ZOTEFOAMS

ZOTEK® F HIGH PERFORMANCE PVDF FOAM FOR USE IN THE **AVIATION AND AEROSPACE** INDUSTRY

AZOTE®
high performance
polyolefin foams

ZOTEK®
advanced
polymer foams

Aviation and Aerospace


Materials supplied by E&H laminating & Slitting

ZOTEK® F, ZOTEK® F HT and ZOTEK® F OSU are a range of lightweight, cross linked, closed cell foams based on Kynar® PVDF Fluoropolymer (poly vinylidene fluoride) with densities ranging from 30 kg/m³ (1.9 pcf) upwards. They are intended for use in the commercial, business and military aircraft and aerospace industries.

ZOTEK® F and ZOTEK® F HT Lightweight PVDF Foams are recommended for thermal and acoustic insulations that must meet stringent Radiant Panel requirements (FAR 25.856 (a) App F Pt VI). They exhibit outstanding FST performance. Several OEM approvals (e.g. BMS 8-371D, NATO and NASA) have been gained.

ZOTEK® F OSU Flexible, Semi-Rigid and Rigid PVDF Foams exhibit excellent FST performance and show exceptionally low OSU* ratings (FAR 25.853 (d)). They are ideal for interior soft trim in combination with leathers, textiles and décorative laminates and low FST cores for composites and divider panels

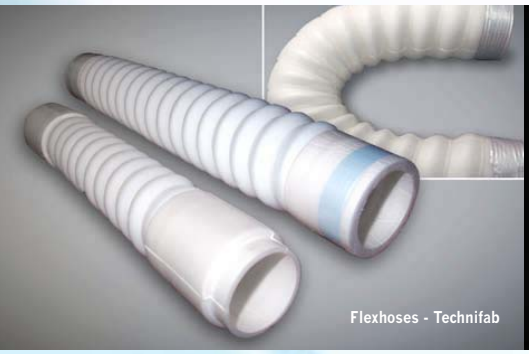
The ZOTEK® F HT grades offer an additional operational temperature limit of 160°C, an improvement of +50°C over the ZOTEK® F range. They also offer enhanced chemical and solvent resistance combined with higher levels of structural rigidity.

The combination of smoke, toxicity and flame performance makes ZOTEK® F ideal materials for a wide selection of thermal and acoustic insulation, damping, soft-touch interior trim, sealing and light-weight structural components and composite applications in the aerospace and aviation industries.

FIRE, SMOKE AND TOXICITY (FST)

All ZOTEK® F foams are inherently fire retardant, low smoke, low heat release materials. They have been successfully subjected to testing using several aviation standards including the Radiant Heat Panel Test, both alone and in combination with adhesive. ZOTEK® F OSU exhibits exceptionally low OSU, which in combination with leather, adhesive and decorative laminates helps with compliance to OSU 65/65.

ZOTEFOAMS
THE FOAM TECHNOLOGISTS


Flexhoses - Technifab


Ducting coupling systems - Technifab

MOISTURE RESISTANT

Many foams with good FST characteristics have open cell structures and must be used either with process skin intact or sealed within other materials to prevent moisture ingress. Being closed cell, ZOTEK® F foams are highly resistant to moisture ingress and do not need to be hermetically sealed before use.

UV STABLE

All ZOTEK® F foams are unaffected by UV light and can be used in exposed areas of the aircraft and cockpit without fear of degradation.

LOW WEIGHT

The majority of closed cell foams that have acceptable FST properties are of high density, preventing their use in aircraft applications. ZOTEK® F foams are available at densities down to 30kg/m^3 (1.9 pcf).

Many other foams need to be combined In multi-component systems to meet the user's needs. ZOTEK® F can often achieve this without the added cost and weight of adhesives, foils or laminates. This overall weight saving Is a true engineering solution using a true engineering material.

VERSATILE

ZOTEK® F foams are suitable for uses including thermal & acoustic insulation, sealing, soft touch, damping and packaging.

EASY TO PROCESS

ZOTEK® F foams can be bonded to other soft-touch surface materials used in aviation and can be coated to improve scratch resistance in overt applications such as seat arms. It can be easily fabricated by conventional foam fabrication techniques, can be converted into self adhesive tapes and, being cross-linked, can be readily thermoformed into simple or complex shapes such as tubes and complex 3D components for insulation and moisture control.

MEETS THE FOLLOWING TECHNICAL SPECIFICATIONS

Passes all FAA fire, smoke, and toxicity test requirements for products used within the fuselage

- Radiant Heat Panel FAR 25.856(a) App F Pt VI
- Heat Release FAR/CS 25.853(d) Appendix F Pt IV
- Vertical Bunsen Burner FAR/CS 25.853(a) Appendix F Pt I (a), (1), (ii)
- Smoke Density FAR/CS 25.853(d) Appendix F Pt V
- Smoke Density ABD0031 par. 7.3.2
- Toxic Gas Emission ABD0031 par. 7.4

Moulded tube insulation - Technifab

Boeing 787 window mount -Technifab

Window reveal insulation -Technifab

BENEFITS

- Qualified to Boeing BMS8-371D
- NATO Specification 5640-99-331-1797 Thermal Insulation Blanket
- NASA Specification SLZ 33117571
- Light weight (F 30 = 30kg/m^3)
- Good thermal insulation properties
- Strong chemical resistance
- Excellent fungal growth resistance
- Good solvent resistance
- Exceptional UV resistance
- Thermoforms exceptionally
- Can be formed into complex shapes (compression moulding & vacuum forming)
- Air leak-proof, will not absorb moisture
- Bonds to itself, strong leak-proof seams (heat lamination)
- ZOTEK® F foams are very resilient and can withstand significant abuse from impact, dropping, folding, being stepped on etc.
- Compatible with tapes, adhesives, composites and other reinforcement materials

APPLICATIONS FOR ZOTEK® F FOAMS IN THE AVIATION INDUSTRY

INTERIOR APPLICATIONS

INSULATION ON INTERIOR LININGS AND SIDE PANELS

- Trim for first class seating - "pods"
- Soft touch panels - foam with leather or textiles

KEY BENEFITS:

- Low OSU
- Robust cushioning, material
- Doesn't bottom out like open cell foams (Polyurethane)
- Ability to form complex shapes

GALLEY - MOULDED INSULATION TUBES & COVERS

- Chiller & heat exchanger insulation
- Waste and water pipe insulation
- Door and lavatory insulation
- Chiller ducts and water line insulation
- Oven and refrigerator insulation

KEY BENEFITS:

- Robust long-term insulation system
- No need for cover film
- Ease of installation
- Better in high moisture environments
- Excellent FST properties

CARPET UNDERLAY - VIP INTERIOR

KEY BENEFITS:

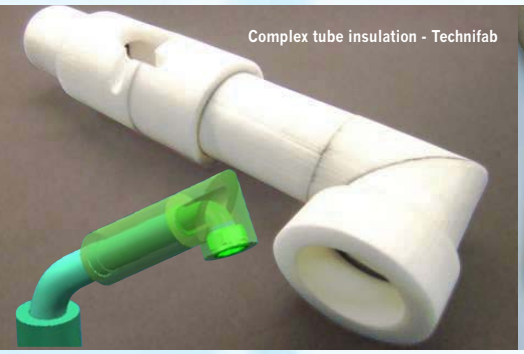
- Weight saving (versus silicone)
- Excellent FST (low OSU)

WINDOW SEALS

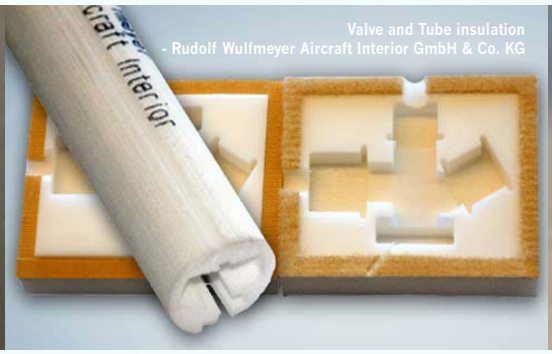
KEY BENEFITS:

- Robust long-term insulation system
- No need for adhesive (clipping system)
- Pressure resistance
- Meet radiant panel test
- Weight saving: 50% (silicone seals)
- Excellent UV resistance

Black PVDF coating available if needed



Complex tube insulation - Technifab



Valve and Tube insulation - Rudolf Wulfmeyer Aircraft Interior GmbH & Co. KG

OTHER INTERIOR APPLICATIONS

- Crew Escape Door insulation
- Door seals and insulation
- Insulation pads (airstair and main deck cargo)
- Foam tapes
- Water diverters
- Door seals and door insulation
- Cargo insulation
- Gap fillers
- Heat-exchanger insulation
- Cock-pit insulation
- Damping materials

AIRFRAME COMPONENTS

DUCTS

KEY BENEFITS:

- Weight saving: 50% (versus composite ducts)
- Robust material - not brittle
- Passes FAR 25.856 (a) App F Pt VI
- Excellent chemical resistance, odour and fungal growth resistant
- Reduction of manufacturing steps
- Reparability - easy and robust repair procedure

SLEEVES (DUCT COUPLING SYSTEMS)

KEY BENEFITS:

- Weight saving (silicone)
- Passes FAR 25.856 (a) App F Pt VI

FLEX HOSES

KEY BENEFITS:

- Weight saving
- Robust material - not brittle
- Passes FAR 25.856 (a) App F Pt VI
- Excellent chemical resistance, odour and fungal growth resistant
- Reparability - easy and robust repair procedure

AEROSPACE INDUSTRY

- Scientific tool box packaging (NASA Specification SLZ 33117571)

MILITARY AVIATION INSULATION

- NATO Specification 5640-99-331-1797 Thermal Insulation Blanket

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* OSU: The Ohio State University test method to determine the total and release rate of heat from materials, products, or assemblies during combustion.

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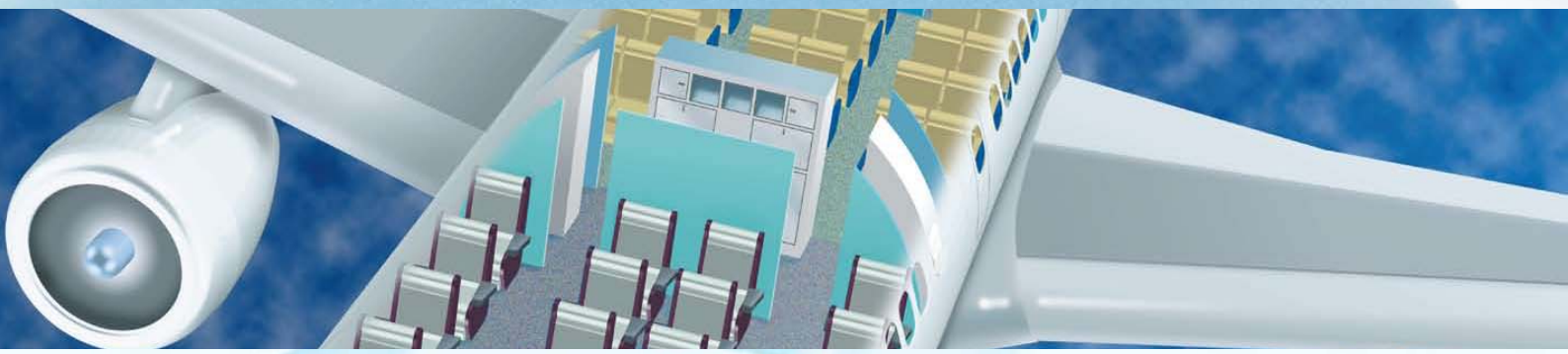

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