



Antero 800NA

DATA SHEET



Antero™ 800NA is a PEKK-based FDM® thermoplastic. It combines FDM's design freedom and ease of use with the excellent strength, toughness and wear-resistant properties of PEKK material.

Antero 800NA exhibits high heat resistance, chemical resistance, low outgassing and dimensional stability, particularly in large parts.

Appropriate applications include aircraft components exposed to jet fuel, oil and hydraulic fluid, spacecraft parts that demand low outgassing and chemical-resistant industrial parts. Using Antero 800NA with FDM technology avoids the waste associated with subtractive manufacturing of high-cost bulk PEKK material.

Antero 800NA is available on Fortus 450mc™ 3D Printers and is compatible with breakaway support material SUP8000B.

| MECHANICAL PROPERTIES | TEST METHOD | XZ ORIENTATION | ZX ORIENTATION |
|--|-------------|---|---------------------------------------|
| Tensile Strength, Yield (Type 1, 0.125 in., 0.2 in./min) | ASTM D638 | 93.1 ± 0.4 MPa (13,504 ± 57 psi) | 45.9 ± 5.3 MPa (6,650 ± 765 psi) |
| Tensile Strength, Ultimate (Type 1, 0.125 in., 0.2 in./min) | ASTM D638 | 93.1 ± 0.4 MPa (13,504 ± 57 psi) | 45.9 ± 5.3 MPa (6,650 ± 765 psi) |
| Tensile Modulus (Type 1, 0.125 in., 0.2 in./min) | ASTM D638 | 3.1 ± 0.3 GPa (448.9 ± 39.5 ksi) | 3.5 ± 0.7 MPa (505.3 ± 108.2 ksi) |
| Elongation at Break (Type 1, 0.125 in., 0.2 in./min) | ASTM D638 | 6.40 ± 1.05% ¹ | 1.22 ± 0.28% ¹ |
| Elongation at Yield (Type 1, 0.125 in., 0.2 in./min) | ASTM D638 | 4.31 ± 0.58% | 1.11 ± 0.53% ² |
| Flexural Strength (Method 1, 0.05 in./min) | ASTM D790 | 142 ± 3 MPa (20,548 ± 477 psi) | 64 ± 10 MPa (9,349 ± 1,514 psi) |
| Flexural Modulus (Method 1, 0.05 in./min) | ASTM D790 | 3.1 ± 0.1 GPa (445.6 ± 10.8 ksi) | 2.7 ± 0.1 GPa (388.7 ± 13.0 ksi) |
| Flexural Strain at Break (Method 1, 0.05 in./min) | ASTM D790 | No break | 2.41 ± 0.39% ³ |
| Notched Impact (Method A, 23 °C) | ASTM D256 | 37 ± 6 J/m (0.69 ± 0.12 ft-lb/in) | 27 ± 5 J/m (0.51 ± 0.09 ft-lb/in) |
| Unnotched Impact (Method A, 23 °C) | ASTM D256 | 1,826 ± 1,254 J/m (34.2 ± 23.5 ft-lb/in) | 75 ± 28 J/m (1.40 ± 0.52 ft-lb/in) |
| Compressive Strength, Yield (Method 1, 0.05 in./min) | ASTM D695 | 100 ± 2 MPa (14,572 ± 317 psi) | 101 ± 3 MPa (14,595 ± 439 psi) |
| Compressive Strength, Ultimate (Method 1, 0.05 in./min) | ASTM D696 | 100 ± 2 MPa (14,572 ± 317 psi) | 101 ± 3 MPa (14,595 ± 439 psi) |
| Compressive Modulus (Method 1, 0.05 in./min) | ASTM D697 | 2.45 ± 0.01 GPa (355.6 ± 1.6 ksi) | 2.3 ± 0.1 GPa (336.3 ± 12.1 ksi) |

¹ 5/30 bars did not break; elongation at end of the test for those 5 bars were used in the calculation

² 8/30 bars did not yield per the MTS machine, average calculated with 22 samples

³ 11/30 bars did not break, average calculated with 19 samples



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| THERMAL PROPERTIES | TEST METHOD | VALUE |
|--------------------------------------|---------------|--|
| Heat Deflection (HDT) @ 66 psi | ASTM D648 | 150 °C (302 °F) |
| Heat Deflection (HDT) @ 264 psi | ASTM D648 | 147 °C (296.6 °F) |
| Glass Transition Temperature (Tg) | ASTM D7426-08 | 149 °C (300.2 °F) |
| Coefficient of Thermal Expansion (X) | ASTM E831 | 39.23 µm/(m·°C) (21.79 µin/(in·°F)) |
| Coefficient of Thermal Expansion (Y) | ASTM E831 | 53.14 µm/(m·°C) (29.52 µin/(in·°F)) |
| Coefficient of Thermal Expansion (Z) | ASTM E831 | 50.52 µm/(m·°C) (28.06 µin/(in·°F)) |

The information presented are typical values intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, etc. Actual values will vary with build conditions. Tested parts were built on Fortus 450mc @ 0.010" (0.254 mm) slice. Fluids tested include Skydrol 500, MEK (methyl ethyl ketone), JP8 aviation fuel and kerosene. Product specifications are subject to change without notice.

Ten samples were built on three different machines, resulting in 30 samples total used in each mechanical test in both the XZ and ZX orientations.

The performance characteristics of these materials may vary according to application, operating conditions or end use. Each user is responsible for determining the Stratasys material is safe, lawful and technically suitable for the intended application, as well as for identifying the proper disposal (or recycling) method consistent with applicable environmental laws and regulations. Stratasys makes no warranties of any kind, express or implied, including, but not limited to, the warranties of merchantability, fitness for a particular use or warranty against patent infringement.

For further testing details please see our Antero 800NA white paper.

| ELECTRICAL PROPERTIES | TEST METHOD | VALUE RANGE | |
|-----------------------|--------------|----------------------------|----------------------------|
| | | XY | ZX |
| Volume Resistivity | ASTM D257 | > 1.4 x 10 ¹⁴ Ω | > 1.4 x 10 ¹⁴ Ω |
| Dielectric Constant | ASTM D150-98 | 3.23 | 3.32 |
| Dissipation Factor | ASTM D150-98 | 0.004 | 0.003 |

| OUTGASSING | TEST METHOD | VALUE |
|--|-------------|-------|
| Total Mass Loss (TML) | ASTM E595 | 0.27% |
| Collected Volatile Condensable Material (CVCM) | ASTM E595 | 0.01% |
| Water Vapor Recovered (WVR) | ASTM E595 | 0.15% |

| BURN TESTING | TEST METHOD | VALUE |
|---------------------------------|-------------------|--------|
| Horizontal Burn (15 sec) | 14 CFR/FAR 25.853 | Passed |
| Vertical Burn (60 sec) | 14 CFR/FAR 25.853 | Passed |
| Vertical Burn (12 sec) | 14 CFR/FAR 25.853 | Passed |
| 45° Ignition | 14 CFR/FAR 25.853 | Passed |
| Heat Release | 14 CFR/FAR 25.853 | Passed |
| NBS Smoke Density (flaming) | ASTM F814/E662 | Passed |
| NBS Smoke Density (non-flaming) | ASTM F814/E662 | Passed |

| OTHER | TEST METHOD | VALUE |
|------------------------|--------------|-------------------|
| Specific Gravity | ASTM D792 | 1.28 |
| Chemical Compatibility | MIL-STD-810G | No visible damage |

| SYSTEM AVAILABILITY | LAYER THICKNESS CAPABILITY | SUPPORT STRUCTURE | AVAILABLE COLORS |
|---------------------|----------------------------|----------------------|------------------|
| Fortus 450mc™ | 0.010 inch (0.254 mm) | SUP8000B (breakaway) | ■ Natural |



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