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MetaLife NEWS ThermaLife®



Choices



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Badger Metal Tech, Inc.

August Letter 2002

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Choices:

More than ever in our history, Americans are faced with some very difficult personal choices....Do I stay in the stock market? Where do I invest my money? Can I retire now? Can I afford a new home? Should we have more children? Where will I get the resources to further their education?..... What choices we make can affect not only this generation but future ones as well.

Difficult business choices also exist. In the die casting and metal forming markets, increasing bottom line profit is more important than ever if we want to continue to stay in business. Being able to compete globally is rapidly becoming a necessity. More than ever we need to form alliances with our partners to keep business on American soil. With business for the tooling industry being so depressed and the onslaught of foreign competition, especially from China, we have to make the right choices just to survive.

As far as tooling goes, you can either be Proactive or Reactive.

Proactive choices are designed to head off problems before they occur by anticipating them and taking pre-corrective action. Usually this involves some type of scheduled maintenance program, which is especially difficult to administer with today's scaled back workforces. Companies that have taken a Proactive approach are surviving and should continue to do so. This is like having regular dental check ups and cleanings.

Reactive choices are how most die tooling problems are handled. **"We hope this is not a continuing problem, but if it is then we will have do something about it."** This is like only going to the dentist when you have a toothache then to find out you need a crown or have periodontal disease.

Much more costly to correct.

- S** [tops cracking](#)
- A** [pples well](#)
- V** [erifies integrity](#)
- E** [nhances fill](#)
- S** [ignificantly extends](#)
- .
- D** [ecreases soldering](#)
- I** [ncreases lubricity](#)
- E** [liminates stresses](#)
- S** [lows washout](#)



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Fortunately **MetaLife®** can help in both a **Proactive** or **Reactive** mode.

We can [close minor heat checks](#) on **USED** tools and put the ones not closed into compression at each end to further retard their propagation. We also increase the [lubricity effect](#) of die lubes along with reducing [solder](#), [flash](#), and [porosity](#). For **NEW** tooling we can significantly retard heat checking by doing it immediately after final sample approval and then at scheduled periodic maintenance shot counts. For repeat customers we provide secure websites where they can track die histories 24/7/365, plus we contact them when tooling maintenance is needed. [Click here to see a sample page.](#) This helps to

aluminum to die cast tooling, induce slight beneficial compressive stress levels, and hardens the surface of a tool to make it more resistant to wear and galling. Both of these problems impact the bottom line profit for metal formers.

So now you have a number of choices to make once you decide on being either **Proactive** or **Reactive** as far as tooling life is concerned. Do I have **MetaLife®** or **ThermaLife®** performed to my tooling? Do I have both done and if so in what order? How often do I apply the process and lastly, should I do it on my **NEW** or **USED**

remove and consolidate the burden of administration that was mentioned earlier in this newsletter.

In July 2001 we introduced our exclusive [TherMaLife®](#) process which has the ability to prevent soldering of the molten

tooling?

In this newsletter we will assist you in making these choices correctly so that you obtain the maximum benefits from our processes whether you do either one, or both.

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The side bar has a [link to a chart](#) that was developed using AllClear that shows by diagram the options and choice paths.

[MetaLlife®](#) is a line of sight process while [TherMaLife®](#) is not. If your problem is only soldering, or no topography of the casting surface can be tolerated, [TherMaLife®](#) is the correct choice. When topography is not a concern and your problem is only heat checking in line-of-sight areas or is flow related, [MetaLlife®](#) should be done. When you have both of these conditions, consider both processes.

If your mode of operation is **Proactive**, either process should be done when the tool is final sample approved or after all corrections are made. The process should then be applied at regular intervals. A good rule of thumb is: when **NEW** and then every 20-40K shots afterwards. If a history of tool life is known, take the normal tool life and

divide it by 3 for thin wall and 4 for thick wall castings. This would be the normal shot count where the tool should be sent in again after the first NEW application.

When considering doing both processes, for **NEW** tooling we recommend doing [TherMaLife®](#) then follow it with [MetaLlife®](#). **USED** tooling should first have the cracks closed with [MetaLlife®](#) then followed by [TherMaLife®](#).

Since high heat for extended times removes stresses (both compressive and tensile), Badger wanted to know the effect that [TherMaLife®](#) would have on a surface that was previously [MetaLlife®](#) treated. We ran some tests at Lambda using X-ray diffraction measurements then plotted graphs showing the compressive stress levels attained. [Click here to see these graphs and the testing that was done.](#)

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We found that the compressive stress curve was, in fact, raised slightly when [TherMaLife®](#) was applied to a previously treated [MetaLlife®](#) surface. When reversed, the combined compressive benefit was greater than either one applied alone. Hence the recommendation to apply the [TherMaLife®](#) first to NEW tooling if possible.

When applying [TherMaLife®](#) first, we take appropriate measures to assure that the surface is not compromised. By adjusting the applied processes, [we prevent the spalling](#)

which has been associated with other competitive processes.

So there you have it. Now there is just one more choice to make. **Do you do it?** I guess that choice is yours and your customers to make on your own.

We are always here to assist you if you have any questions or concerns about doing our processes to your tooling. Just pick up the phone and dial 800-366-1973 or email us at infonow@badgermetal.com. Operators are standing by to assist you.

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