

60 Seconds...

A Minute of Technology Updates
Heraeus Thick Film Materials Division

October 2009 Volume 11, Issue 3

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Complimentary Exhibit Hall Passes Available for IMAPS 2009

To get your complimentary Exhibit Hall Pass to IMAPS 2009, visit the [IMAPS website](#)

Enter your name and the pass will be waiting for you at the registration desk.

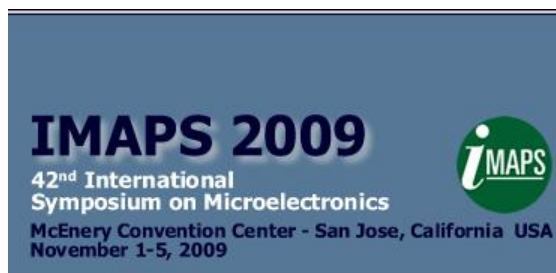
Pick up your Free Pass Badge at the Registration Desk during normal registration hours.

Registration Hours

Sunday Nov. 1

8:00 am - 5:00 pm

IMAPS 2009 Preview



IMAPS is once again being held in the heart of the Silicon Valley. IMAPS 2009 will take place this year at the San Jose Convention Center in San Jose, California from November 1 - 5, 2009.

As a continued sponsor of IMAPS, Heraeus Material Technology LLC will be recognized as a Silver Sponsor at this year's show. The Heraeus name will be visible from Note Pads and Pens at the Technical Sessions to the Room Card keys at the Marriott San Jose, the host hotel.

If you are planning on attending IMAPS 2009, we invite you to stop by **booth # 710**, easily seen as you enter the trade show floor. Heraeus TFD personnel will be on hand to answer any and all questions about Heraeus TFD's products. At the show Heraeus will be highlighting a number of thick film products, including:

- Comprehensive line of Resinate pastes and Precious Metal powders, enhanced by the acquisition of BASF early this year
- Thermal Management Materials for LED Applications, including IP6075 dielectric and C8829A conductor for use on Aluminum substrates
- Thick Film Materials for the emerging SOFC Fuel

**Monday Nov. 2, 3
and 4**

7:00 am - 5:00 pm

Thursday Nov. 5

7:00 am - 12:00 pm

Exhibit Hours

Tuesday Nov. 3

11:00 am - 5:30 pm

Wednesday Nov. 4

9:00 am - 5:30 pm

Thursday Nov. 5

9:00 am - 12:00 pm

**Annual Plant Shut
Down**

Once again, Heraeus Materials Technology will have its annual holiday plant shut down. The plant will be closed from **December 23, 2009 to January 4, 2010**. Please plan your paste orders accordingly.

Quick Links

www.heraeus-thickfilm.com

www.pvsilverpaste.com

www.imaps.org

www.thickfilm.net

Cell industry

- Complete line of tapes, powders and metallizations for LTCC packages

- Pb and Cd-free thick film pastes

In line with Heraeus TFD's Silver Sponsorship of IMAPS 2009, come by the booth to be entered to win a solid 10 ounce Silver bar. One lucky winner's name will be drawn each day.



In addition to all of the excitement at the booth, Heraeus TFD will be involved with three technical presentations at this year's symposium.

The first technical paper will be presented in the Thermal Management Materials session on Wednesday morning from 8:00 am - 11:40 am. The paper is titled "*Evaluation of a Novel Lead-Free Dielectric Material on Aluminum Substrates*", which was written by Michael Creamer, Samson Shahbazi, Mark Challingsworth, David Malanga and Jim Wood. The second paper to be presented in the Wednesday afternoon Invited Session on Intelligent Uses of Precious Metals in Microelectronics, from 1:35 pm to 5:25 pm, is titled "*Cost Effective use of Gold in Thick film Conductors*". This paper is authored by Samson Shahbazi and Mark Challingsworth.

In addition to the oral presentations, a poster will be displayed in the Interactive Poster Session on Wednesday November 4th from 1:35 pm - 5:25 pm. The poster is titled, "*On the Dielectric Properties of Ceramic Composites of the LTCC-Type*" and is authored by Markus Eberstein of the Federal Institute for Materials Research and Frieder Gora, Markus Deckelmann and Annette Kipka of WC Heraeus GmbH.

More information about the symposium can be found at:

<http://www.imaps.org/imaps2009/index.htm>

Lead-Free Fuel Level Sender



In the tradition as a leading supplier of thick film conductors for fuel level sender applications, Heraeus TFD has introduced a line of Lead-free silver Palladium conductors.

With the ever changing demands from the automotive industry, Fuel Level Senders must work in a variety of fuels that might contain water, fluorine, organic acids or sulfur compounds. Along with the need for excellent chemical resistance, these fuel level senders must also have outstanding migration and wear resistance.

The C22XX series is a Pb-free Ag/Pd conductor series, developed for this specific application. Below is a chart of typical properties achieved with these conductors.

	C 2220	C 2230	C 2240
Ag : Pd	2.1:1	3:1	4:1
FFT (microns)	10	10	11
Surface Roughness (nm)	350	400	450
200 µm line after firing	225	225	225
Solderability SAC305 @ 255 °C	good	good	good
Leach Resistance SAC305 @ 255 °C	3 x 10 sec dips	2 x 10 sec dips	2 x 10 sec dips
Adhesion [N] SAC305 @ 255 °C 168 h @ 150 °C	28	30	28

In addition, to the C22XX series, Heraeus supplies the standard C43XX Ag/Pd series - C4303GSD and C4303M. And for applications that demand a Silver-free conductor, C6011 and C6012 Au/Pd/Pt conductors are available with complete resistance to Ag₂S formulation.

More information about all of these products can be found on the Pastes for Fuel Level Sender page at

www.thickfilm.net

Jhon Lee - Newest Member at Heraeus Oriental HiTec

Heraeus Oriental HiTec recently welcomed Jhon Lee (Lee Byung Chul). Jhon will join Daniel Ha as the Thick Film sales team for Korea. Prior to joining Heraeus, Jhon worked for RN2 for five years in the LTCC components division, where Jhon developed processing conditions for LTCC components and substrates. Jhon received a degree in Advanced Materials Engineering in February 2005. Jhon can be contacted at jhon.lee@heraeus.com.



Joanne Cheng - New Sales Representative for Thick Film in Taiwan



Joanne was recently selected as the Sales Representation for Thick Film Products for Heraeus Materials Technology in Taipei, Taiwan (HMTT). Joanne graduated from Tamkang University with a Bachelor's Degree in German and a minor in Education. After graduation, Joanne was an Elementary School teacher in Taipei for one year. Since then, Joanne has been employed by HMTT in Customer Service, working with various Heraeus product lines such as Thick Film, Assembly Materials, Solar and Lighting. This background made Joanne an excellent candidate for moving into Sales. We wish Joanne much luck and success in her new role with Heraeus. Joanne can be reached at joanne.cheng@heraeus.com.

This newsletter was provided by the Heraeus TFD Technical Service Department. Contributions were

received from:

Editor -

Meg Tredinnick - meg.tredinnick@heraeus.com

Any comments about this issue or suggestions for future issues are always welcome. - Editor

Heraeus, the precious metals and technology group headquartered in Hanau, Germany, is a global private company in the business segments of precious metals, dental health, sensors, quartz glass, and specialty lighting sources. With revenues of 12 billion Euro and over 11,000 employees, Heraeus has stood out for more than 150 years as one of the leading companies involved in precious metals and materials technology.