SAFETY DATA SHEET

TRADE NAME
ZOLTEK™ OX

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

1.1 Product identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>ZOLTEK™ OX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>OPAN, OPF</td>
</tr>
<tr>
<td>Chemical family</td>
<td>Oxidized/stabilized polyacrylonitrile (PAN) fiber</td>
</tr>
<tr>
<td>Product description</td>
<td>continuous fiber made from precursor</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

- none known

1.3 Details of the supplier of the safety data sheet

- Company: Zoltek Corporation
- Address: 3101 McKelvey Rd., St. Louis, MO 63044
- Phone: (314) 291-5110
- Website: www.zoltek.com
- E-mail enquiry: sds@zoltek.com

1.4 Emergency telephone number

- +1 (314) 291-5110 8AM-5PM / 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 classified

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

Hazard symbols none
R-phrases none

2.2 Label elements

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

Hazard symbols none
R-phrases none
S-phrases none
Special labeling not applicable

Product is non-hazardous and therefore does not require a hazard warning label, in accordance with OSHA HazCom and EC-directives

2.3 Other hazards

Physio-chemical hazards see SECTION 10
Human health dangers see SECTION 11 and below

Eye
Flush eyes with water for 15 minutes.

Skin
Wash affected areas thoroughly with soap and water.

Inhalation
Remove from the dust area to fresh air.

Environmental hazards see SECTION 12

Other hazards -
SECTION 3: Composition/information on ingredients

3.1 Product-type article

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS. NO</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidized or stabilized Polyacrylonitrile (PAN) fiber</td>
<td>308060-39-1</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1 Description of first aid measures

- General information: not applicable
- Inhalation: Remove from the dust area to fresh air.
- Skin contact: Wash affected areas thoroughly with soap and water.
- Eye contact: Flush eyes with water for 15 minutes.
- Ingestion: In the event of deliberate ingestion, consult with a doctor.

4.2 Most important symptoms and effects, both acute and delayed

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: normal firefighting media and procedures
- Unsuitable extinguishing media: -

5.2 Special hazards arising from the substance or media

- upon intense heating, CO₂, CO and a minute amount of NOₓ, HCN and H₂O may be released

5.3 Advice for firefighters

- self-contained breathing apparatus (SCBA)
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel not applicable
6.1.2 For emergency responders not applicable

6.2 Environmental precautions not applicable

6.3 Methods and material for containment and cleaning up

6.3.1 For containment not applicable
6.3.2 For cleaning up not applicable

6.4 Reference to other sections personal protective equipment (PPE)
See SECTION 8
disposal considerations
See SECTION 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling Keep the package sealed, away from dirt and moisture. Avoid exposure to sunlight.

7.2 Conditions for safe storage, including any incompatibilities None

7.3 Specific end use(s) see SECTION 1.2

SECTION 8: Exposure controls/personal protection

8.1 Control parameters None

8.2 Exposure controls

8.2.1 Appropriate engineering controls local exhaust for airborne dust removal emergency eyewash

8.2.2 Personal protection equipment

8.2.2.1 Eye and face protection safety glasses
8.2.2.2 Skin protection

Hand protection Choose appropriate gloves to protect hands against hazards specific to place of work.
Other skin protection not applicable

8.2.2.3 Respiratory protection Normal industrial hygiene practice (dust mask) if high degree of fiber fly is experienced.

8.2.2.4 Thermal hazards not applicable

8.2.3 Environmental exposure controls see SECTIONS 6 & 7

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance solid
Odor not determined
pH not determined
Melting point / freezing point not determined
Initial boiling point and boiling range not determined
Flashpoint not determined
Evaporation rate not determined
Flammability (solid, gas) not determined
Upper/lower flammability or explosive limits not determined
Vapor pressure not determined
Vapor density not determined
Specific gravity (relative density) ≥1.35 g/cm³
Solubility(ies) water not soluble
Partition coefficient n-octanol/water not applicable
Auto ignition temperature 670°C
Decomposition temperature (in Air) 500°C
Viscosity not applicable
Explosive properties: not applicable
Oxidizing properties not applicable

9.2 Other information not applicable
SECTION 10: Stability and reactivity

10.1 Reactivity see SECTION 10.3
10.2 Chemical stability stable
10.3 Possibility of hazardous reactions not determined
10.4 Conditions to avoid see SECTION 7
10.5 Incompatible materials see SECTION 10.3
10.6 Hazardous decomposition products Burning will produce CO₂, CO, and minute amounts of NOₓ, HCN and H₂O.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity no data available
- Skin corrosion/irritation See section 4.
- Serious eye damage/irritation See section 4.
- Respiratory or skin sensitization See section 4.
- Germ cell mutagenicity no data available
- Carcinogenicity no data available
- Reproductive toxicity no data available
- STOT-single exposure no data available
- STOT-repeated exposure no data available
- Aspiration hazard not an inhalation hazard

SECTION 12: Ecological information

12.1 Toxicity not 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  Landfill sites - industrially approved. Do not incinerate. If necessary, consult local, state, and federal agencies prior to disposal of this material.

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 SECTIONS 6 to 8
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC code  not Dangerous Goods

SECTION 15: Regulatory information

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

CA Proposition 65  ▲ WARNING
This product can expose you to chemicals including Diethanolamine (CAS 111-42-2 – trace amount / impurity), which is known to the State of California to cause cancer.
For more information go to www.P65Warnings.ca.gov

Toxic Substances Control Act (TSCA) Status
This product is TSCA-compliant

15.2 Chemical safety assessment  has not been carried out
SECTION 16: Other information

16.1 Revision date: 19 June 2019, CN #1836

16.2 Previous revision: 15 June 2016, CN #1389

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 concernant le transport international ferroviaire de marchandises dangereuses

16.4 Disclaimer

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