DSM Somos®

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The Part We Play

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"Join us as we preview emerging technologies in Costa Mesa..."

By Jim Reitz
Business Manager, DSM Somos®

This month, at the 3D Systems Stereolithography Users Group meeting in Costa Mesa, CA, DSM Somos will be taking a special look into the future of rapid prototyping materials for stereolithography.

Continuing in the spirit of our Technology Focus 2000 meeting, held a little over one year ago, our Research and Development team will be presenting future material developments expected to hit the marketplace within the next three years.

Revealing new product development plans, especially in a competitive environment, is not a common business strategy. But DSM Somos is convinced that this kind of early interaction with RP users is the most effective way to leverage technical capabilities to meet the market's needs.

For those interested in DSM Somos' development plans who are unable to attend the meeting, the presentation will be repeated at a future specified date and time via WebEx™ internet conferencing. Contact us by email at Americas@dsmsomos.info for more information.

New Year, New Products from DSM Somos

DSM Somos is kicking off the new year with the introduction of three exciting new resin products: **Somos 7620**—the first member of our new Somos Raven™ 7600 Series, and **Somos 10100 & 10110**—the remaining two members of the Somos WaterClear™ series.

Somos Raven™ 7620 photopolymer for solid state laser SL equipment is a clear, amber liquid that produces dark colored, translucent parts during the stereolithography (SL) polymerization process.

This innovative new resin allows for visualization of the prototype during the build process—a property much sought after by today's SL machine users.

Somos® Raven™ 7620 creates rigid parts without the fragility typically associated with similar SL applications and its low viscosity contributes to easy cleaning and overall convenience in the build process.

Denny Reiland, owner of General Pattern, states, "The overall cost to benefit ratio of the Raven material is the highest Somos currently offers in the marketplace. Its general purpose properties and ease of use are now allowing us to make several parts at our facility for the automotive and other sectors that use dark colors in their prototyping efforts."

The introduction of **Somos 10100,** for use in Argon ion lasers, and **Somos 10110**, for use in Helium Cadmium lasers, completes the product portfolio for the Somos 10100 WaterClear series, first introduced in August of last year with Somos 10120.

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Two Systems for the Price of One

A Groundbreaking Idea Cuts Costs & Improves Quality

The Centre for Rapid Design and Manufacture (CRDM), located in High Wycombe, Buckinghamshire, UK, recently took a groundbreaking step in running their rapid prototyping lab.

In order to reduce the operational costs associated with stereolithography equipment while still gaining access to the newest stereolithography materials, they decided to switch to a solid-state laser platform—and to run two stereolithography machines using one laser system.

With the technical assistance of Sibco, Ltd., the Centre decided to take a revolutionary step in installing a single solid-state laser upgrade package for both SLA®-250 machines.

When first approached with the idea, Steve Moran, Sibco's UK stereolithography service manager, was confident that the goal was technically feasible. Implementing the idea, however, and making the necessary optics adjustments took a great deal of trial and error—and two full days to achieve.

A single 250 mW laser beam was split to run both SLA®-250 machines, achieving two beams each capable of outputting 125 mW. "Now that we have the model down, we should be able to easily transfer the same knowledge to other dual machine systems in order to accomplish the same goal," says Moran. The machines have been installed with two separate Somos resins—Somos 9120 and Somos 10120.

At the Centre for Rapid Design and Manufacture (CRDM), a single 250 mW laser beam was successfully split between two separate SLA®-250 machines, achieving two beams each capable of outputting 125 mW. (Photo courtesy of 3D Systems, Inc.)

Steve Dover, Rapid Prototyping Systems Manager for the Centre, comments, "The dual system has been running successfully for over eight months now. The entire experience has not only been beneficial from a financial standpoint, but has also improved the quality of our parts and allowed us access to the latest materials technology. We couldn't have achieved it, however, without forward-thinking companies like Sibco out there helping customers find innovative solutions to their needs. As far as we know, this is the only dual system of its kind in the world."

In addition to distributing DSM Somos resins, Sibco also offers technical assistance and laser diode packs for all spectra physics lasers currently in use by all stereolithography equipment, as well as laser head refurbishments.

To find out more about Sibco in the U.S., call (248)-582-0036. In Europe, call (+44) 1782 418030.

SLA is a registered trademark of 3D Systems, Inc.

What's New..?

New Packaging Available

The long awaited auto refill bottle which works with most solid state stereolithography machines (including 3D System's SLA-7000, SLA-5000 and SLA-3500) has arrived. All resins ending in "XX20" are now available in both 10 kg auto refill bottles and the smaller 4 kg container size. Contact your DSM Somos representative for more information.

E-Business is Coming

In April, DSM Somos will begin beta testing a new 24-hour, 7 day a week on-line ordering system. The system will greatly improve the speed and efficiency of product ordering and eliminate the inconvenience of different time zones. Initial testing will be limited to a select number of customers and, if everything goes as planned, will later be rolled out to all Somos customers by late summer. Watch for more exciting new e-business developments to come!

Tech Tips...

Polishing Your Somos WaterClear Parts

During the SL additive manufacturing process, stair stepping in the x-y direction obscures the optical clarity of Somos WaterClear 10120 prototypes. In order to get a prototype that has 360° clarity, sanding and polishing must be done after the build process is complete. We've captured some of the best practices in the field and recommend the following steps:

Step 1: Curing
After removing parts from the platform, scrub down-facing surfaces with a soft bristle brush or light sand paper prior to post cure. This makes for a clearer part to finish and reduces time spent in the post cure apparatus (PCA).

Parts should then be placed in the PCA for no more than 20 minutes. Upon removal, if parts are still tacky, check the quality of the light bulbs in the PCA.

Step 2: Sanding
Depending on the roughness of the surface, start with 100 to 180 grit wet-or-dry paper or cloth. For severely curved surfaces, cloth-backed material is more durable. Use 180 grit as the first level of sanding wherever possible, so as not to leave deep scratches that can be difficult to remove later.

Sand in the opposite direction of the layer lines until the sidewall layer lines are no longer visible.

All sanding should be done wet, and parts should be kept wet when not being worked on to prevent hardening of the sanding residue.

Continue sanding with ascending grits, ensuring no lines from the previous grit are evident prior to starting the next higher grit. Sand in the opposite direction of the last grit. A good sequence of grit sizes is 240, 320, 400, 600.

Step 3: Polishing
Rinse the sanded part in clean water and use a soft buffing wheel (saturate the wheel with water first for best results) with Wright's silver cream as the compound.

This is a light colored, water-based compound containing a very fine abrasive and is available at many supermarkets (or visit www.jawright.com). It will produce a smooth, glassy surface, and the residue is easy to wash off with plain water, unlike most conventional oil-based compounds.

As with the sanding steps, it is important to keep the part wet when not being processed. It should also be rinsed immediately after buffing is complete to avoid drying out the buffing residue.

Shortcut....

After the 240 or 320 grit sanding step, spray the part with a high gloss clear acrylic lacquer, such as Krylon 1301 (made by Sherwin Williams and found at most hardware or craft stores).

The lacquer bonds well to the base resin and fills the sanding marks quite well. Several thin coats may be required as well as some light buffing. Other acrylics should work just as well.

See You at the Show!

Wondering where you'll find DSM Somos exhibiting this year? Here's our most up-to-date schedule...

3D Systems North American Stereolithography User's Group
February 24 - March 1
Costa Mesa, CA
www.3dsnasug.com

EuroStampi
March 21 - March 23
Milan, Italy

Structural Plastics
April 14 - April 16
Dearborn, MI
www.plasticparts.org

Rapid Prototyping and Manufacturing
April 30- May 2
Cincinnati, OH
www.sme.org

Time Compression Technologies
October 16 - October 17
Manchester, UK
www.time-compression.com

Euromold
December 4 - December 7
Frankfurt, Germany
www.euromold.com

New Year, New Products (cont'd from page 1)

Dan Mickish, DSM Somos Manager of Research and Development, states, "The introduction of Somos 10100 and 10110 really reflects our commitment to developing the best technology for UV-curable rapid prototyping applications—creating products that will cover a broad selection of UV platforms."

To learn more about the Somos Raven™ 7600 Series, or to obtain product data sheets for Somos 10100 and Somos 10110, log on to **www.dsmsomos.com**.

Kim Axiotis
Editor

The Part We Play is published by DSM Somos as an information resource for the rapid prototyping industry. Reader inquiries and suggestions for content are welcomed and should be directed to:

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