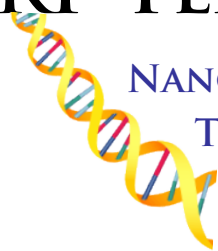


RP TEMPERING™ TECHNOLOGY NEWS



NANO-COMPOSITE
TECHNOLOGY

VOLUME 2

SOLID FREEFORM ADDITIVE TECHNOLOGY
& PATENTED ENGINEERING TECHNIQUE

APRIL 2006

MBD & TCST Present at the 3D Systems User Group Meeting

Article by Earl Dunlap - *Manufacturing by Design*

Earl Dunlap P.E. Engineer & CEO of Manufacturing by Design, Inc. and Marty McGough President/CEO of Total CS Team will be presenting at the 3D Systems User Group Meeting in Tucson next month. There will be a 30-minute presentation in the main conference on Tuesday (May 2) starting

at 11:30am discussing the RP Tempering™ additive technology process. It will include:

- Brief History and RP Tempering™ Mission
- RP Tempering™ - Proto-Plasma-Rx™ - Hybrid-Temp-Rx
- Applications
- Technical Data Overview

There will also be a breakout session on Wednesday (May 3) from 3:30 pm until 5:00 pm where we will be covering more specifics on all the RP

Tempering™ additive technologies include:

- Define all RP Tempering™ additive technologies in detail
- Outline instructional process for applying all the tempering technologies
- Research and testing to date to include all available data
- Preliminary results of a current accelerated life aging test per ASTM standards for temperature, heat & humidity and testing for mechanical properties and physical condition of samples.
- Physical samples for review
- Technical support and training
- 3 Matic Software
- Open forum questions
- Sign up for one free sample form MBD, Inc.
- Licensing information

In addition, there will demonstrations on the 3Matic digital CAD product in the Materialise suite where you can see how this product creates tunnels and grooves in STL files. As a side note, there will also be a couple of other break out sessions where TCST will be presenting their latest products.

Vibration Signature Reduced

On going research is being done with in vibration involving all of the RP Tempering™ Technologies. Manufacturing by Design, Inc. will release its initial analysis at the 3D Systems User Group Meeting in Tucson. Initial results prove the patented engineering technique and some of the

compounds can control vibration signatures, redirect vibration and even dampen vibration. See the Manufacturing by Design, Inc. vendor table at the vendor fair for a free report. If you cannot attend the user group and want all the information that will be published for it please email us at info@rptempering.com and we will send it to you in early May.

Living Hinges

All these living hinge parts were made in less than 10 minutes total. MBD, Inc. will give away a limited number of samples at the 3D Systems User Group Meeting in Tucson. Come

to the Vendor fair to receive your free sample. We have successfully made living hinges in almost every resin, powder, FDM materials and urethanes.

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New High Temperature Proto-Plasma-Rx™ SFF Additive Research

Article by Earl Dunlap - Manufacturing by Design

MBD, Inc. has completed the initial testing for a new high heat resistance and higher heat deflection Proto-Plasma-Rx™ additive spray and compound. Standard Proto-Plasma-Rx™ controlled depth penetrating spray has already proven it will resist temperatures of 325* degrees but, only enhances the heat deflection by 40%. The independent testing is being performed by the University of Tennessee Tech. The initial sampling quantity of 30 pieces of WS11120 and 30 pieces of Somos9120 have been tested per ASTM D648 standard.

The new high temp Proto-

Plasma-Rx™ was sprayed on first then over coated with standard Proto-Plasma-Rx™. The application only took a total of about 2 minutes. Parts could be handled for packaging after only 5 minutes of drying time. The parts were allowed to cure and out gas for 12 hours before testing.

Mechanical test for impact and flexural modulus after the heat deflection test were complete. Impact stayed the same on average verses a standard Proto-Plasma-Rx™ part. Flexural modulus became stiffer on average of 10% verses a standard Proto-Plasma-Rx™ part.

Heat resistance averaged over 750* degrees without damaging or distorting

the additive technology coating. No imperfections were found. Heat deflection reached 400* degrees on average per part.

Complete details will be published at the 3D System User Group Meeting in Tucson. Par3 Technology will be organizing a 2 and 3 round of qualification testing for this high temperature testing to include a broader rages of Materials (resin & powders).

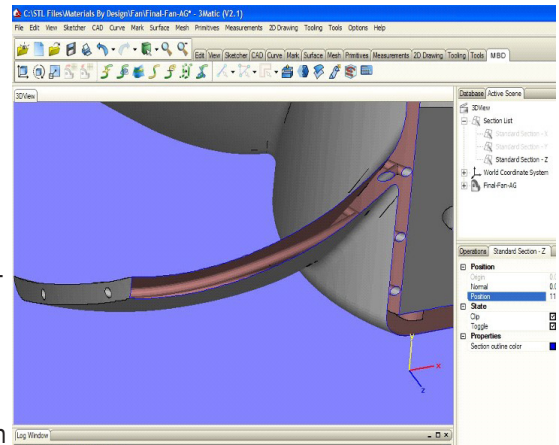


Software Deal Completed

Article by Andrew Graves - TCST

A New Module of 3Matic Software is Available for Manufacturing by Design, Inc.'s RP Tempering™ Process. Adding tunnels and grooves in your parts in STL file format is now easy to do and it will become even faster and easier in the future as TCST and Materialise continue to optimize the 3Matic product specifically for the requirements of the RP Tempering™ process. There is no need to switch back and forth between CAD files

now that Materialise's 3Matic product is available to allow CAD functions to be performed directly on the STL file. This product works perfectly to provide the modifications needed for the RP Tempering process and it will continue to get better as the team simplifies the product and develops higher level commands to allow the users greater capability with much less effort. For more information on the 3Matic product or a free demonstration, please contact Andrew Graves at (661) 803-4800.



3Matic Materialize Software Window Showing STL File Designing in Tunnel for the RP Tempering™ (Picture Provided by TCST)

RP Tempering™ Original Data Sheet Corrections

Manufacturing by Design, Inc. original data sheets published in the summer of 2005 has multiple mistakes included in them. This was an honest mistake made when we were

copying data from the Sherry Labs test results. We have since corrected the data sheets and they will be posted to our new website within the next two weeks and given out at the 3D Systems User Group Meeting in Tucson. If

you wish a copy of the corrected data sheets now please contact us via email at info@rptempering.com.

My RP Community Website

David Yarnell has introduced a new website open to everyone within the RP community. This website promises to be a help to everyone needing

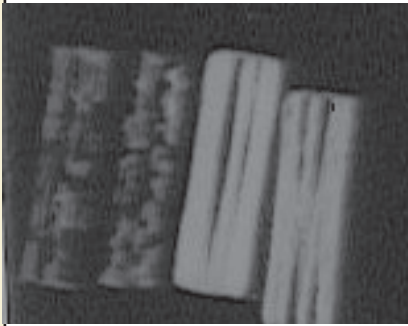
Information about rapid prototyping and more. Take time to review this website at www.myrpcommunity.com.

New Application Research In Process

Proto-Plasma-Rx™ under metalizing might help with elasticity, impact, pliability, and chipping. Doug Johnson has completed some initial

sampling with promising results. MBD, Inc. has offered to help with the cost of the testing and to work hand in hand with Protocall on the experiment.

RP Tempering™ In Medical Applications



RP Tempering™ can be used in medical applications to:

- Block/shield radiation in place of lead
- Tungsten field shield x-rays for shadow image
- Barium field to show up on x-rays
- MRI, x-ray, or CT scan applications
- Academic teaching techniques

Licensed Partners & Supporting Cast

American Precision Prototypes: www.approto.com – 866-918-1004

Laser Reproductions: www.laserrepro.com – 614-552-6905

ProtoCall: www.protocallonline.com – 262-446-3104

Southern Prototyping: www.spc.com – 317-507-9030

Design Prototyping Technologies – www.dpt-fast.com – 315-434-1869

Product Solutions Inc. – www.psi.com

Plasticos Promex – www.plasticospromex.com

Alpha Products – www.alphapro.com

Par3 Technology – www.Par3Technology.com

Total CS Team – www.totalcsteam.com

Materialize – www.materialize.com

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