High performance thermoplastic solutions for aerospace challenges

Innovative solutions for weight reduction and new design possibilities for the aerospace industry
Innovative solutions for the aerospace industry

The drive for a more fuel-efficient and environment friendly aircraft has generated many challenging aerospace issues. At Evonik we are continuously working on a range of high performance thermoplastic granules and compounds to meet the most stringent regulations of the aerospace industry.

EVONIK OFFERS SEVERAL HIGH PERFORMANCE POLYMERS THAT COMPLY WITH ALL OF THE KEY REQUIREMENTS IN THE AEROSPACE INDUSTRY.

VESTAKEEP® Polyether ether ketone (PEEK) is a high performance thermoplastic polymer for manufacturing very reliable, durable components for use under the toughest conditions. VESTAMID® is a long-chain, semi-crystalline specialty polyamide that offers an excellent combination of mechanical properties and chemical resistance over a wide range of operating temperatures. TROGRAMID® is a transparent polyamide grade with high UV resistance.

Your benefits

We work with our customers to develop cost-effective solutions that offer the following benefits to meet future performance requirements in the aerospace industry.

VESTAKEEP® PEEK
For extreme conditions
- Up to 70% lighter than steel with proven track record in metal replacement.
- Retains the mechanical & thermal properties under severe conditions such as high heat & high pressure.
- Superior chemical resistance to oils, hydraulic fluids, jet fuels, de-icers & other commonly used fluids in aerospace.
- Fulfills all the FST requirements for all kinds of interior, exterior or structural components & tubing in the aircraft.

VESTAMID®
For versatility
- Proven and trusted solutions in the automotive and oil & gas industries.
- Wide operating temperature between -40 ºC up to 110 ºC.
- Tough, flexible, chemical & corrosion resistance and easy processing.
- Ideal for all kinds of extrusion tubing or profile in gallery & interior parts.

VESTAMID® HTplus
For cost performance ratio
- High heat resistance up to 200º C.
- High rigidity & tensile strength.
- Excellent resistance against many aggressive chemicals.
- Potential for replacing metallic components due to its high stiffness, heat stability and attractive cost.

TROGRAMID®
For clarity
- High optical transparency & light weight against tempered glass.
- Excellent resistance against chemical, scratch & abrasion.
- High impact strength.
- Suitable for all kinds of see through housing & aesthetic panel, including the potential in glass replacement.
Aviation applications

Interior application
1. Seating and structural support
   VESTAKEEP® PEEK can be used for reducing the weight of the structural frame and easily injection molded into complex shapes or geometries.
2. Handles for support
   Compared to die-cast parts, injection-molded VESTAKEEP® PEEK and VESTAMID® PA12 handles offer improved aesthetics and reduced weight.
3. Bracket for luggage compartment
   VESTAKEEP® PEEK works well in space- and weight-saving design concepts that maximize space within the aircraft interior.
4. Galley trolley
   VESTAMID® PA12 profiles serve as excellent insulators for galley trolleys to keep food cold for longer periods of time.

Exterior application
5. Light cover
   TROGAMID® CX is an alternative to glass that can reduce weight and is easy to process into various shapes.
6. Vent grill
   Easy-to-assemble, lightweight VESTAKEEP® PEEK has excellent mechanical and thermal properties, making it suitable for replacing metallic parts in ventilation systems.
7. Sealing cap
   VESTAMID® HTplus PPA presents a cost-effective sealing-cap solution to protect metallic fasteners from corrosion.
8. Thermoplastic composites
   A variety of matrix solutions based on VESTAKEEP® PEEK, VESTAMID® PA12, and TROGAMID® CX are available to support emerging welding and joining technology in thermoplastic composites.

Assembly components
9. Extruded profile for cabin
   Easy processing makes VESTAMID® PA12 an ideal solution for complex profiles.
10. Tubing and pipes
    Tubing made of VESTAKEEP® PEEK and VESTAMID® PA 12 are easy to form, lightweight, and offer better chemical resistance than metallic tubing.
11. Critical assembly components
    VESTAKEEP® PEEK has a proven track record as a replacement for metallic components in brackets, clips, and fasteners.
12. Electrical cable insulation
    VESTAKEEK® PEEK thin films can be used for cables.
13. Nuts and bolts
    VESTAKEEP® PEEK nuts and bolts are easy to handle, corrosion free, reliable, and durable.
14. Engine parts
    Specially developed high-temperature VESTAKEEP® PEEK grades reduce creep by more than 50% and improve modulus retention at 290°C, making them suitable for replacing metal in components near the engine.
Evonik offers several products to fit your unique application. To learn more about the right grade for you, contact:

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