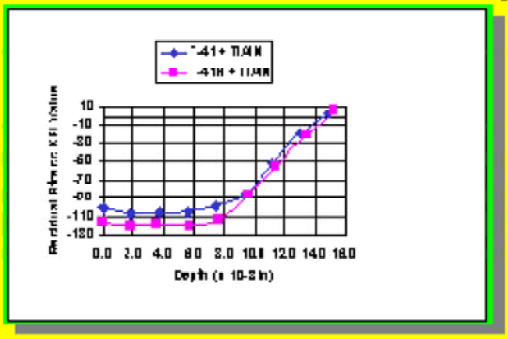
MetaLife NEWS 2000

Volume 7 Issue 1 | How about TiAlN? | March 2000

Badger Metal Tech, Inc. N60 W15088 Bobolink Ave. Menomonee Falls, WI 53051 262-252-3804 FAX 262-252-3956
TOLL FREE in the US and Canada - 800-366-1973 —— WEBSITE - badgermetal.com - published 03-17-2000

Our newsletter in September 1999 discusses compressive stress effects when combining an elevated temperature diffusion process and Metalife. Badger has also been doing some additional testing utilizing Metalife and one of the most popular coatings now being used in the die casting industry, Titanium Aluminum Nitrite (TiAlN). For our testing, we again focused on the effect that application temperature has on a previously applied compressive stress value. This time we used 2ea Case Western H-13 test coupons (3" x .75" x .25"). To one coupon we applied the T-41 and to the other our T-41H Metalife process. After application of Metalife, these coupons were coated with the Balzer's TiAlN (Futura) coating at their standard application temperature of 940-950 degrees F. Once coated, these coupons were then sent to Lambda for X-ray analysis and electro-polishing to measure and plot the surface and maximum depth of compression. The resulting data plotted curves were then compared to our baseline curves for our T-41 and T-41H process. These are posted on Badger Metal's virtual domain website – **www.badgermetal.com/images/9904graf.gif**

As we expected, and can be seen in the below curves, the application temperature of the TiAlN did not remove the compressive stress benefits. Instead it helped flatten the knee of the curve in both instances which helps to optimizes maximum compressive stress benefits. This, in addition to our ongoing field test results, supports the fact that the Metalife TiAlN application results in improved resistance to soldering and reduced heat checking. **For more information on this subject refer to our article "The Importance of Proper Die Substrate Preparation Prior to Surface Treating" in the Mar/Apr 2000 issue of**



What Else is NEW?

Badger started storing pictures of all processed tooling using digital technology in January 1999. Our die image history of photographing and cataloging every Metalife tool started in 1984. Prior to January 1999 we had to work with negatives and 35mm prints which made it time consuming and difficult to transmit these pictures. Our new **die photomology** method of storing these electronically now allows us to send these images via email attachments to whatever scale our customers' requests.

Badger Metal started in January 2000 to use **PROQUIS 9000 ISO and QS software**. We are now compliant to all necessary aspects of the latest ISO or QS standard. A CD-ROM is available that provides screen prints in * bmp format of the various modules utilized by us to attain and maintain this standard of quality.

The Badger Metal **PowerPoint presentation**, in addition to being available on CD-ROM, is now also available on-line at – **www.execpc.com/wombat**.

NADCA's Die Residual Stress Task Force has begun a baseline testing program on actual production dies to measure stress values and changes during production cycles using X-ray Diffraction and Barkhausen measuring methods. More on this in future newsletters and online.

A Few Things to Remember!

1. Always **include a casting** with your order or request for quotation. This gives us an operational fingerprint of the tool along with confirming the areas to be processed.
2. Advise if we **should perform a prior heat stress tempering** to the tool. Although this will not change grain boundary properties, it will remove undesired tensile stresses that have built up in use and save you time.
3. **Install dummy core pins** to protect sharp edges and allow total access to the sharp edge of any small core or ejector holes. If you cannot do this, we will do it for you, however, an exact fit is better. Make sure they protrude at least 1/32 to 1/4 of an inch.

Our next newsletter will examine proper welding tech-

NADCA's Die Casting Engineer magazine.

niques to obtain maximum tool life benefits.