

Spec. Number	CM-1
Date	2006
Revision	1

Cold Mirror

A "Cold" mirror is designed to reflect the visible and transmit infrared energy. Since a significant amount of the infrared passes through the coating, a major portion of the heat from the light source is eliminated from the light beam. Cold mirrors are most often applied to reflectors that are located very close to the source and are a most efficient optical means of heat control.

Cold Mirrors are so-named because of their ability to reflect visible wavelengths while allowing infrared radiation to be transmitted out of the beam. The resulting beam is perceived as "Cool" because the absence of significant IR energy vastly reduces the heat felt when IR is absorbed by a lighted object (skin, displays, etc.). Cold Mirrors are a very efficient way to reduce ambient heat optically, and are a very effective mirror to the visible spectrum. Some properties are:

- Over 90% reflectance in the visible is possible.
- Durability Levels spanning several hundred hours of operation to several thousand.
- Coat various shapes and sizes of substrate

ACI can apply these films to your reflector or can locate and source a reflector to your requirements.

Characteristic	Test/Attribute	Indication
Visible wavelength Reflection	Typical 430 to 780 nm average $\geq 93\%$	How much visible light is reflected
Angle of Incidence	Typically 0°	
IR Reflection	Typically 800 to 1100 nm average $\leq 15\%$	How much heat is reflected into the light beam
Coating Uniformity	Will vary with substrate geometry	N.A.
Adhesion	Tape test	How well the film adheres to the substrate
Heat Testing	550°C for 12 minutes	Ability of the film to withstand heat
Operating Temperature	Oven test	How well the film will withstand operating temperatures
Thermal Shock	20°C water / 400°C oven cycle 3 times	Ability of film to withstand fast temperature changes
Humidity	24 hours at 120 +/-4 °F, RH of 95 to 100%.	Indicates resistance to heat and moisture combination
Substrate Specifications	Customer specific	
Cosmetics Specifications	Customer specific	