



©ALSTOM. Custom front fairing
3D printed for Alstom light rail vehicle
by Stratiforme Industries

DIMENGEL 20-FR

Dimengel 20-FR (DIM 20-FR) is the world's first flame-retardant, photo polymeric gel for 3D printing. The polymer complies with the highest standard for flame-retardant materials, the UL94-V0 that contains a dedicated section (Blue Card) for additive manufacturing and is certified by Underwriters Laboratories (UL).

DIM 20-FR enables production of large parts for a range of industries that require flame retardancy such as Automotive, Marine, Rail, Scenic Fabrication, and Visual Communication. The material is suitable for producing a variety of applications from railway FRP spare parts through automotive aftermarket parts, military parts, to amusement park displays.

As with Massivit's range of advanced, proprietary materials, DIM 20-FR enables ultra-fast production of large custom parts that cure on-the-fly during printing, enabling ready-made solid objects straight off the printer with little-to-no need for internal support structures.

Character	Method	Metric Units		Imperial Units	
Tensile strength*	ISO 527	MPa	14.5 - 16.4	psi	2,030 - 2,320
Elongation at break*	ISO 527	%	4.0 - 7.0	%	4.0 - 7.0
Elasticity modulus	ISO 527	GPa	1.5-2.0	psi	218,000 - 282,830
Flexural strength*	ASTM D790	MPa	50 - 70	psi	7,250 - 10,150
Flexural modulus*	ASTM D790	MPa	3,200 - 4,200	psi	464,120 - 609,160
Izod Impact* (Notched)	ISO 180	J/m	16.0 - 17.6	ft·lbf/in	0.3 - 0.33
Glass transition, Tg	ASTM D3418	°C	75	°F	167
HDT* @ 0.45 MPa	ISO 75 ASTM D648	°C	54 - 56	°F	129 - 133
Density	-	g/ml	1.20	lb/ft ³	75
Hardness (Shore D)	ASTM D2240	Shore D	80	Shore D	80 - 85
Flammability, UL-94	IEC 60695-11-10	VO			
Color	-	Off White			

* All measurements were done on lab specimens of cured material.

** Certified to UL94-VO, as tested within the official UL test labs.

Coating and Finishing

DIM 20-FR can be coated with a flame resistant resin and supports a wide array of finishes:

- SAV -self-adhesive vinyl
- Car / body filler
- Polyester
- Epoxy
- Polyurethane
- Fiberglass

Regulation Compliancy

- Compliant with 1907/2006/EEC regulation 2006 ("REACH")
- Compliant with Regulation (EC) No 1272/2008 ("CLP")
- Does not contain any chemicals listed on California Prop.65
- Compliant with the US Toxic Substances Control Act (TSCA) regulations

Fire Resistance

According to IEC 60695-11-10, Dim 20-FR prints are compliant with the following standard UL94-VO**

Precautionary Statement

Massivit 3D printing technologies maintains up-to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.