

Opening Remarks

The introduction of hydrogen in molten metal sampling was discussed. Areas of concern were the introduction of hydrogen in quenching the pin sample and the formation of condensation as the pin sample was taken from the liquid temperatures to the ambient temperatures of sample preparation.

Comparison testing of water quenching and liquid nitrogen storage to direct liquid nitrogen quenching has not indicated any hydrogen introduction due to water quenching. Tests performed on the formation of condensation as the sample is taken to room temperature indicates condensation to be a source to be careful of. Rinsing the sample in freon as part of the final sample preparation stages appears to remove the condensate formation.

The introduction of hydrogen through cadmium plating processes was discussed to assist in developing a means of control. Tests performed on pieces using a 15-s plate time followed by a several minute delay time where the pieces are removed from the plating bath then another 15-s plate period. The process was repeated until the desired plate thickness was achieved. This process has been successful in reducing the hydrogen introduction. Precautions in plating include accurate monitoring and control over the plating baths and materials.

General discussions were conducted on hydrogen activity through the various work stages and the effects of temperature and environment that contribute to hydrogen introduction and evolution.

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