

Abstract Submitted
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New generation of medium wattage metal halide lamps and spectroscopic tools for their diagnostics A. DUNAEVSKY, J. TU, R. GIBSON, T. STEERE, K. GRAHAM, J. VAN DER EYDEN, Philips Lighting — A new generation of ceramic metal halide high intensity discharge (HID) lamps has achieved high efficiencies by implementing new design concepts. The shape of the ceramic burner is optimized to withstand high temperatures with minimal thermal stress. Corrosion processes with the ceramic walls are slowed down via adoption of non-aggressive metal halide chemistry. Light losses over life due to tungsten deposition on the walls are minimized by maintaining a self-cleaning chemical process, known as tungsten cycle. All these advancements have made the new ceramic metal halide lamps comparable to high pressure sodium lamps for luminous efficacy, life, and maintenance while providing white light with high color rendering. Direct replacement of quartz metal halide lamps and systems results in the energy saving from 18 up to 50%. High resolution spectroscopy remains the major non-destructive tool for the ceramic metal halide lamps. Approaches to reliable measurements of relative partial pressures of the arc species are discussed.

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