What is Oxidized Fiber?

Oxidized polyacrylonitrile (OPAN) fiber, such as ZOLTEK™ OX, is manufactured from a polyacrylonitrile precursor fiber (PAN). The PAN precursor fiber is solution spun and processed through a high temperature air oven to stabilize its molecular structure. After stabilization is complete, a fiber finish is applied to the OPAN fiber tow and pleated into boxes. The OX tow can be further processed, through a crimping and cutting process to make staple fiber, which is baled for shipment.

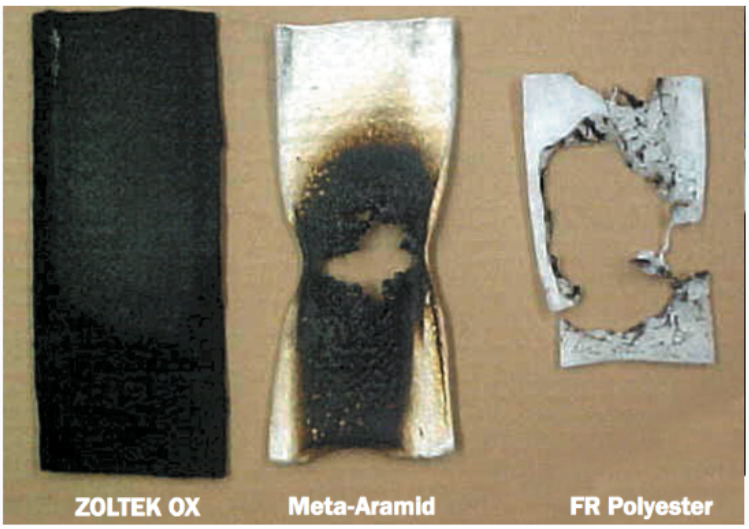
The performance features of OPAN fiber include:

- **Limiting Oxygen Index (LOI) values between 45% – 55%.**
- **Unsurpassed flame and heat dimensional stability.**
- **Easy processability into yarns, wovens, knits & nonwovens.**
- **Soft, comfortable felts and fabrics.**
- **Electrically nonconductive and excellent chemical resistance.**
- **No halogens and very low toxic gas emissions, upon flame exposure.**

Oxidized polyacrylonitrile fiber is produced as a 300,000 filament tow and can be crimped and cut into various staple lengths. Three denier sizes (1.7dtex, 2.2dtex and 5.0dtex) and two different fiber densities (1.37 g/cc and 1.40 g/cc) are available. The Limiting Oxygen Index (LOI) value is dependent upon fiber density. Besides providing outstanding protection against direct flame, OPAN fiber products exhibit low thermal conductivity and make excellent thermal insulators.

"OPAN fiber outperforms other heat and flame resistant fibers when it comes to direct flame exposure and molten metal splash performance."

OPAN fibers do not melt or burn and most importantly they will not shrink; even after a 30 second 1250˚C flame or molten metal drip exposure. Besides maintaining dimensional stability, OPAN fiber also retains a soft hand after being exposed to flame and it does this at a very economical price.



ZOLTEK OX - About

ZOLTEK in inherently flame resistant, making it an effective heat-blocking and fire barrier material. It outperforms all other organic flame resistant fibers in terms of limiting oxygen index and does so at a very competitive price. ZOLTEK OX textile products retain their appearance, have a soft hand and retain their textile characteristics, even after open flame exposure. Besides not burning, melting or dripping, ZOLTEK OX fibers will not shrink and they self-extinguish, when exposed to flame.

Learn more about ZOLTEK OX.

Zoltek OX for Aircraft Brakes

ZOLTEK OX fiber is the key component in the production of carbon aircraft brakes. ZOLTEK OX fiber is processed in conventional textile equipment and converted into carbon brakes through various manufacturing operations. In comparison to steel brakes, ZOLTEK OX based carbon brakes offer twice as many landings per overhaul, similar life-cycle costs, significant weight savings, higher energy absorption capability and the ability to handle up to 2000˚F during landings.

ZOLTEK OX for Fireblocking Layer Fabric

ZOLTEK OX fiber is the key component in nonwoven fireblocking layer fabrics for aircraft, rail and marine seating. ZOLTEK OX can be blended with p-aramid and other FR fibers. ZOLTEK OX is the most cost effective fiber for this application and it contains no halogens, has outstanding flame resistance, and low toxic gas emission levels.

ZOLTEK OX for Welding Drapes and Heat Insulating Blankets

ZOLTEK OX fiber is used in welding drapes, aprons and curtains and in thermal insulation blankets. It provides excellent resistance against sparks and does not shrink when exposed to high temperatures.

ZOLTEK OX for Automotive Parts

ZOLTEK OX fiber is blended with polyester fiber for use in nonwoven NHV liners for automotive applications requiring excellent heat and thermal aging resistance in the high temperature compartments of an automobile.

ZOLTEK OX for Apparel

ZOLTEK OX fiber blends can be dyed to produce soft and comfortable FR and electric arc knit and woven apparel. ZOLTEK OX based FR apparel has been UL certified to NFPA 2112 and ASTM F1506 Hazard Risk Category 2.

ZOLTEK OX for Insulation

ZOLTEK OX fiber can be thermally-bonded and needlepunched to form nonwoven products.

ZOLTEK Corporation (HQ)

3101 McKelvey Road
Bridgeton, MO 63044

+1 (314) 291-5110
+1 (314) 291-8536
sales@zoltek.com