

Ceramic Metal Halide (CMH) Technology- A replacement for high–pressure sodium, mercury vapor and quartz halogen lighting.

Ceramic Metal Halide lamp (CMH), is a relatively new source of light that is a variation of the metal-halide lamp, which itself is a variation of the old high-pressure mercury-vapor lamp. The discharge is contained in a ceramic tube, usually made of sintered alumina, similar to what has been used in the high pressure sodium lamp. During operation, the temperature of this ceramic tube can exceed 1200° Kelvin. The ceramic tube is filled with an inert gas and metal-halide salts. Because of the high wall temperature, the metal halide salts are partly vaporized. Inside the hot plasma, these salts are dissociated into metallic atoms and iodine.

The metallic atoms are the main source of light in these lamps, creating a bluish light that is close to daylight with a CRI (color rendering index) of up to 96.

The ceramic tube is an advantage in comparison to earlier fused quartz. During operation, at high temperature and radiant flux, metal ions tend to penetrate the silica, depleting the inside of the tube. Alumina is not prone to this effect.

CMH lamps use one fifth of the power of comparable tungsten incandescent light bulbs for the same light output (80–117 lm/W) and one third the power of high pressure sodium, mercury vapor or quartz halogen lights (150 W instead of 450 W). They retain color stability better than most other gas discharge lamps.

Applications for these lamps include street lighting and parking lot lighting, gas station lighting, high-bay warehouse lighting, and architectural lighting.