



# Perfactory<sup>®</sup> Material

## R5 Gray

EnvisionTEC R5 Gray is an accurate and functional resin for producing robust and durable parts on all EnvisionTEC Perfactory<sup>®</sup> 3D printers. R5 Gray is a liquid, photo-reactive acrylate with a wide processing latitude, which is used to produce parts with high quality up-facing and down-facing surfaces. The parts exhibit superior fatigue strength properties and excellent tolerance to a broad temperature and humidity range during and after build. The material offers distinguished chemical resistance and a good balance of properties between rigidity and functionality. R5 Gray is ideal for creating master patterns in rubber molding applications and is suitable for electrical housings, medical products, snap-fit parts, consumer products, and automotive applications.

Mechanical Properties*		
ASTM Method	Description	Value
DIN 1342-2	Viscosity	643.1 cP
DIN EN ISO 527-1	Tensile Strength	49.7 MPa
DIN EN ISO 527-1	Elongation at Break	5.24%
DIN EN ISO 178	Elongation at Yield	7.93%
DIN ISO 178	Flexural Strength	79.7 MPa
DIN ISO 178	Flexural Modulus	1960 MPa
DIN ISO 1183-1	Density	1.215 g/cm <sup>3</sup>
DIN EN ISO 180	Izod Impact-Notched	5.05kJ/m <sup>2</sup>
DIN EN ISO 868	Hardness (Shore D)	89 Shore
DIN 53765	Glass Transmission Temperature	120°C - 150°C

Thermal and Electrical Properties*		
Method	Description	Value
E381-00	C.T.E. -40°C - 0°C	55 - 63 µm/m*K
E381-00	C.T.E. 0°C - 50°C	88 - 94 µm/m*K
E381-00	C.T.E. 50°C - 100°C	170 - 189 µm/m*K
E381-00	C.T.E. 100°C - 150°C	192 - 201 µm/m*K
D648-98c	HDT @ 0.46 MPa	84.5 - 102.6°C
C648-98c	HDT @ 1.81 MPa	65.4 - 88.0°C

\*All data provided is preliminary data and must be verified by the individual user.

Recommended Machines
Apollo, Aureus, Desktop XL, Perfactory <sup>®</sup> 4 Standard, Perfactory <sup>®</sup> 4 Standard XL, Perfactory <sup>®</sup> 4 Mini, Perfactory <sup>®</sup> 4 Mini XL, Perfactory <sup>®</sup> 3 Mini Multi Lens

Applications
Aerospace, Animation and Entertainment, Architecture and Art, Automotive, Consumer Packaged Goods, Education, Electronics, Manufacturing, Sporting Goods

**EnvisionTEC GmbH**  
 Brüsseler Straße 51 • D-45968  
 Gladbeck • Germany  
 Phone +49 2043 9875-0  
 Fax +49 2043 9875-99

**EnvisionTEC, Inc.**  
 15162 S. Commerce Dr.  
 Dearborn, MI 48120 • USA  
 Phone +1-313-436-4300  
 Fax +1-313-436-4303

envisiontec.com  
 info@envisiontec.com

