

STEREOLITHOGRAPHY - THE NEW MAGIC

Alchemists of old tried to turn lead into gold. Although possible today that is, not yet economically practical. However, what at first appears to be pure magic -- the new field of stereolithography -- can turn liquid plastic into three-dimensional physical products. A feat some would say harder to accomplish than the gold trick.

Picture this: a pin-point of ultraviolet laser light streaks across a vat of liquid plastic drawing an indiscipherable pattern on the surface of the plastic. In seconds its job completed, the laser is turned off. Seconds later, solid -- perfect to 5,000th of an inch -- models of new products rise from the plastic bath. Even those working with the process dub it "The Magic Machine". This is stereolithography, a startling new technique that can reduce the cost current aerospace and automotive current industry costs by a factor of six for aerospace and of just under five for the automotive field!

Stereolithography has the potential to create new products at a fraction of design costs of the past. Even in such fields as computer, electronic or medical components, the new lower costs are just unimaginable. For example, some computer production costs are said to drop from \$9,000 to \$500!

Up to this point model building, prototype construction, soft tooling and pattern-making has taken up great periods of time in product design plans. Such steps are expensive, time-consuming and often account for more than half of design time. Dollar cost has been staggering. The slightest change required the whole model to be rebuilt. Until now, industry had found no alternative.

The aerospace industry has been requiring from six to nine months to develop a complex part; average cost: \$25,000. Now using stereolithography (for the same part) : just one week and \$4,500!

A dollar saving of 82 percent. In efficiency turnaround a saving of more than 90 percent. No wonder business is sitting up and paying attention.

Industry, including automotives often spend up to twice as much on pre-production design as on production tooling. Now that time can be reduced dramatically.

The products are actually "grown" in a vat of photopolymer plastic. Such polymers change from liquid to solid in the presence of laser light. The pin-point laser beam traveling across the surface of the liquid which instantly cures, forming a solid layer of the part which rests on the elevator (see diagram). The liquid not polymerized remains in the container, still usable for successive parts. The process permits rapid production of complex patterns. The net result is instant parts without tooling!

Today getting in on the ground floor isn't enough. You have to get in on the excavation. Here is a hot sunrise industry for modern youth. It will move fast. Sales of the SLA-1 production units have already been made to Apple Computers, Ford, General Motors, Procter & Gamble and 37 other national and international purchasers. A new, larger model, the SLA-250 is now being introduced.

More information: Tom Vorgitch, Marketing Director, 3D Systems, Inc., 26081 Avenue Hall, Valencia, CA 91355. Phone: 805/295-5600. Fax: 805/257-1200.

