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THE CONSUMER MAGAZINE

25th ISSUE

India Taken for a Ride

COMPACT FLUORESCENT LAMPS

23 'Phoren' brands tested

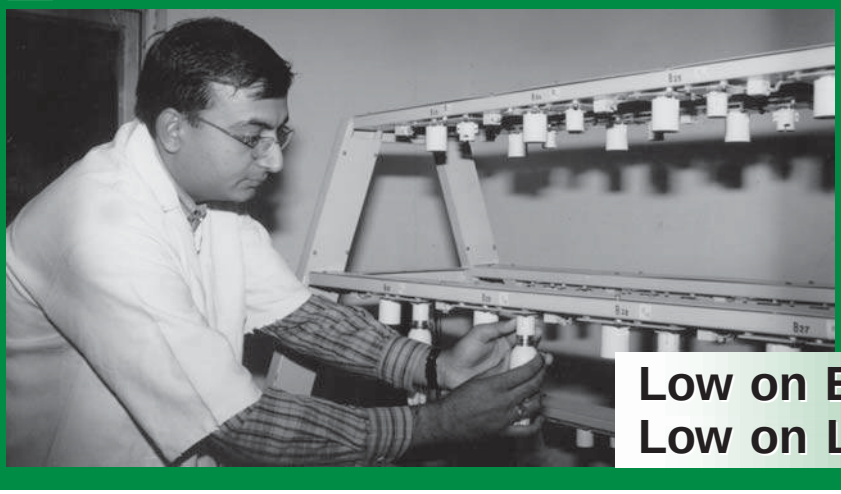
How to choose Water Purifiers

CONSUMER EDUCATION AND RESEARCH SOCIETY, AHMEDABAD, INDIA

TEST REPORT

COMPACT FLUORESCENT LAMPS

Self-Ballasted



Low on Energy Consumption, Low on Light Too

If you are taken in — many are — by all the perceived 'benefits' that the CFL is supposed to shower on you, you are not to blame. But our tests of foreign-made CFLs portrays a gloomy picture.

In our efforts to inform you of the best of products and alert you against the worst of them, we test products largely made and sold in India. This time we decided to test foreign-made products sold in India. Many of these products are allowed entry into the Indian market without the standards to judge their performance.

Easy Entry

Though the Bureau of Indian Standards (BIS) has laid down rules which would be equally applicable to both Indian and foreign manufacturers, the regulations remain only on paper and are not enforced. Such relaxations to foreign manufacturers and easy entry into Indian markets hurt not only the Indian consumers who get substandard products but also Indian business which is subjected to unfair competition in the name of liberalisation.

We picked up foreign- made CFLs sold in India. CFLs made/marketed in India, though available, are more expensive than the foreign-made ones, the least expensive costing Rs. 350. However, we did not test the Indian brands as our objective of the test was to check the claims and performance of foreign - made lamps dumped on the Indian market. We selected 23 brands of foreign - made CFLs from the countrywide open market and tested two samples of each brand. The lamps were of different wattages, ranging from 11W to 28 W. *(For detailed list of brands tested refer table on p. 25.)*

CFLs are either self-ballasted (where the ballast is integrated with the tube) or non-retrofit (where the tube and the ballast are separate and connected with wires). The former can fit into any holder used for the normal incandescent bulbs while the latter require special type of holder. We selected only foreign-made self-ballasted compact fluorescent lamps for the test.

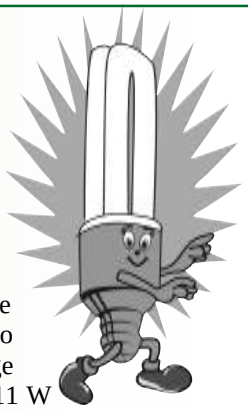
No Indian standards exist for the performance of CFLs. Draft Indian standards are under preparation. In the absence of Indian standards, we checked the products' performance against the standards set by the International Electro-technical Commission (IEC)) of Europe, the American National Standard Institute (ANSI), and the Illumination Engineering Society of North America (IESNA)). Historically, Indian standards have been closer to the above international standards.

What's Foreign-Made

While foreign-made literally means products made outside India, we have considered foreign-made CFLs as those which meet certain criteria like:

- no 'Made in India' label
- labelling in a non-Indian language
- name of a foreign country mentioned
- no country name mentioned
- marketed in India not by any big company under its name but by small traders/dealers, *i.e., brands like* ***GE,*** *though made in* Hungary, *have not been included since they are big brands marketed under their own names.*

How Much Light



CFL cartons highlight a comparison of CFL light against normal incandescent bulbs : they explain how they use less power but give the same light. The IEC requires that the light given out by a CFL must not be less than 90 per cent of that marked on the label. But other than ***Gujtron*** and ***Gujlite***, none of the brands had the information on light output marked on them. International reference methods state that in such a case the light output required to be given out by a lamp is based on the wattage marked on it. For example, a lamp marked 11 W should give light in the range of 540-580 lumens, a 15 W lamp should give 760 to 900 lumens and so on. Hence we followed the above yardstick to check the light given out by all the brands tested, except ***Gujtron*** and ***Gujlite***.

All the brands failed in the test for light output. The light given out by the various brands ranged from as low as 13.6 to 88.9 per cent of that required. One sample each of ***Yonghui*-11 W** and ***Samson*** were exceptions giving out 93.5 and 99.2 per cent respectively of the light output required.

Normally, CFL cartons are marked with equivalent incandescent wattage to help a consumer select a suitable CFL for replacement of an incandescent bulb, for example, manufacturers of 18 W CFLs claim on their cartons to give the same light as a 100 W incandescent lamp. So consumers are led to believe that they would save 82 W per hour by replacing their current 100 W incandescent with a 18 W CFL. But in reality, a 18 W CFL is giving the light equivalent to a 25 W incandescent only. Hence, in spite of paying at least Rs.35 for the CFL (considering the least priced CFL), instead of Rs.10 for an incandescent, they have not got the desired light. The table alongside shows the difference between the promised equivalent incandescent wattage and the actual equivalent incandescent wattage.

How They Mislead You

Brand	Rated Wattage (W)	Equivalent Incandescent Wattage	
		Promised	Gave Only*
Yong Hui	11W	60	40
Lite-On		60	25
Modern Light		60	25
Yong Hui	15W	75	60
Lintek		75	40
Glomore		75	40
Konica		75	60
Modern Light		75	25
Samson	18W	100	60
Britelite		100	40
P-Lite		100	40
Gujlite		100	25
Gujtron		100	25
Cata		100	40
Steel-I		100	25
Golden Dragon		100	25
Kapsun		100	25
Green		100	25
Qiyuan		100	25
Sunrise		100	25
Asaram		100	15
Ciff		100	25
White Dolphin	20W	100	40
Green		100	25
Glomore	23W	120	60
Hua Cheng	28W	140	60

*Based on an average of measured light of the two samples.

Key Findings

- 23 brands of foreign-made self-ballasted compact fluorescent lamps were tested against international standards and label claims.
- All the brands failed to give out the necessary light.
- None of the brands tested met the labelling requirements. Only **Gujtron** and **Gujlite** had light output marked on them.
- The label claims on the cartons with regard to light output, lamp current, wattage etc., were not substantiated by our tests.
- None of the brands met the claimed rated wattage which directly reflects on the light output.
- 20 brands did not conform to the requirement for efficacy (lumen/wattage).
- One sample each of **Konica** and **Ciff** failed to function even before the initial 100-hour ageing period.
- The prices of the brands ranged from Rs 35 to Rs 250.

Power Consumption

The ever mounting electricity bills have been forcing us to first try and check the energy consumption claims before buying any appliance. That's where the CFLs score — are expected to score—over regular bulbs, also known as incandescent lamps. CFLs of a lower wattage are designed to give the same light as an incandescent lamp of higher wattage, thanks to changing technologies. But, do the foreign-made CFLs meet this expectation?

All CFLs display a certain wattage, indicating the power they consume. The higher is the wattage, the higher is the power consumed. When lamps consume more power than that declared, you end up spending more than what you had bargained for. That is why the IEC requires that the actual wattage of CFLs, when measured, must not exceed 115 per cent of that marked, i.e. if a lamp carries the 15 W-mark, its actual wattage, when measured, must not be more than 17.25 W.

COMPACT FLUORESCENT

Rated Wattage	Brand	Rank	Overall Score	Price (In Rs.)	SCORE			
					Wattage	Lumen	Efficacy	Labelling
11W	Yong Hui	1	83.8	95	78.6	84.9	92.6	77.8
	Lite-On	2	56.9	44	65.9	49.5	64.0	55.6
	Modern Light	3	52.5	60	66.8	39.2	50.8	66.7
15W	Yong Hui	1	76.4	95	68.7	73.3	100	66.7
	Lintek	2	67.3	135	87.0	63.0	67.8	55.6
	Glomore	3	59.1	135	72.7	47.6	61.0	66.7
	Konica	4	53.0	110	46.0	46.8	47.4	77.8
	Modern Light	5	46.8	60	53.3	30.4	53.3	66.7
18W	Samson	1	84.6	250	89.2	89.1	88.9	66.7
	Britelite	2	55.7	75	48.3	42.2	79.3	66.7
	P-Lite	3	52.7	60	54.4	39.1	64.1	66.7
	Gujlite	4	44.9	55	42.2	28.9	57.7	66.7
	Gujtron	5	43.6	55	43.6	27.4	53.0	66.7
	Cata	6	43.5	40	57.2	32.7	50.5	44.4
	Steel-I	7	42.2	50	46.2	27.8	53.6	55.6
	Golden Dragon	8	42.1	48	42.8	24.8	51.6	66.7
	Kapsun	9	41.0	75	48.1	25.7	49.8	55.6
	Green	10	40.6	50	38.9	23.5	61.7	55.6
	Qiyuan	11	39.5	45	40.6	21.5	47.1	66.7
	Sunrise	12	37.1	55	33.9	20.8	54.3	55.6
	Asaram	13	35.1	40	24.4	15.0	54.5	66.7
	Ciff	14	26.1	40	19.5	13.0	29.5	55.6
20W	White Dolphin	1	42.2	55	40.0	26.1	63.3	55.6
	Green	2	39.7	70	40.8	23.3	55.3	55.6
23W	Glomore	—	54.6	200	79.1	41.7	55.0	55.6
28W	Hua Cheng	—	52.8	140	38.6	33.1	92.4	66.7
	Weightage(%)				20	40	20	20

- Readings for columns I and II represent the two samples tested.
- **Glomore** and **Hua Cheng** have not been ranked because they are single in their respective categories.
- Efficacy is the ratio of light output (lumen) to the power consumed. The minimum required efficacy ratio is 40.

LAMP

KEY

● Lamps failed before the 100 - hour ageing period and could not be tested further.

PARAMETERS

Measured Wattage (against rated wattage) (W)		Light that it should give	Actual light given		Efficacy (lumen/wattage)	
I	II	(in lumens)	I	II	I	II
8.5	8.8	540-580	446	505	52.47	57.39
6.8	7.7	540-580	264	290	39.11	37.66
6.9	7.8	540-580	237	202	34.35	25.90
11.0	9.6	760-900	624	593	56.73	61.77
13.5	12.6	760-900	524	521	38.96	41.35
11.1	10.7	760-900	403	387	36.31	36.17
13.8	●	760-900	776	●	56.19	●
8.3	7.7	760-900	249	255	30.00	33.12
16.4	15.7	900-1000	893	800	54.32	50.96
9.4	8.0	900-1000	363	439	38.70	55.22
9.7	9.9	900-1000	366	377	37.81	38.16
7.7	7.5	900	248	272	32.29	36.07
7.6	8.1	900	256	237	33.55	29.37
10.1	10.5	900-1000	310	311	30.66	29.62
8.3	8.4	900-1000	289	240	34.95	28.64
7.8	7.6	900-1000	279	193	35.68	25.53
8.5	8.8	900-1000	253	236	29.70	26.88
5.8	6.4	900-1000	212	235	36.61	36.50
7.3	7.3	900-1000	197	211	26.91	28.9
6.2	6.0	900-1000	222	174	35.63	28.67
5.0	3.8	900-1000	167	117	33.33	31.20
7.0	●	900-1000	246	●	34.94	●
8.0	8.0	1100-1200	267	333	33.38	41.68
8.3	8.0	1100-1200	270	265	32.53	33.13
18.0	18.4	1350-1500	554	635	30.78	34.51
10.3	11.3	1800	459	734	44.56	64.96

Best Buy

Our best buys are based on overall scores and price.

11 W : Though ***Yong Hui*** was the top performer in this category, we rated ***Lite-On*** as the best buy because of its lower price.

15W & 20W : ***Yong Hui*** and ***White Dolphin*** were both top scorers and low priced and hence were rated best buys respectively in their categories.

18W : ***Samson*** was the top performer. But ***Cata*** was adjudged the best buy due to its lower price.

If you want bulk copies of the test report, write to us at askinsight@yahoo.co.in

CLAIMS Vs FACTS

When you buy a CFL from the market, you are also buying the claims made by the manufacturers. Our tests exposed all the claims as exaggerated and misleading. Most of the brand claims are part of necessary labelling requirements such as rated wattage, lumen, lamp current, etc. While absence of labelling information amounts to violation of the law, wrong information accentuates the violation.

Brand	Label Claim	Facts	Remarks
Yong Hui **15W** **11W**	Consume only 0.061A	11W Sample 1 consumed 0.049A Sample 2 consumed 0.087A current 15W Sample 1 consumed0.0826A Sample 2 consumed 0.862A	more current consumed
Lite- on	High PF	Power factor measured in sample 1 was 0.5336 & in sample 2 was 0.5268	Very low since high power factor should be 0.9 or greater.
	Low THD	THD in sample 1 was 81.06 % & in sample 2 was 82.47 %.	Very high since recommended limit of harmonic distortion is 32 %
Cata	High PF	PF in sample 1 was 0.5161 & in sample 2 was 0.4760	Very low since high power factor should be 0.9 or greater.
	Low THD	Total harmonic distortion measured in sample 1 was 82.08 % & in sample 2 was 84.51 %	Very high since recommended limit of harmonic distortion is 32 %
	TUV (ISO) certified	Not relevant	ISO is a certificate given to the company and not to the product. It is not relevant to a consumer and is not synonymous with product quality. It is for overall systems and procedures followed by a company
Asaram	High PF	PF in sample 1 was 0.5600 & in sample 2 was 0.4831	Very low since high power factor should be 0.9 or greater.
	Low THD	Total harmonic distortion measured in sample 1 was 78.10 % & in sample 2 was 83.03 %.	Very high since recommended limit of harmonic distortion is 32 %
Green	PF greater than 0.92	Power factor measured in sample 1 was 0.6114 & in sample 2 was 0.6044	Very low since high power factor should be 0.9 or greater.
	THD less than 35 %	THD in sample 1 was 68.35 % & in sample 2 was 68.81 %.	Very high since recommended limit of harmonic distortion is 32 %
Glomore **Samson** **Golden Dragon** **Lintek**	TUV (ISO) certified	Not relevant	As above for **Cata**'s ISO claims
	5 Stars Energy Saving Label	Very low light output	Meaningless claim since light given is less than required.
Gujtron	A Energy Efficiency Rating		
Gujlite	A Energy Efficiency Rating		

Though the facts above reveal the claim exaggeration indulged in by some brands, it does not mean that the others are totally blameless. Information on lamp current and light output is essential but since brands other than Yong Hui and Gujtron/Gujlite respectively prefer to remain silent on them, they do not find a place in the table above.

PF = Power factor. PF is a ratio measuring the efficiency with which an electrical device converts the input current and voltage into useful electrical power.

THD=total harmonic distortion. THD is a percentage to express the degree by which current waves get distorted. Higher percentages cause an increased heating and resultant accelerated ageing of associated equipment of the utilitiy supplying power.

Warranty/Guarantee

When you buy a foreign-made CFL, do not expect the shopkeeper to give you a cash memo. At the most, he gives you the bill amount scrawled on a piece of paper, which makes no mention of the name of the vendor, his address or the bill number. Hence, there is no guarantee or warranty on the product.

All foreign-made CFLs revealed wattage consumed to be much below the wattage marked on the product, the difference ranging from 91 to just 20 per cent of the wattage marked. For instance, one sample of 18W ***Asaram*** consumed only 3.75 W. Don't be misled into thinking that it will save you electricity. In fact, if you go for any of the foreign-made brands we tested, you are likely to be cheated. By consuming less wattage than that marked on the product, the lamps would also give you less light than that promised.

Efficacy

The efficacy ratio is a measure of how efficient the lamp is. An efficient lamp would naturally give more light and consume less power. It is defined as the ratio of lumen to wattage. The more is the light given out, the higher is the ratio; similarly, less power consumed would increase the ratio. An ideal efficacy ratio means more light and less wattage. The ideal ratio as stated by the American National Standards Institute should be minimum 40.

Only ***Yong Hui*-15W** (56.73 & 61.77), ***Yong Hui*-11W** (52.47 & 57.39), ***Samson*** (54.32 & 50.96) and ***Hua Cheng*** (44.56 and 64.96) met the efficacy standards. All other brands failed miserably in efficacy ratios which ranged from 25.53 to 39.11. Though one sample of ***Konica*** stopped functioning even before the specified minimum of 100 - hour ageing period, the second sample recorded an efficacy ratio of 56.23.

However, the efficacy ratio itself is not a guide to buying a lamp. A lamp may give a very high ratio not by increasing the light output, but by reducing the wattage. Though consumers are benefited in the sense that they save on electricity costs, the benefit is meaningless to them if they do not get the desired light from the lamp.

Labelling Requirements

According to the IEC, CFLs should have clear and durable markings of such details as the rated voltage, luminous flux, wattage, frequency, the lamp current, name of manufacturer, and special conditions or restrictions to be observed to operate the lamp, etc. None of the brands had all the necessary information on the label. Only ***Yong Hui***, both 11 W and 15 W, gave information on lamp current on its carton. No other brand except ***Gujtron*** and ***Gujlite*** had the light output marked on them. ***Steel-1*** and ***Asaram*** did not mention the rated frequency. ***Lite-On, Cata, Kapsun, Steel-1, Golden Dragon, White Dolphin*** and ***Asaram*** did not mention any special conditions or restrictions on operating the lamp.

Ageing

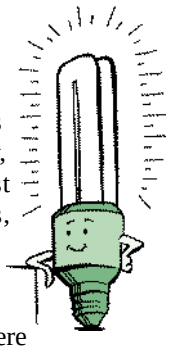
International standards require the lamps to be used for 100 hours before test. This is an ageing period which helps lamps to stabilise before giving their optimum. **Konica** and **Ciff** stopped functioning even before 100 hours.

Another important aspect of labelling information is the language in which it is given. Since the products are sold in India, the language has to be commonly understood. Hence labelling information at least in English/Hindi is absolutely essential for it to have any meaning.

Lamp Life

The lamps tested claimed a life ranging from 3000 to 12000 hours. For testing the life of the lamps, we would have to burn them for a maximum of 12000 hours or 500 days. But two of the lamps failed even before the 100-hour ageing period. The other lamps did not even give 90 per cent of the light that you would expect of them. In view of these major shortcomings, we thought it more important to share the shocking findings with you without delaying the Test Report instead of checking the bulbs for their claimed life.

How they Rate



Our tests reveal that none of the brands was found to be satisfactory, failing not only against international standards, but also against its own claims. However, in view of the much lower cost of foreign-made CFLs, there may be those who would insist on going in for them. Since safety was not an issue, we rated the brands in different categories, based on the following weightages:

Light output 40 %, Wattage 20 %, Efficacy 20 %, Labelling 20 %.

11W : *Yong Hui* fared the best, recording a score of 83.8 per cent.

15W : *Yong Hui* again was the best, scoring 76.4.

18W : *Samson* rated the best with a score of 84.6.

20W : *White Dolphin* fared better (42.2) among the two brands in this category.

23 and 28W : *Glomore* (54.6) and ***Hua Cheng*** (52.8) respectively were the lone brands in their segments and hence were not ranked.

Price vs. Quality

Samson performed the best though it was also the most expensive at Rs.250. ***Ciff*** and ***Asaram,*** both priced the least at Rs. 40 were the poorest performers. However, this trend was not a uniform one. For instance, ***Konica*** (Rs.110) and ***Hua Cheng*** (Rs.140) were rated lower in performance than ***Yong Hui*** - 11 W and 15 W (Rs.95) and ***Lite-On*** (Rs.44).

Areas of Action

Dumping of foreign goods at throw-away prices on the Indian market in the name of liberalisation affects Indian interests in many ways. It affects consumers, Indian business and the utilities. We intend to take up the issue with regulatory authorities to check the entry of foreign-made products into the Indian market. Where and when they are allowed permission, they should conform to stringent quality regulations. Periodic checking of brands should be conducted to ensure the continued conformity to quality.