Backlit Display
Applications

"Backlit Displays, also referred to Light Box displays, create an unmatched visual impact through backlighting white or colored translucent graphics" says Mr. Daniel Thomsen, of ARRK Australia & New Zealand. " Backlit light box displays produce bright, vivid colors that are sure to grab attention, making them a great way to highlight your products and services."

"Our backlit display models are output on FullCure720 (a semi-transparent material), commonly used for transportable display pieces because of its durability. The PolyJet™ technology allows us to produce superior results for longer-term indoor applications."

"The backlighting of transparent models can create an unparalleled visual impact. The colored translucent panels, with or without a pattern, can create a dramatic visual effect especially if there is very little light in the surrounding environment. Hence, backlit display applications can not only capture the imagination and create a stunning atmosphere with illuminated graphics, but they can also be used for real life applications such as text illuminated via printed panels Your application for backlit panels is only limited by Your imagination."

Raised and recessed text

Images of the CAD models for the display pieces with raised and recessed text.
Raised or recessed text can be created on a part with a choice of font and size using either CAD software or STL Editing application. Obviously, any other 2D form or shape can be processed as well.

Step1: Applying text by CAD

PRINTERS
CANADA

Sand internal surfaces to disperse light

Roughing or sanding the internal surfaces of the display will give the best results. The frosted finish disperses light and eliminates the visual detection of rear light sources.

Sandblasting, may also be applicable. Both dry or wet sandblasting can be used for this purpose. For hand sandpaper, use grit 240 to 400.
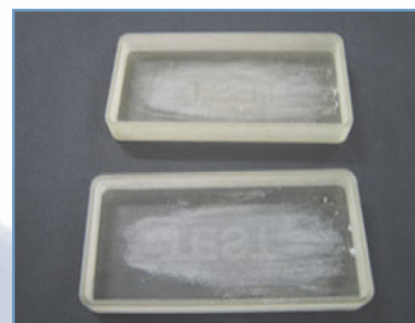
Step2: Sanding internal surfaces

Fill recessed letters with wax or toothpaste

Filling the recesses with wax or toothpaste masks off the areas intended be transparent where light is to be transmitted.


Step3: Filling letters with toothpase

Mask off internal surfaces

The internal surfaces of the display need to be masked off. By leaving the internal surfaces unpainted, light can transmit and be visible on external 'clear' areas.

Press masking tape firmly onto the surface with the tips of your fingers. Make certain there are no bubbles or folds in the tape. Use low-stick tape, so you can press it down very hard without worrying about the pulling the paint up. Paint the non-masked area. You can safely hit the paintable areas without fear of the paint seeping under the tape.
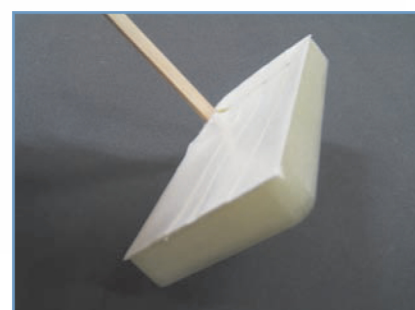
Step4: masking off the internal surfaces

Prime and Paint Front surfaces

After masking, all front and side surfaces can be primed and painted. On the right hand test piece, wax or toothpaste has been used as a mask on the recessed text.
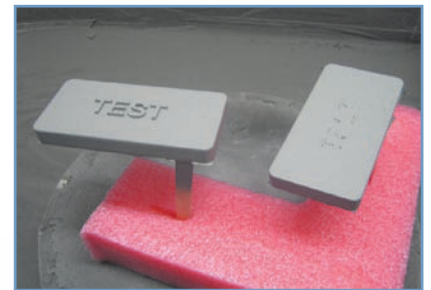
Step5: Painting front surface

Remove paint to make lettering transparent

Raised Text – sand or mill Paint to expose the areas to be illuminated. The recessed sample has the wax / toothpaste removed by scalpel or waterjet, whereas using sandpaper or a mill, the paint is easily removed from the recessed text sample. Note to preform this step only after the painting is completely done and dry.
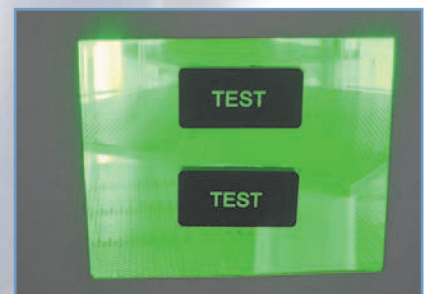

Step 6: Recessed Text – use scalpel or WaterJet

Step 6: Raised Text – sand or mill paint to expose the areas to be illuminated

Illuminated model

The finished models are placed on a light source. The word 'TEST' is illuminated in each sample giving a dramatic usual effect.

Step 7: Illuminated model

Recess text in TangoPlus™ parts

Recess text in TangoPlus parts; Smear paint into recessed letters; Wipe excessive paint from part.

Transparent materials in the Objet FullCure™ range can be used for more diverse applications. As seen is the example, TangoPlus™ is ideal for flexible components. Paint can be smeared into detailed recesses and then wiped from the intended clear surfaces. An Elast-O-Actif additive should be mixed with the the paint to give elastic properties.

Step 8: Black text on TangoPlus part

Remove paint via laser etching

The backlit effect can also be achieved via laser etching. The FullCure720 part should be primed in a thin, even, white coat. An opaque top coat, in this case black, should then be applied. Laser etching can be used to remove the black paint, and leave the thin white transparent layer.
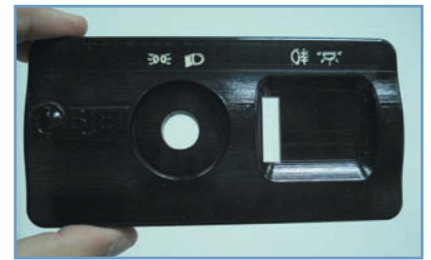
Step 9: Label PolyJet models with laser etching

Disclaimer

Objet Geometries Ltd. is not responsible for misuse of our products or their use in conjunction with unsafe or improperly maintained equipment or for uses other than intended as specified in this application note.

Objet Geometries Ltd.
Headquarters
2 Holtzman st.,
Science Park,
P.O Box 2496,
Rehovot 76124, Israel
T: +972-8-931-4314
F: +972-8-931-4315

Objet Geometries Inc.
North America
5 Fortune Drive
Billerica,
MA, 01821
USA
T: +1-877-489-9449
F: +1-866-676-1533

3D Printers Canada
North America

171 Marycroft Ave.
Vaughan
Ont, L4L 5Y3
Canada
T: +1-416-848-7699
F: + 1-905-739-1779

Info@objet.com – **www.objet.com** – **www.proto3000.com** – **www.3dprinterscanada.com**