



**MATERIAL
WIZARD™**

MAGIC SOLUTIONS REAL RESULTS

Examid® PA CF33 X

Carbon Fiber Reinforced Nylon Blend for High-Stiffness
Structural Applications



Technical DataSheet

Examid® PA CF33 X

Technical DataSheet | Supplied by Material Wizard

Examid® PPA CF33 X is a high-performance blend of PA66 and semi-aromatic polyphthalamide reinforced with 33% carbon fiber, engineered for applications requiring exceptional mechanical strength, thermal stability, and dimensional precision. The material exhibits low moisture absorption and extremely high tensile and flexural moduli, making it a reliable solution for demanding structural components in the automotive, aerospace, and defense industries. It maintains its performance under humid conditions, thermal cycling, and complex loading scenarios. Electrically conductive.

Product Type

PPA (PA6i/6i) > PPA CF33

Applications/ Recommended for

Injection Molding - thermoplastics > Injection
Structural drone components (beams, housings, landing gear)
Precision UAV parts subjected to dynamic loads
Blades and propellers
Under-the-hood automotive components
Internal and load-bearing elements in aerospace applications
Industrial machinery parts and housing components
Rigid connectors and fasteners
Frames and reinforcement elements for sports equipment

Key Features

Exceptional tensile and flexural strength
Retention of strength and stiffness even at full moisture saturation
Low mold shrinkage and high dimensional accuracy
Outstanding thermal resistance (HDT 180 °C @ 1.8 MPa)
Low water absorption ensures long-term property stabilit

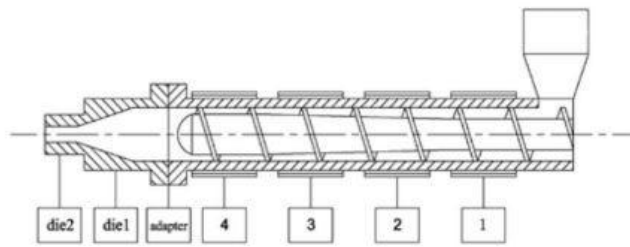
Examid® PA CF33 X Typical Properties

| Physical | Value & Unit | Test Condition | Test Method |
|----------------------------------|------------------------|----------------|-------------|
| Density | 1.29 g/cm ³ | At 23°C | ASTM D792 |
| Mold Shrinkage (avg.) | 0.4–0.6% | 2.0 mm | ASTM D955 |
| Moisture Absorption | 0.25% | 23°C, 24 h | ASTM D570 |
| Mechanical | Value & Unit | Test Condition | Test Method |
| Tensile Modulus | 24000 MPa | 1 mm/min | ASTM D638 |
| Flexural Strength | 350 MPa | 2 mm/min | ASTM D790 |
| Flexural Modulus | 20800 MPa | 2 mm/min | ASTM D790 |
| Izod Notched Impact Strength | 14.5 J/m | At 23°C | ASTM D256 |
| Electrical & Thermal | Value & Unit | Test Condition | Test Method |
| Comparative Tracking Index (CTI) | 750 V | | IEC 60112 |
| Melting Point | 245°C | 10°C/min | DSC |
| Flammability Rating | HB | 1.5 mm | UL 94 |

| | | | |
|-------------------------------------|-------|---------|----------------|
| Glow Wire Flammability Index (GWFI) | 750°C | 2 mm | IEC 60695-2-12 |
| Heat Deflection Temperature | 180°C | 1.8 MPa | ASTM D648 |

Processing Recommendations

Processing Conditions > Injection Molding:



| | Zone1 | Zone2 | Zone3 | Zone4 | Adaptor | Die1 | Die2 |
|----|-------|-------|-------|-------|---------|------|------|
| °C | 300 | 305 | 310 | 315 | 320 | 320 | 325 |

Drying (critical for PPA)

- Dry temperature: 80–100 °C
- Dry time: 2–4 h (desiccant dryer, dew point ≤ -40 °C)
- Max moisture content before molding: ≤ 0.10 %
- Tip: Verify with a moisture analyzer; re-dry if parts show splay/silver streaks.
 -

Filling, packing, and screw settings

- Screw speed: 40–90 rpm (use the lowest speed that gives stable melt)
- Shot utilization (injection volume): 65–80 % of machine rated shot capacity
- Injection speed: FAST (high speed for good surface and weld-lines)
- Injection pressure (specific): 80–120 MPa (adjust to fill ~95–98 % before pack)

Starting point: Fast fill → switchover by position/pressure → hold to freeze the gate. Optimize hold pressure/time to stabilize weight and reduce sink/voids. Keep residence time as short as practical.

Disclaimer

Standard Disclaimer

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and are subject to change without notice. It is expressly understood and agreed that you assume and hereby release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent. Typical Properties data is provided as general information only. Property values are approximate and are not part of the product specifications.

Contact Information

Email: yyekimov@gmail.com
Website: materialwizard.com.ua
Marketplace: polyamide.prom.ua
Phone: + 38 050 323 23 21

