

## White Paper

# Expanding Applications with Objet's Photopolymer Materials

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**Objet Geometries, Ltd.** (Rehovot, Israel) extensive experience in applying PolyJet™ technology in varied industries is based on installations at leading manufacturers worldwide. By combining proven technology with a wide range of materials, it is possible to bring the advantages of rapid prototyping to a broader range of industries and also vastly expand the applications

Objet's FullCure® proprietary resins are acrylic-based photopolymer materials. Based on Objet's PolyJet technology, they produce fully cured models. The materials are delivered in fully sealed 2kg (4.4 lbs) or 3.6kg (7.9 lbs) cartridges

### Benefits

- **Productivity**
  - Instant curing—ready-to-use models
- **Versatility**
  - Choice of transparent, colored, opaque, flexible and rigid materials enables a wide variety of applications
  - Specialized materials for Hearing Aids
- **Ease of Use**
  - Same, easily removable gel-like support for all materials
  - Easy loading and unloading of cartridges
  - Easy switching between materials
- **Environmental Safety**
  - Delivered in fully sealed cartridges eliminating skin and eye contact
- **Diversified Finishing**
  - Model surfaces readily absorb paint
  - Models can be machined, drilled, chrome-plated, glued or used as a mold

The FullCure Tango family of rubber like materials embraces new applications by providing different levels of flexibility and elasticity. Elongation at break of 47 percent and SHORE A of 61 and 75 for TangoBlack and TangoGray, respectively.

TangoBlack provides high elasticity, while TangoGray is a slightly harder material that provides a more controlled flexibility and elasticity. This enables models that closely resemble the “feel” of their target products, such as shoes, toys, and consumer electronics.

TangoPlus, FullCure930, a new, semi-translucent elastomer, has elongation at break of 218 percent, a unique material property in RP with no competition regarding toughness, durability and resistance to deterioration. It addresses applications requiring rubber-like flexibility and durability, such as gaskets, seals, hoses, athletic footwear and toys.

The FullCure Vero family of materials enables opaque models that closely resemble the “look” of their target products, enhancing visualization of details and edges. A good flexural modulus (2200 MPa), with a 20 percent elongation at break enable Vero materials to be used in various applications. Vero materials are available in VeroWhite, VeroBlue and VeroBlack. The Vero family is used intensively when functional testing of engineering parts is required, for snap fit assemblies, RTV molding patterns and more.

The transparent FullCure720 material is suitable for rigid models, particularly where visibility of liquid flow or internal details is needed. The material is also biocompatible and



suitable for various medical applications. Its main characteristics are:

- Tensile strength: 60.3 MPa
- Elongation at break: 20 percent
- Modulus of elasticity: 2,870 MPa
- Flexural strength: 75.8 MPa

The FullCure 6XX family of materials is designed for the unique requirements of hearing aids (ear molds): Clear - FullCure640; RoseClear - FullCure660; SkinTone- FullCure680. With

this group of materials, Objet is leading the trend towards rapid manufacturing.

The FullCure family of materials is the perfect complement to PolyJet technology as together they enable more applications and solutions to be realized and shared with customers, thus meeting any rapid prototyping/manufacturing requirement they may have.