When is the Appropriate Time to Re-lamp my Sphere?

Over time incandescent filament lamps evaporate and decrease in size which in turn increase the resistance of the filament. Addition reduction of light output is caused by the absorption light by the deposit of evaporated tungsten particles on the bulb. Operated in a current regulated circuit, the increase in the filament resistance during life causes an increase in the voltage across the lamp and consequently an increase wattage and generated lumens. The increase in lumens is offset to varying degrees by the absorption of light by the tungsten deposit on the bulb. Low current tungsten halogen lamps like the ones used in Labsphere's uniform source systems (Table I) have a very small depreciation in light output during life due to the regenerative cycle. This cycle removes the evaporate tungsten from the bulb and redeposits it on the filament. Figure I shows the change in light output for typical tungsten halogen lamps where rated lamp life is defined as the life value assigned to a particular type lamp. This is commonly a statistically determined estimate of average or median operational life.[1]

Table I

Labsphere's Standard Tungsten Halogen Light Sources for Uniform Source Systems

EXTERNAL HALOGEN LAMPS		
Part Number	**Current (A)**	**Rated Life (hrs)**
Dichroic Reflector		
EHLS-100-30D	2.778	200
EHLS-100-80D	4.211	200
EHLS-100-120D	6.857	130
Rhodium Reflector		
EHLS-100-30R	2.778	200
EHLS-100-75R	6.250	3000
EHLS-100-100R	4.167	2000

INTERNAL HALOGEN LAMPS		
Part Number	**Current (A)**	**Rated Life (hrs)**
IHLS-100-06	1.000	100
IHLS-100-10	1.667	2000
IHLS-100-20	3.333	2000
IHLS-100-30	2.778	400
IHLS-100-75	6.250	3000
IHLS-100-100	4.167	2000
Direct Mount		
IHLS-DM-45	6.600	1000
IHLS-DM-150	6.000	2000

[1] Illuminating Engineering Society of North America, "The Lighting Handbook", Ninth Edition, 2000, Chapter 6

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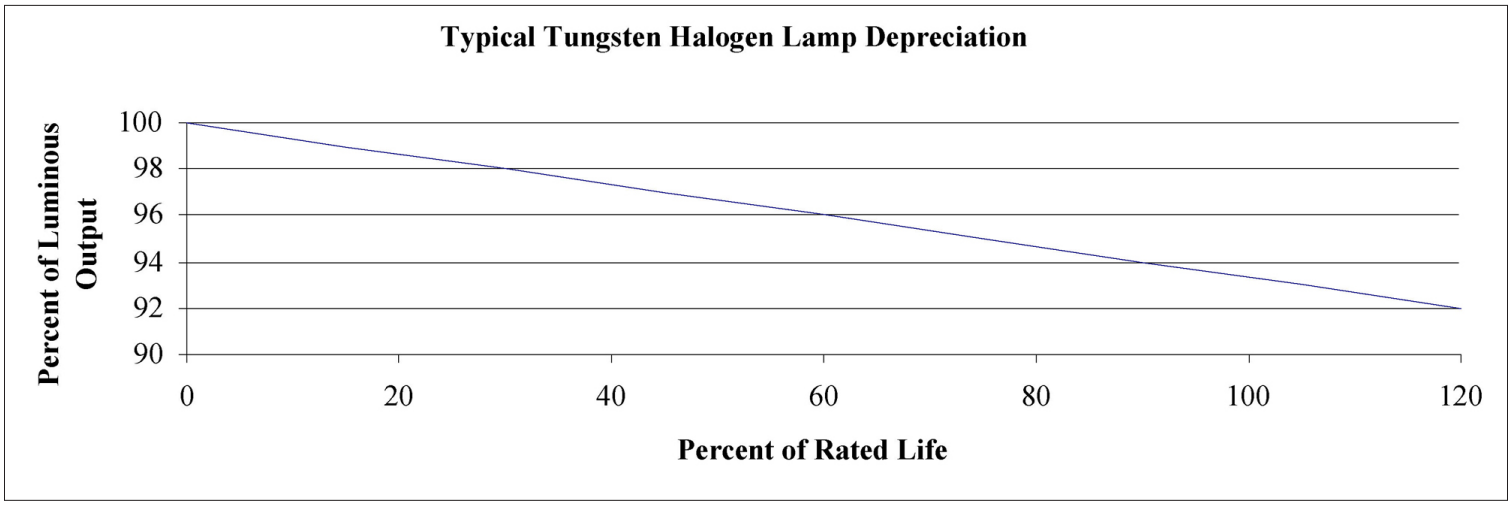
Typical Light Output Characteristic of Tungsten Halogen Lamps
as a Function of Burning Time



Labsphere's calibration technicians set the elapsed time feature of the uniform source system lamp power supplies to 0.00 hours prior to operating the uniform source system lamps(s) for measurement or calibration.

How do you use this information? Let's use the IHLS-100-DM for example: it has a rated life of 1000 hours. One could reasonably expect that after 300 hrs of use, or 30% of its rated life, the luminous output of that lamp will have dropped about 2%. Considering this, your application, and the guidelines of your internal quality management system, only you can determine the appropriate time to have your system re-lamped.