Resin for Additive Manufacturing

Historically, Mitsubishi Chemical possess long history and business for UV resins, especially UV curable coating resins such as hard coat and under coat and so on. We are very enthusiastic to use this knowledge to develop SLA/DLP resins by offering characteristic raw materials to many global partners.

Furthermore, by using these raw materials, the development of unique UV resins with partners is being also advanced aiming at higher performance. By using our knowledge we can advance the material development for specific applications with our partners and create better materialmachine solutions for industrial applications, for example in cooperation with DLP printer partner atum3D from the Netherlands.

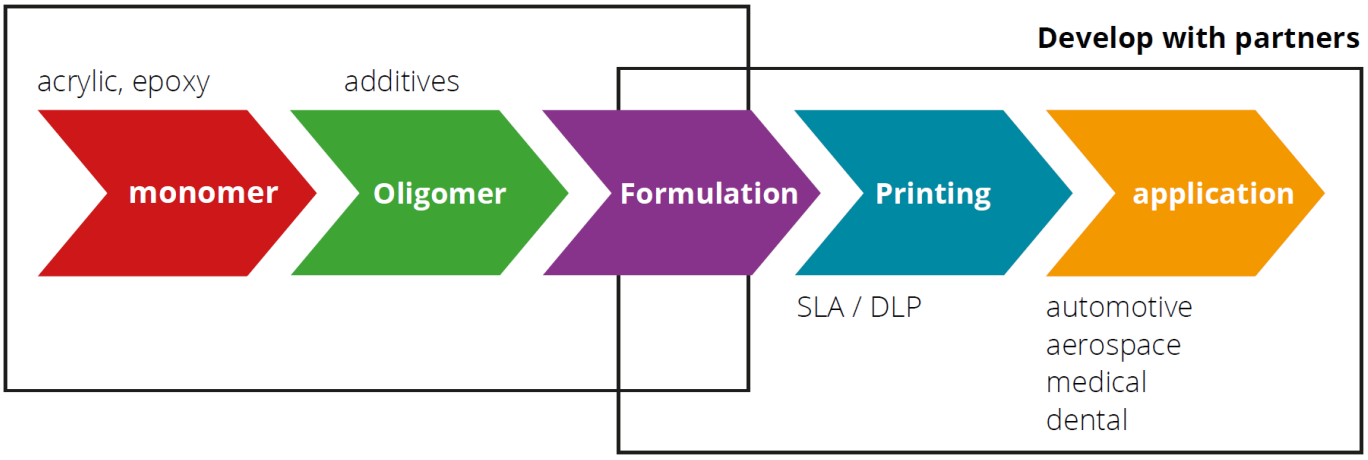
KEY FEATURES

- High resolution
- Excellent dimensional accuracy
- Low odor
- Lower skin irritaion (OECD404 applied)
- Compatible with open source SLA, DLP and LCD 3D printers in range of 365-405nm
- Unbreakable
- Transparent
- High Scratch resistance

APPLICATIONS

- Model,
- Functional parts,
- End-user parts, (enclosure)

Mitsubishi Chemical´s capability



Diabeam™ H01C/02C - developed with atum3d

Mechanical Properties	atum3d station5	
Hardness	D79-D80	ASTM D638
Tensile strength	33 MPa	ASTM D638
Tensile modulus	1000 MPa	ASTM D790
Flexural strength	47 MPa	ASTM D790
Flexural modulus	1400 MPa	ASTM D638
Flexural strain at break	Not broken	ASTM790
Elongation at break	19%	ASTM D638
Elongation at yield	5%	ASTM D638
HDT	57	ASTM D648
Impact resistance	20J/m(Izod)	ASTM D256
Others	UL94HB	
Liquid Properties		
Appearance	Transparent	
Curing wavelength	365 nm for H01C/ 405 nm for H02C	
Viscosity	2700 MPa.s @25°C	
Contents	1kg	

Preparation(s) before starting to print

• It is recommended to shake the bottle before printing. Diabeam™ H01C/02C has a high viscosity, if the bottle is shaken you will trap small air bubbles inside the resin. These small air bubbles will take a long time to disappear amd if you do not wait before all the bubbles are gone you could have some printing imperfections or lower performancy.
• After you pour the resin into the vat of the print, wait 10-15 minutes before you start printing to make sure that the few small bubbles that are created during this step can escape.
• Always use protective gears, in particular nitrile gloves and safety glasses when handling resins.

Post-processing

We advise to post process the printed parts, to make them safe to handle without any protective gear.

Necessary steps to post process your prints correctly:
1. Wear your protective gears (Nitrile gloves and glasses)

2. Remove the printed parts from the printer build plate.
a. Let drip most of additional resin that accumulate on top of the build plate and on the printed object, . Rotating the build plate on an angle will help to speed up this process.
b. Use a spatula to slowly remove the printed parts from the build plate.

3. Wash the model
a. Rinse your model in IPA and/or (Bio)Ethanol or any other cleaning product for resin printing - approximately 5 minutes.
b. It's recommended to use a cleaning station that can stir the cleaning solution to improve the removal of uncured resin.

b.1 An ultrasonic cleaner can be used, make sure when using a flammable product like IP that you will take the proper safety measure in consideration. For example, add water inside the ultrasonic cleaner and insert in the water a container (Usually glass or Polypropylene) that contain your flammable cleaning solution with your printed model.
c. After you remove the printed part from the cleaning solution make sure that you let drip the liquid and that you dry it for a few minutes before proceeding with the curing.

4. Curing your prints
a. Place the printed parts inside your curing station.
b. It is recommended to cure the printed parts with a wavelength between 360-410nm.
c. Cure the printed part for at least 5 minutes. This can change depending on the setup, printed model, and the resin that you use.
d. If the printed part is still tacky, we suggest curing it for few extra minutes.

Safety

Be aware that 3D printing using resins require more focus on safety, because you are working with chemicals. For this reason, you should always use your protective equipment when handling this product.
Make sure to use nitrile gloves and safety glasses when handling uncured resin. It is recommended to work in a well ventilated space and if you want to manipulate the printed part, like cutting or sanding a part of it, you should use a respiratory protection like a face mask. For more information you can read the safety data sheets (SDS) of the product you are using.

Post-processing

HS Code: 3208.9091	**Description:** Resin for 3D Printing	**Production:** Japan

For information about UV resins you can contact:

MCPP Netherlands BV
A Group Company of Mitsubishi Chemical

Grasbeemd 19, 5705 DE, Helmond, The Netherlands
Phone +31 492 210 210
www.mcpp-3dp.com