TA016 POSTER SESSION

"CASTING AWAY MYTHS" ABOUT MICROWAVE PROCESSING OF METALS

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Over the past decade, the Oak Ridge, Y-12 Plant has been melting, casting and heat-treating metals using microwave energy. This year microwave processing has moved out of the laboratory and into the production arena. MS Technology and Y-12 have joined forces in the commercial deployment of this technology. This presentation will give you the technical information you need to compare traditional and microwave processed metals, to determine how you might be able to use this technology to improve quality and productivity. To date we have melted Steels, Titanium, Zirconium, Uranium, Copper, Brass, Bronze, Aluminum, and many others. Melts of exceeding 750 pounds have been accomplished and additional scale-up is possible. This presentation will show representative samples and demonstrate the extreme flexibility of this processing method and techniques. For research and development this processing method allows the researcher to use one piece of equipment to:

- Sinter Ceramics
- Process Powder Metal Components
- Melt and Cast metals
- Heat Treat Metals
- Chromize Metals for Improved Corrosion Resistance and Mechanical Wear.
- Make CerMets and Metal Matrix Composites
- Perform Microwave Assisted Chemistry (MAC)
- And many other High Temperature Applications

We will discuss equipment, setup, and experiences from nearly a decade of microwave metal processing. The interesting behavior of metals in high-power microwave fields, basic set-ups and application techniques and approaches may also be discussed.