

- Superior impact resistance
- Light weight
- Reduced cost of manufacture
- Dimensional stability



# **CASE STUDY**

# **Bike Components**

Today's athletes are looking for any edge they can gain. Accordingly there is a constant demand to make the tools of their trade lighter, stronger and more reliable.

Mountain Bikes take a lot abuse and need to be built to take everything that can be thrown at them including insane downhill descents over rocky terrain with a few jumps and daring maneuvers thrown in. But always the search for a lighter more reliable bike goes on.

TREK mountain bikes have utilised LFT technology to reduce weight in their bikes through some innovative new design. Several parts have now been converted from metal to Long Fibre Thermoplastic including the critical suspension link that cantilevers between the rear wheel and the shock absorber. This part alone has allowed for 100g to be shed from the bikes weight.



# **DATA SHEET**

## Product name: Polystruct LCF50 – PA66 MT 1014 NAT

### **Release date:**

10 September 2011

### **Description:**

- Nylon 66
- 50% long carbon fibre
- Impact modified
- High rigidity
- Dimensional stability
- Creep resistant

TYPICAL PROPERTIES	UNITS	TEST METHOD	VALUES
MECHANICAL PROPERTIES			
Tensile Yield Strength	MPa	D-638	330
Tensile Modulus	MPa	D-638	37931
Tensile Elongation	%	D-638	1-2
Flexural Strength	MPa	D-790	490
Flexural Modulus	MPa	D-790	27586
Notched Izod Impact +23°C	J/m	D-256	310
Un-notched Izod Impact	J/m	D-4812	1175
PHYSICAL PROPERTIES			
Specific Gravity	g/cm <sup>3</sup>	D-792	1.37
THERMAL PROPERTIES			
HDT at Load 1.82 MPa	٥C	D-648	249
Melting Point	٥C	D-789	255

These values for natural colour resins only. Colorants or other additives may alter some or all of these properties. The data listed here fall within the normal range of product properties, but they should not be used to establish specification limits nor used alone as the basis of design.

#### **PROCESSING GUIDELINES**

PROCESS VARIABLES	
Injection Speed	51-76 mm/s
Injection Pressure	Medium to Maximum
Back Pressure	25-50 psi
Screw Speed	30-50 rpm
Cushion	6.4mm
DRYING	
Temperature/Time/Moisture Content	80°C / 4 hrs / 0.2%
PACKAGING	

All of Duromer's Polyamide compounds are supplied in aluminium foil lined bags. Drying prior to moulding is generally not required. Foil lined bulk boxes are available on request.

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