposure Inhalation, ingestion, skin and eye contact.

Eyes The materials dust may cause mechanical irritation including

pain, lacrimation and redness. Effects may become more

serious with repeated or prolong contact.

Skin Repeated or prolonged skin contact with the materials may

cause reddening, itching and inflammation. Irritation from skin

contact is rare.

The materials contain a component(s) that may cause allergic

skin reactions in some individuals.

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Inhalation The materials dust from mechanical fabrication, sanding,

sawing and cutting during the installation of the form may cause irritation to the nose, throat and lungs by mechanical abrasion. Fumes from hot wire or blade cutting the form during installation can also cause upper respiratory tract irritation.

Ingestion The materials are biologically inert. If swallowed, may act as

an obstruction.

Incompatibility The materials will dissolve in most organic solvents, and some

(Materials to Avoid) insecticides, aldehydes and amines.

3. Composition and Information on Ingredients

Expandable Polystyrene (EPS) resin material is manufactured from expandable polystyrene beads which are non-hazardous. These EPS beads contain a blowing agent (Pentanes), coatings and flame retardant additives which are considered hazardous components. Steam heat expands the blowing agent to produce moisture-resistant multi-cellular particles or pre-expanded beads. Following an intermediate aging period during which the beads lose their moisture, the blowing agent condenses out and air diffuses into the cellular structure. After the air has stabilized the material, the pre-expanded beads are transported to the EPS shape molding press equipment, where they are thermally steam fused into the finished Fox Blocks forms, which are then cured.

Polypropylene (PP) resin material used for the Fox Blocks cross-tie components are primarily manufactured from 1st Generation 100% Polypropylene (PP) Copolymer Repro resin, sourced internally from Airlite Plastics Co. food container injection molding business. The resin is reprocessed into flakes and then pelletized. Airlite Plastics Co. can also externally source PP Repro resin for its cross-tie components to be used (straight or blended) as a supplemental supply with our internal PP Repro resin source. The reprocessed resin is transported to the injection molding press equipment where they are thermally molded into cross-tie components. The cross-tie components are then transported to the EPS shape molding press equipment where they are inserted into the ICF mold and thermally steam fused into the finished Fox Blocks forms.

EPS Resin Material & Components	CAS#	Concentration*	Concentration**
POLYSTYRENE THERMOPLASTIC RESIN	9003-53-6	93 – 96 %	> 98 %
PENTANES	109-66-0	3 - 6 %	< 1 %
COATINGS	N/A	< 0.5 %	< 0.5 %
FLAME RETARDANT ADDITIVE	3194-55-6	< 0.9 %	< 0.9 %

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PP Resin Material & Components	CAS#	Concentration*
1st GENERATION REGRIND RESIN		
PRPOPYLENE (PP) ETHYLENE COPOLYMER	9010-79-1	96 – 98 %
07.1011.17500.0.100.1711.150.10500.10.001.001.001.00		
STABILIZERS & ADDITIVES (REGRIND COLOR IS		
CARBON BLACK IN PP CARRIER)	Mixture	2 - 4 %

^{*} These manufacturing values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

Composition Comments This Material Safety Date Sheet is intended to communicate

potential health hazards and potential physical hazards associated with the product(s) covered by this sheet, and is not intended to communicate product specification

information. For product specification information, contact the

material manufacturers. See Product Information and

Company Identification (Section 1).

4. First Aid Measures

First Aid Proce	edures
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Eye Contact If dust or particles become lodged in the eye, rinse with clean

water. Obtain medical attention if condition is painful.

Skin ContactContact is not expected to present skin irritation or a skin

hazard. Wash exposed areas with mild soap and clean water.

Inhalation Remove and get to fresh air if overcome by exposure. If

symptoms persist, provide oxygen and obtain medical

attention.

Ingestion This product is not expected to present a significant ingestion

hazard. However, if it does occur, watch the person for several days to make sure any obstruction does not occur. Do not induce vomiting unless directed by a physician or qualified

medical professional.

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^{**} The finished/cured Fox Blocks form values for the EPS Resin Material concentrations for POLYSTYRENE are approximately > 98 % and the PENTANES/COATINGS/ADDITIVES are approximately < 2 % which rapidly decreases with age. PRODUCT GRADE - TYPE II and TESTING APPROVALS – ASTM C578, CAN/ULC S701 & ASTM D1929



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5. Fire-Fighting Measures

Extinguishing media

fighting foam for Class B fires to extinguish the fire.

Protection of Firefighters
Specific Hazards Arising From

The Chemical

Combustion may produce hazardous combustion products and other decomposition products in the case of incomplete combustion. These may include simple hydrocarbons to toxic and irritating gases such as carbon, carbon monoxide, styrene, acids, ketones and aldebydes.

acids, ketones and aldehydes.

Fire Fighting Equipment/Instructions The materials will burn on contact by a flame or exposure to

high temperatures.

Evacuate the area and fight the fire from a safe distance.

Firefighters must wear a National Institute for Occupational Safety and Health (NIOSH) approved positive pressure Self Contained Breathing Apparatus (SCBA) with a full face mask

and full protective equipment.

When large quantities of solid substance material are involved, melting may occur, in which condition, application of water may cause extensive scattering of molten material. Dense black smoke produced during combustion may obscure vision. To prevent re-ignition of interior, target center of fire with large amounts of water. Vapors are heavier than air and may accumulate in low areas and travel a considerable distance up to the source of the ignition.

6. Accidental Release Measures

Spill or Leak ProceduresNormal good housekeeping measures should be observed.

Material can be swept (by hand, with a vacuum or

mechanically picked up) and placed into a suitable container

for proper disposal.

Reportable Quantity None.

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7. Special Precautions in Handling, Storage and Combustibility Barriers

Handling Procedures

Handle in accordance with good manufacturing practices and safety procedures.

Handle the forms carefully not to cause damage to the foam.

For additional safety information, consult the current editions of the National Fire Protection Association (NFPA) 654 Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids.

Storage Conditions

Store in a well-ventilated area at temperatures below 100 F. Do not store near extreme heat and extended UV exposure.

EPS resin material used to manufacture the forms contains a fire retardant additive considered combustible. Adequate protection from sources of ignition should be taken during storage, see Toxicological Information (Section 11).

Do not smoke in areas of use or storage.

For additional safety information, consult the current editions of the National Fire Protection Association (NFPA) 654 Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids.

Combustibility Barrier

This product is combustible. A protective barrier or a thermal barrier is required as specified in the appropriate building codes for the finished form once installed for occupancy.

8. Exposure Controls and Personal Protection

Exposure Limits

None established in finished/cured Fox Blocks form.

General Control Measures for Hot Wire or Blade Cutting Provide sufficient general and/or local exhaust ventilation to maintain exposure below permissible personal exposure limits (PEL) or threshold limit value (TLV) for combustible products from hot wire or blade cutting. Use local exhaust, where possible, in confined spaces. Wear approved safety

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glasses/goggles and dust mask if mechanical fabrication, sanding, sawing and cutting of the form are to take place.

Personal Protective Equipment Respiratory Protection

Use approved dust mask when mechanical fabrication, sanding, sawing and cutting of the form are to take place. A NIOSH approved dust respirator may be appropriate when the

PEL or TLV for combustion products under certain

circumstances are expected to exceed exposure limits.

Eye & Face Protection Keep materials away from eyes. Eye contact can be avoided

by using indirect-vent goggles and/or a face shield when mechanical fabrication, sanding, sawing and cutting of the

form are to take place.

Skin Protection Skin protection is not normally required. Wear gloves and/or

sleeves, if sensitivity occurs.

9. EPS Resin Material Physical and Chemical Properties

EPS PP
Color White or grey Charcoal to black

Odor Very slight hydrocarbon odor Odorless to mild

Physical StateSolidSolidFormRigid cellular foam formPellets, granules or flakes

Level of pHNot availableNot applicableEvaporation RateNoneNot applicable

Vapor Pressure/DensityNot applicableNot applicableSpecific Gravity (H2O = 1)0.60 - 2.0 (Estimated)Not applicable

Relative DensityNot availableNot availableSolubility (Water)InsolubleNegligibleFlash-Ignition Temperature400 C (752 F) Flaming usingNot applicable

ASTM Test Method D1929 **Self-Ignition Temperature**380 C (716 F) Flaming using

No data available

ASTM Test Method D1929

Melting PointSoftens @ 70 C (160 F)Softens @ 90 C (200 F)Freezing & Boiling PointNot applicableNot applicableVolatiles by Volume< 4 % (Pentanes and Water)</th>Not available

Density1.35 – 1.65 lbs/cubic feet
25 C (77 F)
1.00 available
1.02 g/ml
25 C (77 F)
25 C (77 F)

Chemical FamilyPolystyrene ThermoplasticPropylene/EthylenePolymerCopolymer

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10. Stability and Reactivity

Chemical Stability Product is stable

Conditions to AvoidAvoid high temperatures, open flames, sparks and the use of

ungrounded electrical equipment.

Hazardous Decomposition

Products

Not anticipated under normal conditions. Decomposition of the product can include trace amounts of hydrocarbons. Primary combustion products include carbon monoxide, carbon dioxide, styrene, hydrogen halide, nuisance

particulate, carbon (soot) and pentanes.

Incompatibility (Materials to Avoid) Product will dissolve in hydrocarbons, esters, aldehydes and

amines.

Possibility of Hazardous Reactions Will not occur.

Hazardous Polymerization Will not occur.

11. Toxicological Information

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

POLYSTYRENE (CAS 9003-53-6) Group 3, Not classifiable as to its carcinogenicity to humans.

EPS Toxicological Data

Polystyrene Based Polymers

Dust may be irritating to the respiratory system. Prolonged and repeated inhalation of dust may cause impaired lung function and lung changes. In addition, trace amounts of unreacted monomer may be present in the final polymer or foam form.

Pentanes and Coatings Irritating vapors and fumes from the blowing agent or

component additives like coatings may be emitted from thermal processing during the manufacturing process or from

storage in confined spaces.

Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol. %) during the manufacturing process may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

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The finished/cured Fox Blocks form values for the EPS Resin Material concentrations for POLYSTYRENE are approximately > 98 % and the PENTANES/MODIFIERS/ADDITIVES are approximately < 2 % which rapidly decreases with age.

Flame Retardant Additive Hexabromocyclododecane

Hexabromocyclododecane (HBDC) is the flame retardant material used in EPS Resin Material to manufacture foam insulation. HBDC is an additive flame retardant that promotes increased fire resistance in building and construction applications allowing EPS to meet stringent fire safety requirements as determined by the building codes dictated by the International Code Council and the National Building Code of Canada as published by the EPS Molders Association. It offers unique performance in polystyrene foams because it is effective at low levels (around 0.5 % by weight in EPS), enabling fire safety to be insured without loss of thermal insulation quality.

Findings from a dermal sensitization study in laboratory animals was positive. Reports of sensitization in humans are uncertain, but suggest that this material is a weak allergic sensitizer.

Evidence of adverse effects of the liver, prostate and disruption of thyroid function and homeostasis were observed in repeat-dose studies in laboratory animals receiving this material by the oral route of exposure. Findings from an oral reproduction study in laboratory animals included pup viability and some evidence of abnormal neurobehavioral development.

Exposure to this material may cause adverse effects or damage to the following organs or organ system. The central nervous system, skin, eyes, respiratory tract and heart.

HBCD is not a listed chemical for the U.S. Toxics Release Inventory (TRI) Program.

HBCD is not a listed chemical by Environment Canada although it is currently undergoing review.

PP Toxicological Data
Polypropylene Based Polymers

Additives are encapsulated in the product and are not expected to be released under normal processing conditions or foreseeable emergency.

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12. Ecological Information

Ecotoxicity EPS resin materials are not classified as harmful to aquatic

organisms. PP resin materials are not expected to be acutely toxic, but material in pellet or bead form can mechanically cause adverse effects if ingested by waterfowl or aquatic life.

Persistence & DegradabilityNot readily biodegradable.

Bioaccumulation & Accumulation Not classified in terms of bioaccumulation in aquatic

organisms.

Mobility in Environmental MediaNot classified in terms of mobility in air, soil and water. In the

terrestrial environment, material is expected to remain in the soil. In the aquatic environment, material is expected to float.

13. Disposal Considerations

Disposal Instructions

Materials, if discarded, is not expected to be a characteristic hazardous waste.

Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the material to determine, at the time of disposal, whether the material meets RCRA criteria for hazardous waste.

In Canada, material wastes should be disposed of according to local/regional territory, provincial and federal regulations.

For additional handling information and protection of employees, see Special Precautions in Handling, Storage and Combustibility Barriers (Section 7) and Exposure Controls and Personal Protection (Section 8).

Do not dump in any sewers, on the ground or into any body of water. All disposal practices must be in compliance with local/regional territory, state, provincial and federal laws and environmental regulations in North America. Regulations may vary in different locations. Waste characteristics and compliance with applicable laws are the sole responsibility of the waste generator.

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14. Transport Information

Shipping Name Not regulated for transport as a finished form.

Hazard Class None

UN/NA # None

Packaging Group None

General Department of Transportation (DOT) Non-Bulk and Bulk are not

regulated. Not a DOT "Hazardous Material".

International Maritime Dangerous Goods (IMDG) is not

regulated.

International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) are not regulated.

This information is not intended to convey all specific regulatory or operational requirement/information relating to these products. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material in North America.

15. Regulatory Information

US Federal Regulations

All EPS resin material ingredients are on the Toxic Substance Control Act (TSCA) Services inventory.

This material does not contain toxic chemicals (in excess of the applicable de minimis concentration) that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act (SARA), Section 313 (40 CFR 372).

This material contains substances subject to accident prevention regulation when present above the applicable threshold quantities (Section 112(r) of the Clean Air Act).

Check local/regional territory, state or provincial regulations for any additional requirements as these may be more restrictive than federal laws and regulations in North America. The failure to report may result in substantial civil and criminal penalties.

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OSHA Hazard Communication

Standard

The PP resin material is not a hazardous chemicals as defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA (Superfund) Reportable

Quantities

None

Superfund Amendments and Reauthorization Act of 1986 Hazard Categories

Sections 311 & 312	EPS	PP
Immediate (Acute) Hazard	Yes*	No
Delayed (Chronic) Hazard	Yes*	No
Fire Hazard	Yes*	No
Pressure Hazard	No	No
Reactivity Hazard	No	No

^{*} During the manufacturing process.

State Regulations

Based on available information, these materials do not contain any components or chemicals currently known to the State of California to cause cancer, birth defects or reproductive harm at levels which would be subject to Proposition 65. Reformulation, use or processing of this material may affect its composition and require re-evaluation.

Pennsylvania (Worker and Community Right-To-Know Act) states that based on available information, this product does not contain chemicals at levels which require reporting under this statute for PP Resin Materials.

EPS resin material, as sold raw material, meets the requirements of the Model Toxics Legislation of the Coalition of Northeastern Governors (CONEG). Any alteration of this product may affect its compliance with this law.

Canadian Regulations

All EPS resin material ingredients are on the Canadian

Domestic Substance List (DSL).

EPS resin material has been classified in accordance with the hazard criteria of the Changed Product Rule (CPR) and the MSDS and contains all the information required by the CPR.

Controlled under the Workplace Hazardous Materials Information System (WHMIS) of Canada.

WHMIS Classification

EPS resin material, B4 – Flammable and Combustible Material.

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16. Other Information

Disclaimer

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet (MSDS). Adequate training and instruction should be given by you to your employees and affected personnel. Appropriate warnings and safe handling procedures should be provided by you to handlers and users.

Additionally, the user should review this information, satisfy itself as to its suitability and completeness, and pass on the information to its employees or customers in accordance with the applicable local/regional territory, state, provincial or federal hazard communication requirements.

This MSDS may not be used as a commercial specification sheet of the manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the enclosed and foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license.

The information contained herein is provided as a general reference. Airlite Plastics Co. and Fox Blocks believes this data set forth herein to be accurate and the information is given in good faith and neither assumes nor retains any responsibility for any damage or injury resulting from abnormal use, from any failure to adhere to appropriate practices, or from any hazards inherent in the nature of the material. Moreover, unless an employee or a customer accesses or receives a MSDS directly from the company, there is no assurance that a document obtained from any other alternate sources is the most current available MSDS.

Issue Date

8-1-11

Completed By

Fox Blocks, Airlite Plastics Co. EPS Division VP/GM

End of Data Sheet

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