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## Die Casting Engineer Magazine Article Excerpt

Mar/Apr 1995 Issue



John Wallace

### Improvement of Die Life in Aluminum Die Casting

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Cleveland, Ohio

#### Die Surface Treatments Section

The use of the die surface modification known as the **MetaLife®** treatment - also extends die life, because it replaces the residual tensile stresses that develop on the die surface with compressive stresses. The die is processed initially and then periodically (every 10,000 to 20,000 die cycles), thereafter.

Thermal stress relieving the used die at 50 degrees F under the highest tempering temperature also is used. Studies using the thermal fatigue immersion specimen have demonstrated that **MetaLife®** and thermal stress relieving have reduced thermal fatigue cracking. The effective use of these methods is to apply these procedures during the life of the die. The die is removed from service periodically processed to reduce the tension residual stress at the surface and returned to use.

[last modified - 11 May 2003](#)