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2012 DOE Regulations





The T12 Story

- Why is the Department of Energy (DOE) regulating linear fluorescents?
- What is the DOE regulation?
- What fluorescent lamps are affected?
- How many fluorescent sockets are in the US Market?
- What are the options?



Why is the DOE regulating T12 Fluorescent lamps in favor of T8 Lamps?

	T12	T8
80 year old technology	✓	
Low Mercury		✓
Long Life		✓
High CRI		✓
High Lumen Maintenance		✓
Contributes to LEED points		✓
30% more efficient		✓

New DOE Fluorescent Standards

Summary: New 2012 Standards for General Service Fluorescent Lamps (GSFL)

Issued by the US Department of Energy June 29, 2009

Lamp Type	Correlated Color Temperature	Energy Conservation Standard lm/W
4-Foot (T8-T12) Medium Bi-pin ≥25W	≤ 4,500K	89
	> 4,500K and ≤ 7,000K	88
2-Foot (T8-T12) U-Shaped ≥25W	≤ 4,500K	84
	> 4,500K and ≤ 7,000K	81
8-Foot (T8-T12) Slimline ≥52W	≤ 4,500K	97
	> 4,500K and ≤ 7,000K	93
8-Foot (T8-T12) High Output	≤ 4,500K	92
	> 4,500K and ≤ 7,000K	88
4-Foot (T5) Miniature Bi-pin Standard Output ≥26W	≤ 4,500K	86
	> 4,500K and ≤ 7,000K	81
4-Foot (T5) Miniature Bi-pin High Output ≥49W	≤ 4,500K	76
	> 4,500K and ≤ 7,000K	72



Last Day to Manufacture

Effective Date: July 14th, 2012 (3 years after published in *Federal Register*)

Current exemptions continue [For example, lamps with CRI ≥87, cold temp. (CT), UV, etc.]

Summary of Lamps affected by 2012 (DOE) Standards

- **T12s**

- Majority of 4 foot fail
- All Ubents fail
- 110W 8 foot HO lamps fail

- **T8**

- 700 series fail
- 8 foot Slimline 700 series fail
- 8 foot HO 700 series fail

- **T5**

- All Pass

New standards are based on EFFICACY – higher lumens per watt and higher CRI ratings

How many T12 & T8 Fluorescent sockets are there in North America?

North America Fluorescent Sockets

T12 – 900 Million

T8 – 1.1 Billion

Total – 2 Billion

Consumer

500 million

70% are T12's

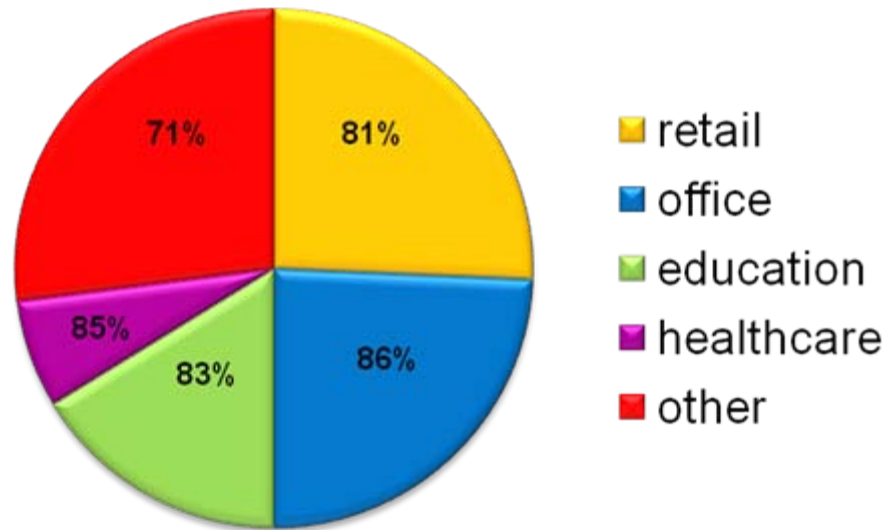
Industrial/Commercial:

1.5 billion

35% to 40% are T12's



Linear Fluorescents in each Segment



Linear Fluorescents are the dominant lamp type across all major end user segments

2 Lamp System Energy Usage

TYPE	F34T12 System	F32T8 System	F32T8 25W System
Mean Lumens	2173	2660	2425
Watts	72	54	38
CRI	62	78	85
Lumen Maintenance	85%	95%	97%
Life	20,000	24,000	30,000
Cost of Operation per year*	\$28.80	\$21.60	\$15.20
Savings per year		\$7.20	\$13.60

- Making the switch from T12's to T8's system saves energy
- Switching to the 25W system will save significant energy, extend re-lamping and increase current light levels

*\$0.10 KWH, 4000 hours/yr

Switch from 34W T12 System to 32W T8 System



25% energy savings

20% increase in life

95% Lumen Maintenance

Increased CRI

2012 DOE ruling will drive sales to more energy efficient fluorescent lamps

Switch from 34W T12 System to 25W LW T8 System



47% energy savings

50% increase in life

95% Lumen Maintenance

85 CRI

Higher Mean Lumens

**Best Choice for Energy Saving with same light output,
switch from T12 to Energy Advantage 25W T8!**

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Philips Energy Advantage T8 28W
Extra Long Life Lamps

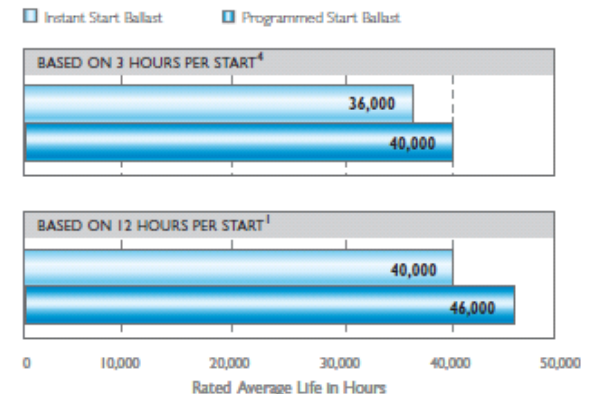


Philips Energy Advantage T8 28W Extra Long Life Lamps

Features

- Outstanding energy savings of 4 watts per lamp when compared to a 32WT8 lamp
- Operates on any Instant Start and Programmed Start Ballast
- Up to 67% longer life than industry standard T8 lamp

Rated Average Life
Philips Energy Advantage T8 28W XLL Lamps



[‡] Starting voltage should be equal to or greater than 550V. These lamps are not recommended for use where the temperature in fixture is below 70°F. Striations may occur where air movement is present in fixture. For best operation, use ballast with anti-striation circuitry.

[†] When compared to an industry standard [‡] T8 32W lamp with 24,000 hours rated average life (12 hours per start on an instant start ballast), with 2800 lumens and 75 CRI.

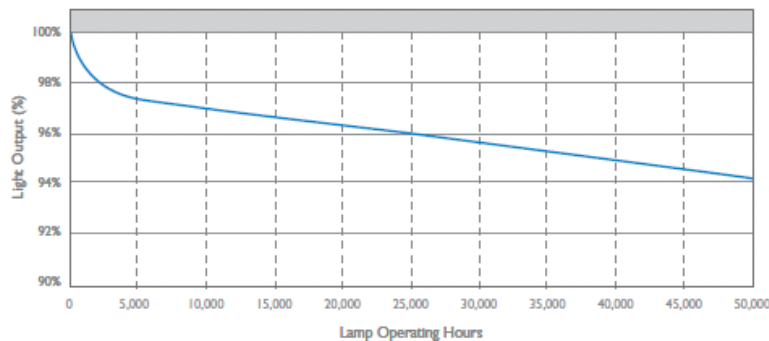
Philips Energy Advantage T8 28W Extra Long Life Lamps

Benefits:

- Environmentally responsible without sacrificing performance
- Extra low mercury with only 1.7mg
- 97% Lumen Maintenance

97% Lumen Maintenance

Philips Energy Advantage T8 28W XLL Lamps



**ALTO II™ means 50%
less mercury than the
original ALTO T8 lamps†**

† Original 2', 3' and 4' T8 lamps featuring ALTO® Lamp Technology had 3.5mg of mercury. New 2', 3' and 4' T8 lamps featuring ALTO II™ Technology have 1.7mg of mercury.

Ordering, Electrical and Technical Data



Product Number	Ordering Code	Watts	Pack. Qty.	Color Temp. (Kelvin)	Nom. Length (In.)	Rated Average Life (hrs) ¹		Approx. Initial Lumens ²	Design Lumens ³	CRI	Lumen Maint
						12-hr on Ins. Start	12-hr on Prog. Start				
23454-2	F32T8/ADV830/XLL28W/ALTO	28	25	3000	48	40,000	46,000	2725	2645	85	97%
23726-3	F32T8/ADV835/XLL28W/ALTO	28	25	3500	48	40,000	46,000	2725	2645	85	97%
16938-3	F32T8/ADV841/XLL28W/ALTO	28	25	4100	48	40,000	46,000	2725	2645	85	97%
16933-4	F32T8/ADV850/XLL28W/ALTO	28	25	5000	48	40,000	46,000	2675	2595	85	97%

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.

2) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions. For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate ballast factor for each of their ballasts when they are informed of the designated lamp. The ballast factor is a multiplier applied to the designated lamp lumen output.

3) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions.

Ⓢ Lamp meets US Federal Minimum Efficiency Standards.

● This lamp is better for the environment because of its reduced mercury content. All Philips ALTO II* lamps give you end-of-life options which can simplify and reduce your lamp disposal costs depending on your state and local regulations.

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Philips T5 HO 49W Extreme
Temperature Lamps & Systems



Current issues facing spaces with extreme temperatures

- Rising energy and maintenance costs
- HID systems don't provide the light quality and energy savings typically found with fluorescent lamps
- Light output of Standard fluorescent systems is reduced when operated in extreme temperature zones



What is “Extreme Temperature”?

- Extreme temperature is when the temperature is beyond the average temperature curve for standard fluorescent lamps to operate at full lumen output.
 - Standard T5 HO lamps have peak lumen output at 95°F / 35°C and will maintain this output $\pm 10^\circ$
 - Standard T8 lamps have peak lumen output at 77°F / 25° C and will maintain this output $\pm 10^\circ$

T5 HO Extreme Temperature lamps have peak lumen output from 65°F / 20°C to 170°F / 75°C due to amalgam technology.

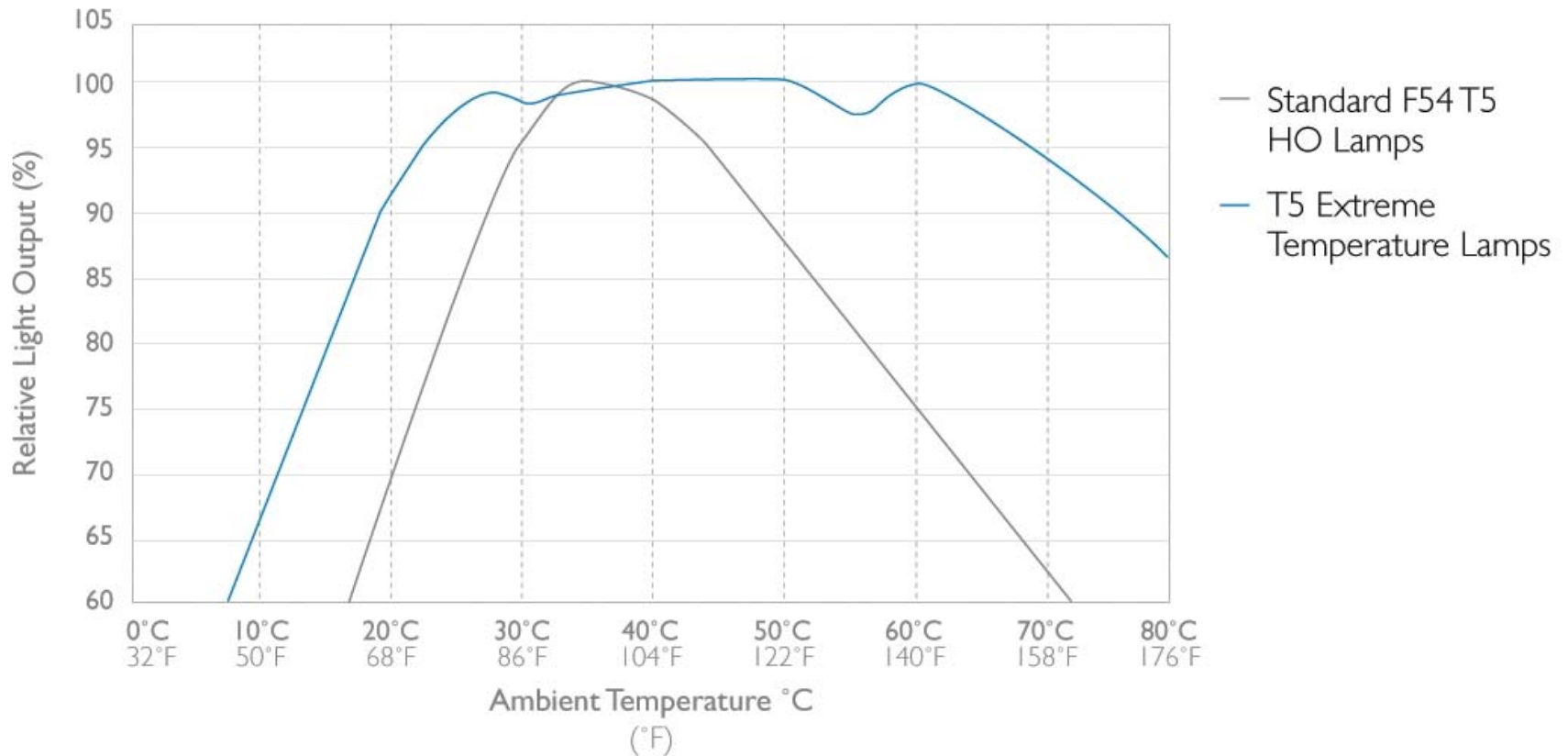
What are the ideal applications for T5 49W Extreme Temperature lamps?

- **T5 HO amalgam are ideal lighting systems for high ceiling applications for end users that want to save energy while maintaining or improving current light quality.**
- Any spaces with extreme temperatures
 - High bay warehouses
 - Spaces with ceiling heights > 20'
 - Industrial manufacturing facilities (i.e. production lines)
- Refrigerated spaces
 - Open spaces
 - Sealed fixtures
- Outdoor
 - Signs
 - Parking garages
 - Tunnels

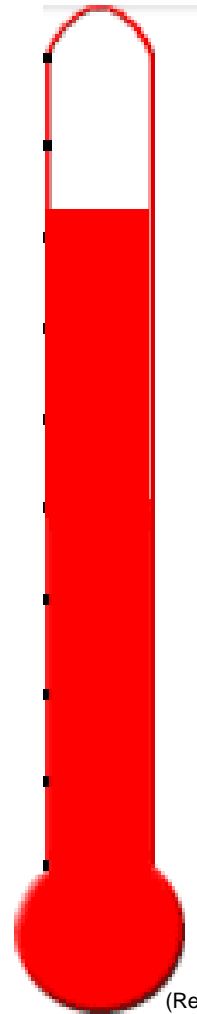
T5 Extreme Temperature vs. Standard T5 (Hg) lamp (temperature and lumen maintenance)

Performance (Relative Light Output vs. Temperature)

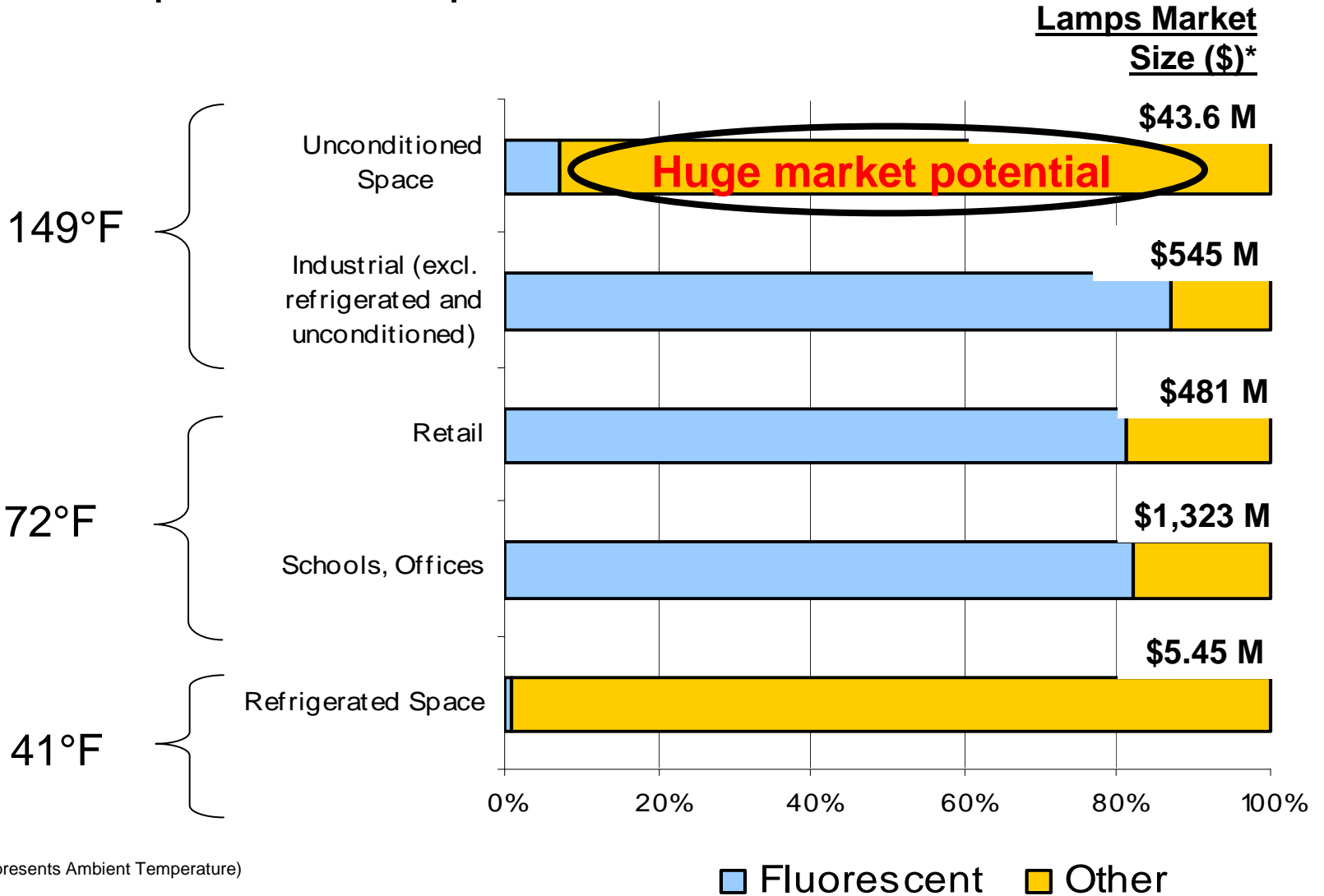
Philips T5VHO Extreme Temperature Lamps vs. Standard F54T5 Lamps



What are the market opportunities by application for T5 Extreme Temperature lamps?



(Represents Ambient Temperature)



Product Ordering Information



Ordering, Electrical and Technical Data (Subject to change without notice)

Product Number	Ordering Code	Nom. Watts	Pkg. Qty.	Color Temp. (Kelvin)	Nom. Length (In.)	Rated Avg. Life (Hrs.) ²		Approx. Initial Lumens ^{4,5}	Design Lumens ⁶	CRI	Lumen Maint.
						3-hr Start ³	12-hr Start ¹				
40729-6	F54T5/835/HO/A/EA/ALTO 49W	49	40	3500	46	25,000	35,000	5000	4750	85	92%
40730-4	F54T5/841/HO/A/EA/ALTO 49W	49	40	4100	46	25,000	35,000	5000	4750	85	92%
40752-8	F54T5/850/HO/A/EA/ALTO 49W	49	40	5000	46	25,000	35,000	4850	4625	82	92%

- 1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.
 - 2) Rated average life is the length of operation (in hours) at which point an average of 50% of a large sample of lamps will still be operational and 50% will not.
 - 3) Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Lamp life is appreciably longer if lamps are started less frequently.
 - 4) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions.
 - 5) For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate ballast factor for each of their ballasts when they are informed of the designated lamp. The ballast factor is a multiplier applied to the designated lamp lumen output.
 - 6) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions.
- Ⓢ Lamp meets US Federal Minimum Efficiency Standards.

Philips T5 HO 49W Extreme Temperature Lamps



For customers who want a sustainable lighting solution that provides high light output and energy savings, even in applications with unconditioned spaces

Act now! The T5 HO 54W Amalgam lamp has been delisted, but you can upgrade now to the new Philips 49W Extreme Temperature lamp.

Save 5 watts by switching your lamp AND gain more lumens over a wider temperature range

