

# 12 Good Reasons for Keeping Tungsten Halogen



# 1. Indoor Sunlight

**Tungsten halogen light** is an incandescent, fire-based light source, just like sunlight.



*"All incandescent light is produced by heating a solid object - the filament - until it radiates light. In a sense, this is the way light is produced by the sun. Therefore both standard incandescent and halogen lamps exhibit smooth, even SPD curves, not unlike sunlight."*  
- OSRAM



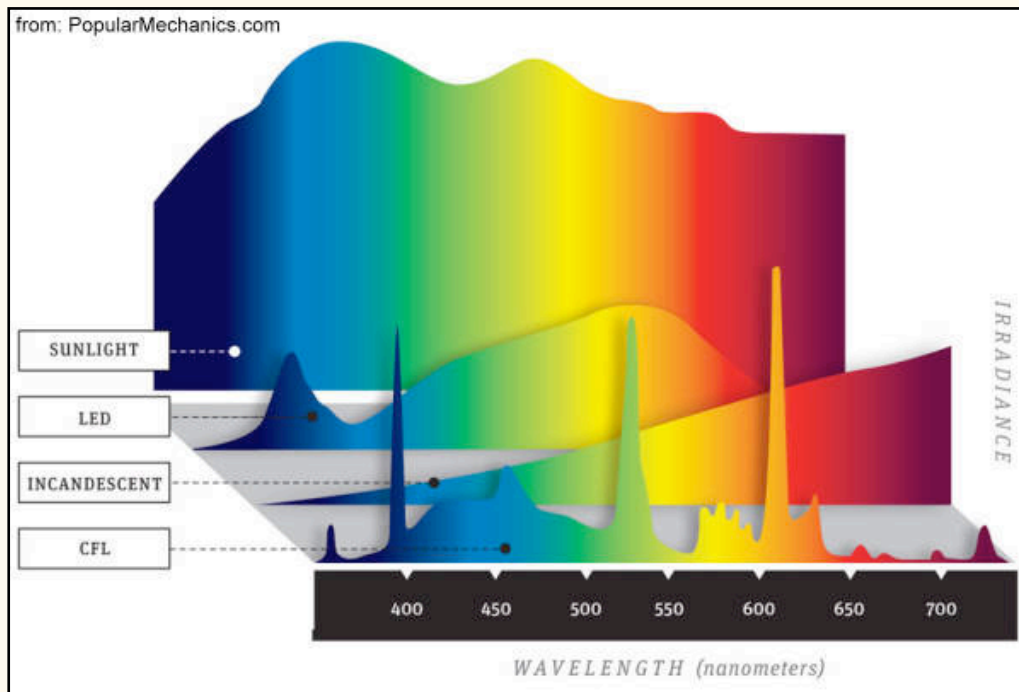
Halogen light looks and feels like real sunlight, has the same light quality, and lights up any room like a sun.



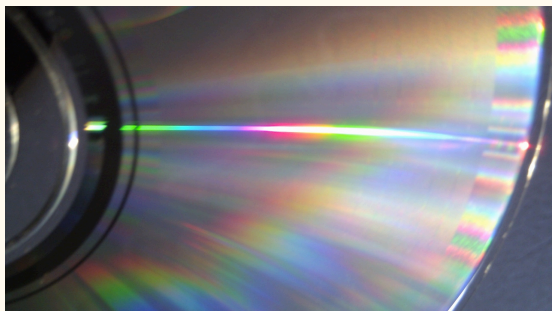
## 2. Naturally Full Spectrum

Incandescent sources like **halogen lamps** produce a **continuous spectrum**, just like sunlight (only less bright and therefore more red).

The phosphor mix used to produce white light in **CFLs** and **LEDs** creates spikes and gaps in the spectrum.



This difference can be seen with the naked eye in a DIY spectral analysis, using the back of a DVD.



*Daylight (full rainbow of colours)*



*Incandescent (full rainbow of colours)*



*Warm white LED (limited spectrum)*



*Warm white CFL (gaps in the spectrum)*



### 3. Perfect Colour Accuracy

- **Halogen light** has optimal colour rendition, **CRI 100**, just like **sunlight**.
- **CFLs & LEDs** have suboptimal colour rendition, **CRI ~ 80-85**.

When CRI is below 90 (due to those gaps in the spectrum) the colours of the interior design and of people, animals, plants, art, and food will look more grey.



*High CRI (incandescent) = rich brilliant colours*



*Lower CRI (LED) = flat greyish colours*

Photos: ScreenLight & Grip



**Incandescent 100W  
PAR38**

*High CRI (incandescent)*



**Quanta-18 18W  
Warm White**

*Lower CRI (LED)*



## 4. Highest Possible Light Quality

**Halogen light** is the Rolls Royce or champagne of lighting.



*Halogen recessed downlights and under-cabinet lights*



*Halogen wallwasher spotlights*

The superior light quality makes colours look dazzling, vibrant and alive, and any room lit by halogen light feel warm, inviting and luxurious.

**CFL & LED light** is has visibly lower light quality. It's a utility light, and as such has its use in certain situations, just like fluorescent tubes.



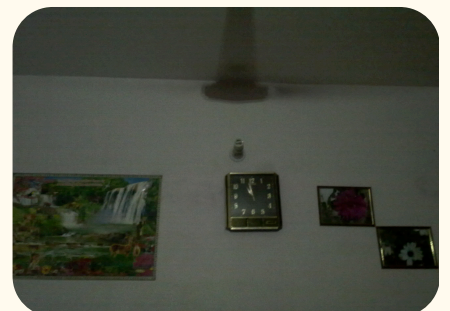
*LED downlights and chandelier*



*LED under-cabinet lights*

Even with the best warm-white CFL & LED replacement lamps, the lower colour accuracy makes colours look somewhat washed-out, and the atmosphere in the room may feel a bit gloomy as a result.

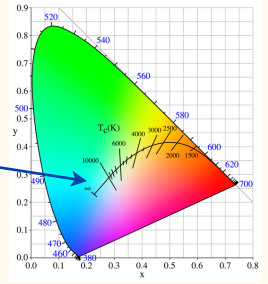
*With aged or low lumen CFLs or LEDs, it's like trying to see through a grey fog.*





## 5. Superior Dimming Qualities

**Incandescent lamps**, including **halogen**, are naturally dimmable and dim beautifully. The light colour adjusts itself automatically along the [Planck curve](#) depending on brightness (the brighter, the whiter).



*When bright, halogen light is a clear and sunny white that enhances colours and makes it easy to see well.*

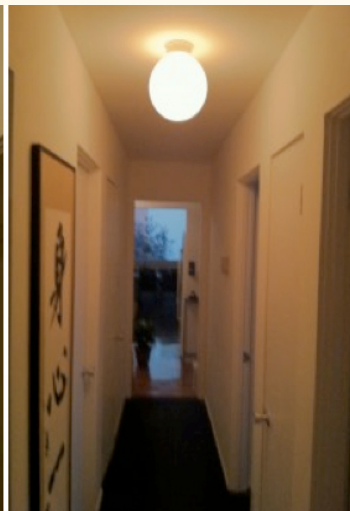


*When dimmed, the light turns warmer and more romantic, like candle light.*

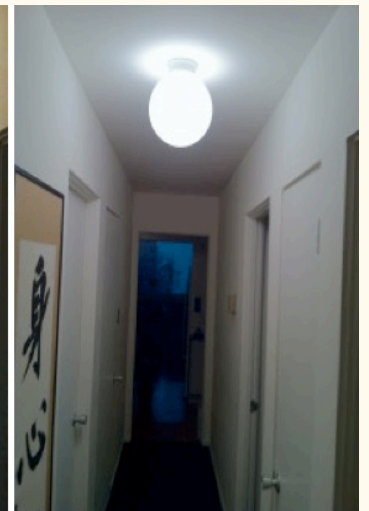
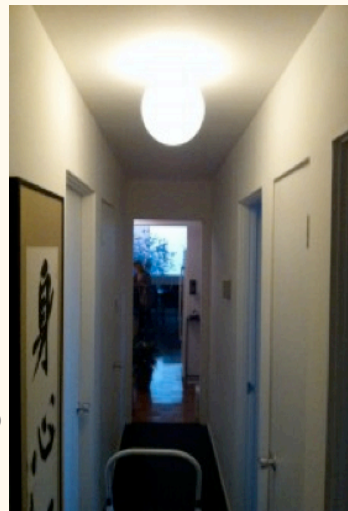
**Dimming saves electricity and extends lamp life multifold. But only in tungsten light.**

**CFLs** and **LEDs** are either undimmable or only compatible with some dimmers. Being technically more complex to manufacture, they cost many times more. And even in the best and most expensive warm white models, the *light gets colder and greyer when dimmed*, and may flicker or buzz.

**Non-incandescent lamp technologies are simply not suitable for dimming.**



*GE Reveal incandescent - full & dimmed*



*Philips MasterLED - full & dimmed*



## 6. Irreplacable Qualities at Home

Whether used as spotlights, floodlights or as Eco replacement bulbs, halogen light is always fresh, clear, glittering and radiating.



*There exists no replacement lamp that will make a crystal chandelier sparkle like clear halogen Eco bulbs.*



*There exists no good replacements for halogen floodlights.*



*There exists no replacement lamp that will illuminate art as attractively, and no good alternatives for halogen spotlight bulbs.*



## 7. Irreplacable Commercial Qualities

**Incandescent** light sources, incl. **halogen lamps**, are considered “the gold standard of lighting” (Global Lighting Association) due to their top quality light. It is no coincidence that it is often the lighting of choice in high end boutiques, restaurants, hotels spas, etc.



*There exist no replacement lamps that will create that romantic and exclusive ambiance often found in good restaurants and hotels.*

The unique glittering effect of dichroic halogen spotlights makes high end stores look exclusive, shows and enhances the colours of the products, and makes crystal and jewelry sparkle.



*Jewelry store lit by halogen spotlights*



*Jewelry store lit by fluorescent tubes*



## 8. The Last Fire Light

As **incandescent light** is based on the element of **fire**, it is the same type of light we humans have evolved with - as **sunlight** in the daytime and as **fire light** at night - and are biologically adapted to.




It's like having a 'candle in a bulb', but electrically amplified and tuned for optimal brightness.



If **halogen lamps** are banned, we have to go back to *burning candles and oil lamps* if we want to keep our our instinctive connection to fire light.

## 9. Long Life Possible

- **CFLs** may, under optimal circumstances, last from **5 000** to **15 000** hours depending on model.
- **LEDs** are often claimed to last **20 000** hours or more. A clear advantage when long life is desired.
- **Halogen** lamp life is typically **2 000 hours** for standard models. However, it is quite possible to make halogen lamps that last **10 000 hours**. Such lamps already exist on the market.

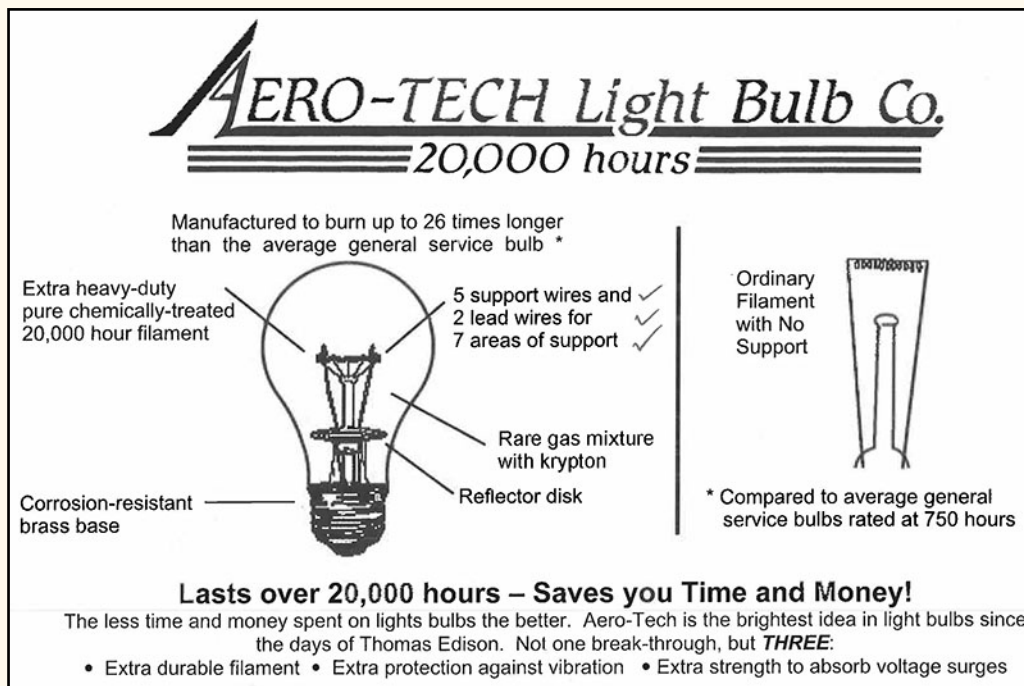


**BT15, A19 Halogen Light Bulbs**

Bulborama offers Supra Life halogen BT15 and A19 bulbs engineered to last up to 10 times longer than standard halogen lamps. Rated up to 10,000 hours, Supra Life halogen bulbs provide 15% energy savings compared to standard bulbs.

<http://www.bulborama.com/Halogen-Light-Bulbs-c1/>

- Standard **incandescent** bulbs typically last **1 000 hours**, but can also easily be made to last up to **20 000 hours** by simple improvements to sensitive parts. Such lamps already exist (in the U.S.).



**AERO-TECH Light Bulb Co.**  
**20,000 hours**

Manufactured to burn up to 26 times longer than the average general service bulb \*

Extra heavy-duty pure chemically-treated 20,000 hour filament

5 support wires and 2 lead wires for 7 areas of support ✓ ✓

Rare gas mixture with krypton

Reflector disk

Corrosion-resistant brass base

Ordinary Filament with No Support

\* Compared to average general service bulbs rated at 750 hours

**Lasts over 20,000 hours – Saves you Time and Money!**

The less time and money spent on lights bulbs the better. Aero-Tech is the brightest idea in light bulbs since the days of Thomas Edison. Not one break-through, but **THREE**:

- Extra durable filament
- Extra protection against vibration
- Extra strength to absorb voltage surges

<http://www.lightbulb.aerolights.com/>



## 10. Lower Environmental Impact

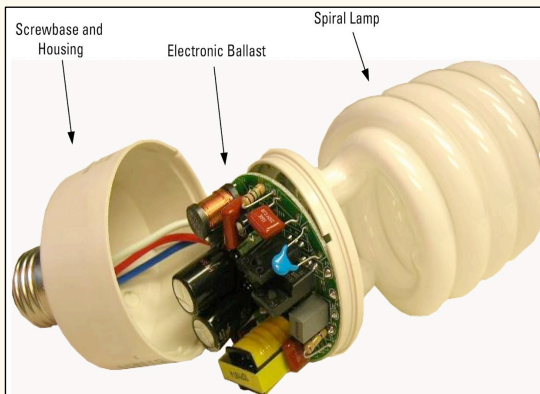
New research in January 2013 by scientists in California and South Korea found that:

*“The CFLs and LEDs have higher resource depletion and toxicity potentials than the incandescent bulb due primarily to their high aluminum, copper, gold, lead, silver, and zinc. Comparing the bulbs on an equivalent quantity basis with respect to the expected lifetimes of the bulbs, the CFLs and LEDs have 3–26 and 2–3 times higher potential impacts than the incandescent bulb, respectively.”*



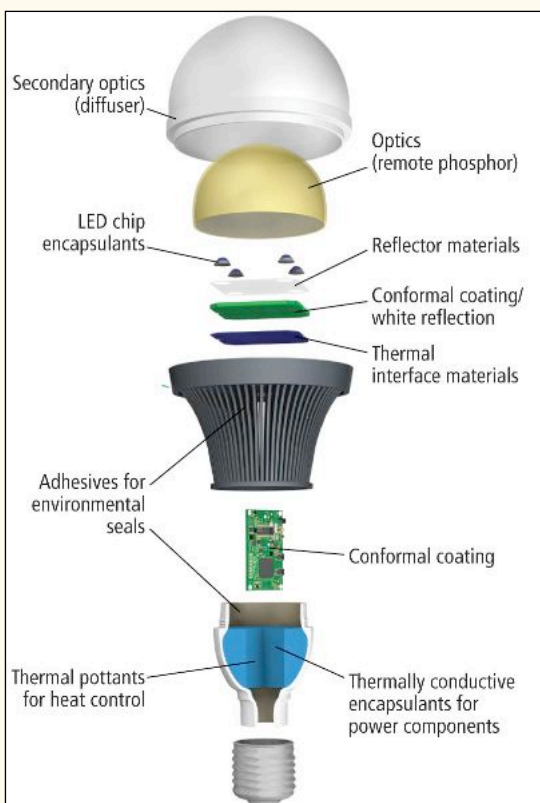
### Halogen Eco lamp (simple to make and recycle)

- Quartz glass & soda-lime glass
- Tungsten (wire filament)
- Molybdenum, copper, iron or nickel (metal/wires)
- Bromine or iodine (halogen gas)



### CFL-i (complex to make and recycle)

- Soda-lime glass
- PBT or PET (brominated polymer) plastic housing
- Nickel-plated brass base
- Aluminum, copper, nickel, tin and/or zinc base or wires
- Lead oxide, aluminium oxide
- Barium/aluminum oxide compounds, manganese (phosphor mix)
- Lanthanum, yttrium oxide or phosphate (rare earths)
- Mercury (vapour or amalgam)
- Lead (solder)
- Krypton-85 (gas)



### LED lamp (complex to make and recycle)

Anode, cathode, semiconductor crystal, ballast, socket transformer, capacitor, controller, heat sink, LED module, bulb and base

#### May contain:

- Soda-lime glass
- PMMA, PBT or PET (fire retarded/brominated plastic)
- Aluminium (heat sinks and housings)
- Nickel-plated brass (lamp bases)
- Bauxite (glass and adapters)
- Copper (adapters and wiring)
- Lead (glass and adapters)
- Nickel, zinc (adapters)
- Tin (adapters; glass coatings)
- Lanthanum, yttrium oxide, manganese, barite (phosphor mix)
- Semiconductors (depending on colour): Arsenic, boron, gallium, indium, phosphate rock, selenium, zinc

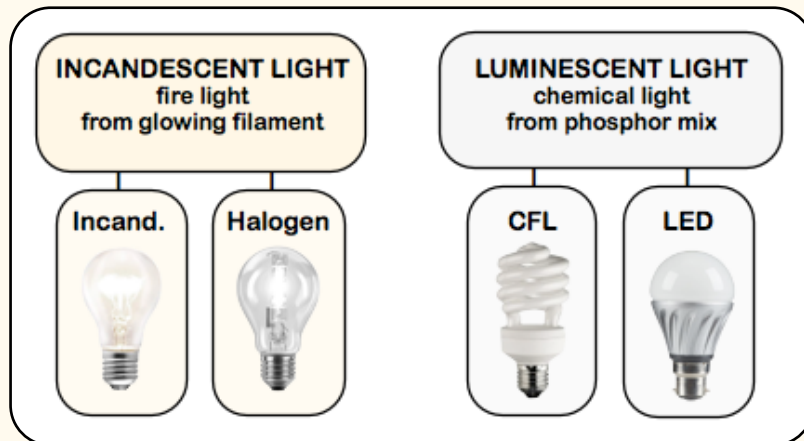
Low-lumen LEDs (= majority of LEDs available for the home market) use as much precious resources as high-lumen lamps but for very little light. **LEDs are most effective when over 800 lumens and used for many hours per day.** They are not suitable as low-lumen lamps as the light quality is too low.

## 11. Different Lighting Technologies

All lighting technologies have their advantages in different situations.

- **Incandescent & halogen lamps**, where light **quality** is most important, e.g. at home, in fashion stores, galleries, restaurants, hotels etc.

- **CFLs, LEDs, fluorescent tubes, HID lamps** where light **quantity** is of higher priority than quality, e.g in offices, corridors, garages, or as outdoor lighting; when lighting is turned on all day or all night.



**Incandescent** and luminescent light sources are *not* interchangeable.

They have very different technical properties and light qualities. No matter how much luminescent (phosphor-based) light is improved, it can never be *the same* as fire-based light, anymore than brass can ever be gold, or rayon silk. It's a different product; superficially similar and useful in other ways, but still not the same.



A **CFL** can often be replaced by an **LED** or **metal halide HID lamp** of the same colour temperature and socket. They are all phosphor-based and have similar CRI and light quality.



A **frosted incandescent lamp** *cannot* be replaced by a CFL or frosted LED without changing and lowering the light quality, or by or clear halogen without changing functionality.

A **frosted incandescent lamp** can *only* be replaced by a **frosted halogen lamp** for the same glare-free top quality light.



A **clear halogen lamp** *cannot* be replaced by a CFL or LED without lowering the light quality and changing functionality.

**Clear halogen A-bulbs, R7 tubes, G4 and G9 mini bulbs** have *no* replacements.

**X**



## 12. Health & Wellness

Light is an essential bio-nutrient, just like water, food and air.

Physiologically, light regulates hormones. Visually, it helps us see well when there is no daylight. Psychologically, it is one of the most potent mood enhancers at the disposal of an interior designer, home maker or professional lighting designer.

*A clear, top quality, naturally dimmable light that is not too cold or dull, is of essence in order to be able to see well and relax in our own homes at night.*

*Banning halogen lamps is like banning silk or cotton and forcing everyone (including those who are allergic to them) to use only synthetic fibre because the latter fabrics are considered more durable.*

*We all want to save the environment, but there are many other ways to easily save the little that could theoretically be gained by banning halogen lamps.*

*All currently available lamps are needed, except CFLs and high pressure mercury lamps which can and should be replaced due to mercury risk, and 'cool white' (light blue) LEDs which may harm vision and disrupt sleep hormones.*

- Standard **halogen Eco bulbs** must remain available for those:

- who need bright light of good quality in order to see well (= *most people over 60*)
- who prefer or need the highest light quality (= *many women, artists, photographers etc*)
- who have light-sensitive eye- or skin conditions (= *c. 25% of the population?*)
- for whom CFLs may be hazardous due to mercury spill risk (*children & pregnant women*)
- for whom LEDs may be hazardous due to blue light risk (= *children & people with ARMD*)

- As there are no *top quality* **frosted** replacements, **frosted halogen A-bulbs** should be permitted again for those who are sensitive to glare (= e.g. *many seniors, migraine patients etc*).

- And as there are no good quality replacements for the **R7 tubes** and, **G4** or **G9 halogen mini bulbs**, these must remain available *for those who have invested in* costly halogen downlight, floodlight, spotlight, or dimming systems because they wanted the *best light* on the market.

*So please let EU citizens be free to choose from an open market what type of light quality they want to use in their own homes.*

Thank You!

