TRADE NAME
ZOLTEK™ PX35 PREPREG

SECTION 1: Identification of the substance/mixture and the company/undertaking

1.1 Product identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>ZOLTEK™ PX35 Prepreg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Epoxy polymer; Glycidyl Amino Phenol</td>
</tr>
<tr>
<td>Chemical family</td>
<td>Epoxy prepreg/carbon fiber roving</td>
</tr>
<tr>
<td>Product description</td>
<td>carbon fiber impregnated with epoxy resin</td>
</tr>
</tbody>
</table>

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Relevant uses

- industrial applications

1.2.2 Uses advised against

Not to be used in products for which prolonged contact with mucous membranes, abraded skin, or implantation within the human body is specifically intended

Zoltek is not able to recommend this material as safe and effective for such uses and assumes no liability for any such use.

1.3 Details of the supplier of the safety data sheet

Company: Zoltek Companies, Inc.
3101 Mckelvey Road
St. Louis, MO 63044
USA
(314) 291-5110
www.zoltek.com

E-mail enquiry: sds@zoltek.com

1.4 Emergency telephone number

+1 (314) 291-5110 8AM-5PM Central Time/ M-F
SECTION 2: Hazards Identification

2.1 Classification of the substance or mixture

Product definition article

2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]

not determined

2.1.2 Classification according to Regulation 67/548/EEC or 1999/45/EC

Hazard symbols not determined
R-phrases not determined

2.2 Label elements

Labeling according to Regulation 67/548/EEC or 1994/45/EC

Hazard symbols not determined
R-phrases not determined
S-phrases not determined
Special labeling not determined

2.3 Other hazards

Physio-chemical hazards see SECTION 10
Human health dangers see SECTION 11 and below
Eye none known
Skin none known
Inhalation none known

Environmental hazards see SECTION 12
Other hazards see SECTION 15
SECTION 3: Composition/information on ingredients

3.1 Product-type

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS. NO</th>
<th>EINECS/ELINCS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon fiber, polyacrylonitrile (PAN)-based (carbon)</td>
<td>308063-67-4</td>
<td>Polymer: 231-153-3</td>
<td>50 - 80</td>
</tr>
<tr>
<td>(carbon)</td>
<td>(7440-44-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epoxy resin</td>
<td>proprietary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toughening agent</td>
<td>proprietary</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1 Description of first aid measures

General information not applicable

Inhalation Remove from the area of the dust to fresh air. Seek medical attention if you feel unwell.

Skin contact Wash affected areas thoroughly with soap and water. Any material adhering to skin should be removed with resin removing creams. Do not use solvents.

Eye contact Flush eyes with water for 15 minutes. If irritation persists, seek medical attention.

Ingestion If conscious, give large quantities of water. Get medical attention.

4.2 Most important symptoms and effects, both acute and displayed

no data available

4.3 Indication of any immediate medical attention and special treatment

no data available
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide, foam, dry chemical, water spray

Unsuitable extinguishing media
dependent on processing plant conditions

5.2 Special hazards arising from the substance or media

Extreme thermal decomposition and burning may produce CO₂, CO, NOx and other toxic organic species.

5.3 Advice for firefighters

self-contained breathing apparatus (SCBA). Cool fire-exposed containers with water. In the case of large fires, also cool surrounding equipment and structures with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel
Work gloves, safety goggles and protective clothing should be worn. NIOSH-approved dust respirator or dust mask is recommended where dust arises.

6.1.2 For emergency responders
Work gloves, safety goggles and protective clothing should be worn. NIOSH-approved dust respirator or dust mask is recommended where dust arises.

6.2 Environmental precautions
not applicable

6.3 Methods and material for containment and cleaning up

6.3.1 For containment
In case of spill, collect and place into closable container for disposal.

6.3.2 For cleaning up
To dispose of properly, bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
WARNING: Harmful if concentrated decomposition fumes are inhaled, absorbed through the skin or swallowed. Do not get in eyes, on skin or on clothing. Do not breathe dust. Good ventilation and good personal hygiene are essential. Wash thoroughly after handling and before eating, drinking or smoking. Use clean clothing daily. A shower after work is recommended.
7.2 Conditions for safe storage, including any incompatibilities

Store in dry chemical storage facility in tightly closed containers. Store away from food, food containers, and clothing.

7.3 Specific end use(s) see section 1.2

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

OSHA and ACGIH (USA) have not established air contamination for carbon fibers. Under certain conditions this substance may be a nuisance dust. OSHA has an established standard for particulates not otherwise regulated (nuisance dust) set at 5 mg/m$^3$ (respirable fraction) and 15 mg/m$^3$ (total dust). ACGIH has established an exposure value of 3 mg/m$^3$ (respirable fraction) and 10 mg/m$^3$ (total).

NHFPC (PRC) has an established standard for carbon fiber's particulates not otherwise regulated set at 6mg/m$^3$ ESTL (total dust) and 3mg/m$^3$ TWA (total dust),

Belgium has established an Occupational Exposure Limit for carbon fiber as 2 fiber/cm$^3$ TWA.

8.2 Exposure controls

8.2.1 Appropriate engineering controls local exhaust for airborne fiber removal.

8.2.2 Personal protection equipment

8.2.2.1 Eye and face protection safety goggles

8.2.2.2 Skin protection

Hand protection protective gloves

Other skin protection Recommend disposable protective garments to eliminate possible skin irritation. Apply barrier cream for protection of exposed skin.

8.2.3 Respiratory protection Personal dust respirators applicable if high degree of fiber fly is experienced.

8.2.4 Thermal hazards not applicable
8.2.3 Environmental exposure controls  
see SECTION 6 & 7

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>epoxy-coated carbon fiber</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>not determined</td>
</tr>
<tr>
<td>pH</td>
<td>not determined</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>60°C (resin)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>not determined</td>
</tr>
<tr>
<td>Flashpoint</td>
<td>not determined</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not determined</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>not determined</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>not determined</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>not determined</td>
</tr>
<tr>
<td>Vapor density</td>
<td>not determined</td>
</tr>
<tr>
<td>Relative density (specific gravity)</td>
<td>1.58 (H₂O @ 4°C = 1.00)</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>water: insoluble</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>not applicable</td>
</tr>
<tr>
<td>n-octanol/water</td>
<td>not determined</td>
</tr>
<tr>
<td>Auto ignition temperature</td>
<td>not applicable</td>
</tr>
<tr>
<td>Decomposition temperature (in Air)</td>
<td>resin preparation: &gt;300°C</td>
</tr>
<tr>
<td></td>
<td>carbon fiber: &gt;650°C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>not determined</td>
</tr>
<tr>
<td>Explosive properties:</td>
<td>not determined</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>not determined</td>
</tr>
</tbody>
</table>

9.2 Other information  
no other information available

SECTION 10: Stability and reactivity

10.1 Reactivity  
see SECTION 10.3

10.2 Chemical stability  
stable under normal ambient and anticipated storage and handling conditions of temperature and pressure

10.3 Possibility of hazardous reactions  
Hazardous polymerization will, not occur under normal conditions. Can react with strong oxidizing agents, acids and bases.
10.4 Conditions to avoid
Temperatures >300°C, also see SECTION 7

10.5 Incompatible materials
see SECTION 10.3

10.6 Hazardous decomposition products
Extreme thermal decomposition and burning may produce CO₂, CO, NOx and other toxic organic species.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>no data available</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>no data available</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>no data available</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>no data available</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>no data available</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>no data available</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>no data available</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>no data available</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>no data available</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>not an inhalation hazard</td>
</tr>
<tr>
<td></td>
<td>Carbon fiber filament diameter &gt;3µm / non-respirable (IARC)</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1 Toxicity                                       no data available

12.2 Persistence and degradability                 no data available

12.3 Bioaccumulative potential                     no data available

12.4 Mobility in soil                              no data available

12.5 Results of PBT and nPvB assessment            no data available

12.6 Other adverse effects                         ecological data not available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste materials must be disposed of in accordance with the Directive on waste 2008/98/EC and any other applicable national or local regulations.
SECTION 14: Transport information

14.1 UN number 
see SECTION 14.2

14.2 UN proper shipping name 
not Dangerous Goods 
ADR/RID (land) 
ADN (inland navigation) 
IMDG (marine)

14.3 Transport hazard class(es) 
see SECTION 14.2

14.4 Packing group 
see SECTION 14.2

14.5 Environmental hazards 
see SECTION 14.2

14.6 Special precautions to user 
see SECTION 6 to 8

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC code 
not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture 

California Proposition 65:
This product contains a chemical known by the State of California to cause cancer

15.2 Chemical safety assessment 
has not been carried out

SECTION 16: Other information

16.1 Revision date: 
17 November 2015, CN: 1343

16.2 Previous revision: 
17 January 2012

16.3 Abbreviations and acronyms 
ADN = Accord européen relative au transport international des marchandises dangereuses par voie de navigation intérieure

ADR = Accord européen relative au transport international des marchandises Dangereuses par Route

CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging

EEC = European Economic Community

EINECS = European Inventory of Existing Commercial Chemical Substances

ELINCS = European List of Notified Chemical Substances

IBC-Code = International Coder for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

IMDG = International Maritime Code for Dangerous Goods

MARPOL = International Convention for the Prevention of Marine Pollution from Ships

OSHA = Occupational Safety and Health Administration

PBT = Persistent, Bioaccumulative and Toxic substance

RID = Règlement concerant le transport international ferroviare de marchandises dangereuses

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