

TA015

PROCESSING METALLIC MATERIALS

AN INTRODUCTION TO MICROWAVE PROCESSING OF METALS

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For quite some time the Oak Ridge Y-12 National Security Complex has been melting, casting and heat-treating metals using microwave energy. This process has developed from a lab-scale curiosity to a production scale process. To date we have melted steels, titanium, zirconium, uranium, copper, brass, bronze, aluminum, and many others. Melts of 750 pounds have been made, and additional scale-up is possible. This presentation will discuss equipment, set up, and experiences from nearly a decade of microwave metal processing. Because of the interesting behavior of metals in high-power microwave fields, basic set ups and application techniques and approaches will be discussed.