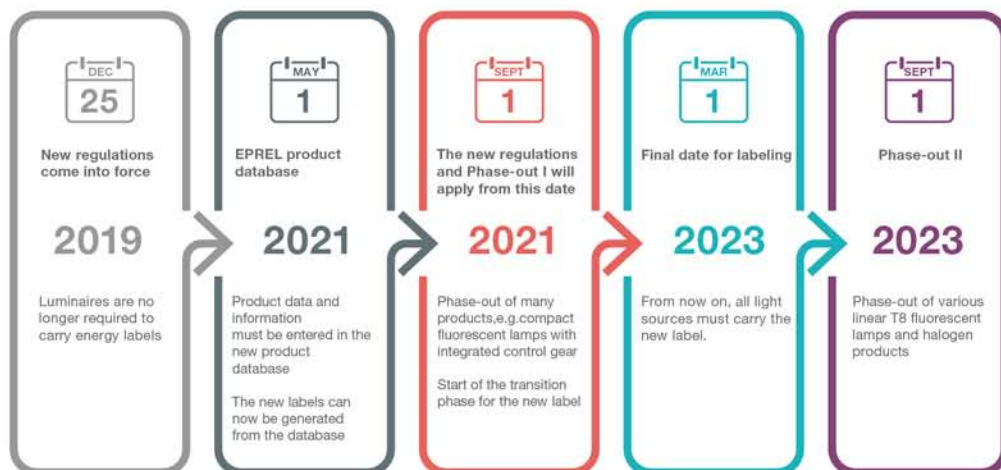




Implementation time



INSTRUCTION UPDATE



NEW ERP REGULATION

| Old | New |
|-------------------|-----------------------|
| (EC) No 244/2009 | (EU) No 2019/2020 |
| (EC) No 245/2009 | Commission Regulation |
| (EU) No 1149/2012 | |

ENERGY LABELING REGULATION

| Old | New |
|------------------|----------------------------|
| (EU) No 874/2012 | (EU) No 2019/2015 |
| | Energy Labeling Regulation |

NEW AND BASED ON BOTH NEW REGULATIONS:

European Product Registry for Energy Labeling

Commission Regulation

(EU)No 2019/2020

SCOPE OF APPLICATION



LIGHT SOURCE

1



CONTAINING PRODUCT

2



CONTROL GEAR

3



LIGHT SOURCE?

A light source as defined in the new regulations is an electrically operated product intended to emit light in the daylight to warm white spectrum. This may be a lamp, a module or a luminaire with fully integrated components. In terms of photometrics, light sources have a lumen output of < 500 lm/mm², a luminous flux of 60 to 82,000 lumens, a color rendering index CRI > 0 and defined chromaticity coordinates.



CONTAINING PRODUCT

A “containing products” is a product containing one or more light sources, or separate control gears, or both. It must be possible for the light source to be removed without permanent damage using commonly available tools.

If removal of a light source is not possible without permanent damage, the product is to be considered as a light source – and subject to the ERP regulations

SEPARATE CONTROL GEARS



In the EU regulations, separate control gears are ballasts (CCG/ECG) that are not integrated into a light source. They too must meet certain minimum energy efficiency requirements

1 LIGHT SOURCES:

ENERGY EFFICIENCY REQUIREMENTS

Requirement:

$$P_{on} \leq P_{onmax}$$

P_{on} : Declared power P_{onmax} : Maximum allowed power

$$P_{onmax} = C \cdot (L + \Phi_{use} / (F \cdot \eta)) \cdot R$$

HERE IS AN OVERVIEW OF ALL THE VARIABLES:

- P_{on} = Power (W) of the light source (Manufacturer's data)
- P_{onmax} = Maximum allowed power of the light source (calculated value)
- C = Correction factor (as per regulation)
- L = End loss factor (as per regulation)
- Φ_{use} = Useful luminous flux (lm) of the light source (manufacturer's data)
- F = Efficacy factor: 1.00 for non-directional light sources, 0.85 for directional light sources (as per regulation)
- η = Threshold efficacy (lm/W; as per regulation)
- R = CRI factor: for CRI \leq 25: R = 0.65, for CRI > 25: R = (CRI + 80)/160 (as per regulation)

EXAMPLES OF PERMITTED LIGHT SOURCES

| Old A60 | | | New A60 | | |
|---------|-------|----|---------|-------|---|
| 9W | 806lm | A+ | 8.5W | 806lm | G |

2 CONTAINING PRODUCTS:

REMOVING AND REPLACING LIGHT SOURCES AND CONTROL GEARS

Manufacturers, importers and their authorized representatives are now required to ensure that light sources and separate control gears can be removed and replaced using commonly available tools and without permanent damage to the light source. If this is not possible, the product (e.g. a fully integrated luminaire) is regarded as a light source.

THIS RESULTS IN THREE PRODUCT DESIGN CATEGORIES:

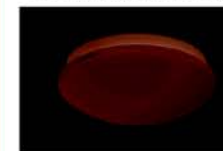
Light sources and control gears can be removed and replaced.



These products comply with the concept of the circular economy.

Containing product

Light sources and control gears can be removed for verification but not replaced.



Containing product

Light sources and control gears cannot be removed or replaced.



Light source

3 SEPARATE CONTROL GEARS:

ENERGY EFFICIENCY AT FULL LOAD AND IN STANDBY MODE

Control gear for LED or OLED light sources

$$P_{cg} \leq 0,81 / (1,09 * P_{cg} + 2,10)$$

STANDBY MODE: MAX. 0.5 W

Power consumption in no-load mode, standby mode and networked standby mode are also included in the regulation. In all three cases, it must exceed 0.5 W.



Commission Delegated Regulation (EU) No 2019/2015

According to the new Energy Label Regulation (ELR), each light source is required to be listed in the EPREL database from September 1, 2021. That's where it will be classified following ecological and sustainable criteria, among others. Depending on their energy efficiency class, new products will then be given a label in line with current guidelines. Existing products will receive a new, updated label.

$$\eta_{TM} = (\phi_{use} / P_{on}) \times F_{TM} \text{ (lm/W)}$$

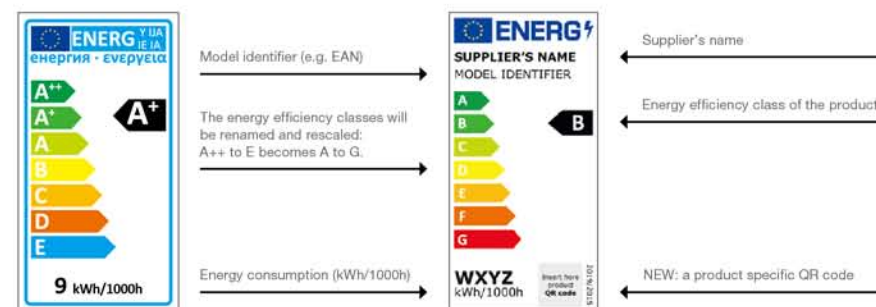
| Physical variable | Symbol | Unit |
|------------------------------------|--------------|--------------------|
| Total mains efficacy | η_{TM} | Lumens/watt (lm/W) |
| Useful luminous flux | Φ_{use} | Lumens (lm) |
| Declared on-mode power consumption | P_{on} | Watts (W) |
| Total mains factor | F_{TM} | (No unit) |

TOTAL MAINS FACTOR/EFFICACY FACTOR

| Light source type | Factor F_{TM} |
|-------------------------------------------------------|-----------------|
| Non-directional (NDLS), operating on mains (MLS) | 1.000 |
| Non-directional (NDLS), not operating on mains (NMLS) | 0.926 |
| Directional (DLS), operating on mains (MLS) | 1.176 |
| Directional (DLS), not operating on mains (NMLS) | 1.089 |

RESCALING OF THE ENERGY EFFICIENCY CLASSES WITH REGARD TO TOTAL MAINS EFFICACY

| Total mains efficacy η_{TM} (lm/W) | Energy efficiency class |
|-----------------------------------------|-------------------------|
| $210 \leq \eta_{TM}$ | A |
| $185 \leq \eta_{TM} < 210$ | B |
| $160 \leq \eta_{TM} < 185$ | C |
| $135 \leq \eta_{TM} < 160$ | D |
| $110 \leq \eta_{TM} < 135$ | E |
| $85 \leq \eta_{TM} < 110$ | F |
| $\eta_{TM} < 85$ | G |



PLACEMENT ON THE PACKAGING

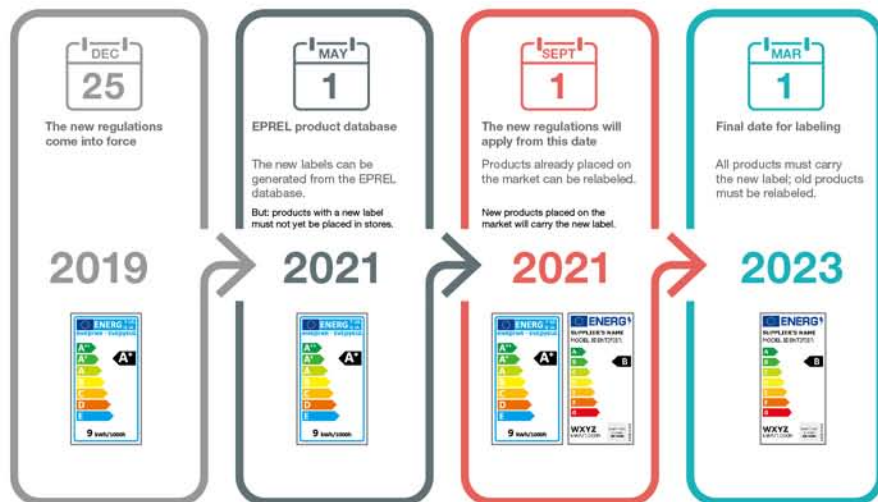
The front of the packaging shows the shortened form of the label including the product's energy efficiency class. The complete label is shown on one of the packaging sides.



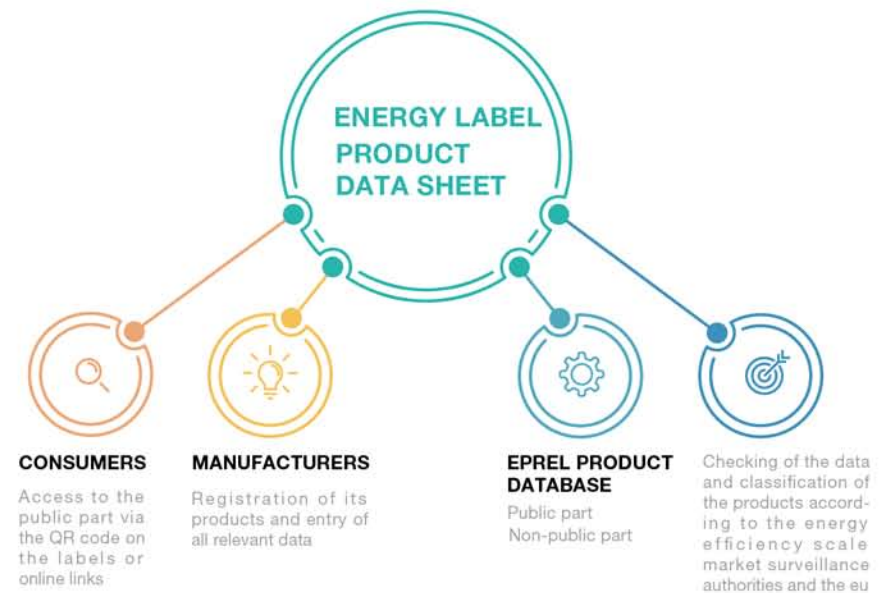
Shortened version of the new EU label for the front packaging



TIMELINE: NEW ENERGY LABEL



ALL THE INFORMATION IN ONE PLACE:





NEW ERP
Duramax LED



Duramax LED GLS

E27 220-240V

Duramax LED GLS

5 W 470 lm DF>0.5

- 1900002 3000 K
- 1900003 4000 K
- 1900004 6400 K



60x106

E27 220-240V

Duramax LED GLS

8.5 W 806 lm DF>0.5

- 1900012 3000 K
- 1900023 4000 K
- 1900034 6400 K



60x108

E27 220-240V

Duramax LED GLS

10 W 1055 lm DF>0.7

- 1900022 3000 K
- 1900023 4000 K
- 1900024 6400 K



60x110

E27 220-240V

Duramax LED GLS

12 W 1260lm DF>0.7

- 1901712 3000 K
- 1901713 4000 K
- 1901714 6400 K



60x110

E27 220-240V

Duramax LED GLS

15 W 1521 lm DF>0.7

- 1900032 3000 K
- 1900033 4000 K
- 1900034 6400 K



65x127

E27 220-240V

Duramax LED GLS

18 W 1850 lm DF>0.7

- 1901452 3000 K
- 1901453 4000 K
- 1901454 6400 K



70x138



Duramax LED GLS Dimmable

E27 Dimmable 220-240V

Duramax LED GLS

5 W 470 lm DF>0.5

1900042 3000 K
1900043 4000 K
1900044 6400 K



60x108

E27 Dimmable 220-240V

Duramax LED GLS

8.5 W 806 lm DF>0.5

1900052 3000 K
1900053 4000 K
1900054 6400 K



60x108

E27 Dimmable 220-240V

Duramax LED GLS

10 W 1055 lm DF>0.7

1900062 3000 K
1900063 4000 K
1900064 6400 K



60x110

E27 Dimmable 220-240V

Duramax LED GLS

15 W 1521 lm DF>0.7

1900072 3000 K
1900073 4000 K
1900074 6400 K



60x131



Duramax LED Candle

E14 220-240V

Duramax LED Candle

3 W 250 lm DF>0.5

1900082 3000 K
1900083 4000 K
1900084 6400 K



37x98

E14 220-240V

Duramax LED Candle

5 W 470 lm DF>0.5

1900092 3000 K
1900093 4000 K
1900094 6400 K



37x98

E14 220-240V

Duramax LED Candle

7 W 600 lm DF>0.5

1901462 3000 K
1901463 4000 K
1901464 6400 K



37x98

E14 220-240V

Duramax LED Candle

8 W 806 lm DF>0.5

1901792 3000 K
1901793 4000 K
1901794 6400 K



37x107

E14 Dimmable 220-240V

Duramax LED Candle

3 W 250 lm DF>0.5

1901802 3000 K
1901803 4000 K
1901804 6400 K



37x98

E14 Dimmable 220-240V

Duramax LED Candle

5 W 470 lm DF>0.5

1900102 3000 K
1900103 4000 K
1900104 6400 K



37x98

E14 Dimmable 220-240V

Duramax LED Candle

7 W 600 lm DF>0.5

1901812 3000 K
1901813 4000 K
1901814 6400 K



37x98



Duramax LED Candle Tip



Duramax LED Ball E14

E14 220-240V

Duramax LED Candle Tip

3 W 250 lm DF>0.5

1900112 3000 K
1900113 4000 K
1900114 6400 K



37x131

E14 220-240V

Duramax LED Candle Tip

5 W 470 lm DF>0.5

1900122 3000 K
1900123 4000 K
1900124 6400 K



37x131

E14 220-240V

Duramax LED Ball

3 W 250 lm DF>0.5

1900142 3000 K
1900143 4000 K
1900144 6400 K



45x82

E14 220-240V

Duramax LED Ball

5 W 470 lm DF>0.5

1900152 3000 K
1900153 4000 K
1900154 6400 K



45x82

E14 220-240V

Duramax LED Candle Tip

7 W 600 lm DF>0.5

1901472 3000 K
1901473 4000 K
1901474 6400 K



37x131

E14 220-240V

Duramax LED Candle Tip

8 W 806 lm DF>0.5

1901822 3000 K
1901823 4000 K
1901824 6400 K



37x131

E14 220-240V

Duramax LED Ball

7 W 600 lm DF>0.5

1901482 3000 K
1901483 4000 K
1901484 6400 K



45x82

E14 220-240V

Duramax LED Ball

8 W 806lm DF>0.5

1901852 3000 K
1901853 4000 K
1901854 6400 K



45x82

E14 Dimmable 220-240V

Duramax LED Candle Tip

3 W 250 lm DF>0.5

1901832 3000 K
1901833 4000 K
1901834 6400 K



37x131

E14 Dimmable 220-240V

Duramax LED Candle Tip

5 W 470 lm DF>0.5

1900132 3000 K
1900133 4000 K
1900134 6400 K



37x131

E14 Dimmable 220-240V

Duramax LED Ball

3 W 250 lm DF>0.5

1901862 3000 K
1901863 4000 K
1901864 6400 K



45x82

E14 Dimmable 220-240V

Duramax LED Ball

5 W 470 lm DF>0.5

1900162 3000 K
1900163 4000 K
1900164 6400 K



45x82

E14 Dimmable 220-240V

Duramax LED Candle Tip

7 W 600 lm DF>0.5

1901842 3000 K
1901843 4000 K
1901844 6400 K



37x131

E14 Dimmable 220-240V

Duramax LED Ball

7 W 600 lm DF>0.5

1901872 3000 K
1901873 4000 K
1901874 6400 K



45x82



Duramax LED Ball E27

E27 220-240V
Duramax LED Ball
 3 W 250 lm DF>0.5
 1900172 3000 K
 1900173 4000 K
 1900174 6400 K

G



45x74

E27 220-240V
Duramax LED Ball
 5 W 470 lm DF>0.5
 1900182 3000 K
 1900183 4000 K
 1900184 6400 K

F



45x74

E27 220-240V
Duramax LED Ball
 7 W 600 lm DF>0.5
 1901492 3000 K
 1901493 4000 K
 1901494 6400 K

F



45x74

E27 220-240V
Duramax LED Ball
 8 W 806lm DF>0.5
 1901882 3000 K
 1901883 4000 K
 1901884 6400 K

F



45x74

E27 Dimmable 220-240V
Duramax LED Ball
 3 W 250 lm DF>0.5
 1901892 3000 K
 1901893 4000 K
 1901894 6400 K

G



45x74

E27 Dimmable 220-240V
Duramax LED Ball
 5 W 470 lm DF>0.5
 1900192 3000 K
 1900193 4000 K
 1900194 6400 K

F



45x74

E27 Dimmable 220-240V
Duramax LED Ball
 7 W 600 lm DF>0.5
 1901902 3000 K
 1901903 4000 K
 1901904 6400 K

F



45x74



Duramax LED GU10 36°

GU10 220-240V
Duramax LED GU10
 5 W 350 lm DF>0.5
 1900202 3000 K
 1900203 4000 K
 1900204 6400 K

G



50x55

GU10 220-240V
Duramax LED GU10
 6 W 450 lm DF>0.5
 1900212 3000 K
 1900213 4000 K
 1900214 6400 K

G



50x55

GU10 220-240V
Duramax LED GU10
 7 W 550 lm DF>0.5
 1901592 3000 K
 1901593 4000 K
 1901594 6400 K

G



50x55

GU10 Dimmable 220-240V
Duramax LED GU10
 5 W 350 lm DF>0.5
 1900222 3000 K
 1900223 4000 K
 1900224 6400 K

G



50x55

GU10 Dimmable 220-240V
Duramax LED GU10
 6 W 450 lm DF>0.5
 1901912 3000 K
 1901913 4000 K
 1901914 6400 K

G



50x55

GU10 Dimmable 220-240V
Duramax LED GU10
 7 W 550 lm DF>0.5
 1900232 3000 K
 1900233 4000 K
 1900234 6400 K

G



50x55



Duramax LED GU10 100°



Duramax LED MR16

GU10 220-240V

Duramax LED GU10

5 W 350 lm DF>0.5

- 1900242 3000 K
- 1900243 4000 K
- 1900244 6400 K



50x55

GU10 220-240V

Duramax LED GU10

6 W 450 lm DF>0.5

- 1900252 3000 K
- 1900253 4000 K
- 1900254 6400 K



50x55

GU10 220-240V

Duramax LED GU10

7 W 550 lm DF>0.5

- 1901612 3000 K
- 1901613 4000 K
- 1901614 6400 K



50x55

GU10 Dimmable 220-240V

Duramax LED GU10

5 W 350 lm DF>0.5

- 1900262 3000 K
- 1900263 4000 K
- 1900264 6400 K



50x55

GU10 Dimmable 220-240V

Duramax LED GU10

6 W 450 lm DF>0.5

- 1901922 3000 K
- 1901923 4000 K
- 1901924 6400 K



50x55

GU10 Dimmable 220-240V

Duramax LED GU10

7 W 550 lm DF>0.5

- 1900272 3000 K
- 1900273 4000 K
- 1900274 6400 K



50x55

GU5.3 12V 36°

Duramax LED MR16

4 W 330 lm DF>0.5

- 1900282 3000 K
- 1900283 4000 K
- 1900284 6400 K



50x50

GU5.3 12V 36°

Duramax LED MR16

6 W 470 lm DF>0.5

- 1900292 3000 K
- 1900293 4000 K
- 1900294 6400 K



50x50

GU5.3 12V 100°

Duramax LED MR16

4 W 330 lm DF>0.5

- 1900302 3000 K
- 1900303 4000 K
- 1900304 6400 K



50x50

GU5.3 12V 100°

Duramax LED MR16

6 W 470lm DF>0.5

- 1900312 3000 K
- 1900313 4000 K
- 1900314 6400 K



50x50



Duramax LED **Globe**



General LED **R50/R63/R80**

E27 220-240V
Duramax LED D95
 10W 1055 lm DF>0.7
 1900322 3000 K
 1900323 4000 K
 1900324 6400 K



E27 220-240V
Duramax LED D95
 15W 1521 lm DF>0.7
 1900332 3000 K
 1900333 4000 K
 1900334 6400 K



E14 220-240V
Duramax LED R50
 6W 500 lm PF>0.5
 1901542 3000 K
 1901543 4000 K
 1901544 6400 K



E27 220-240V
Duramax LED R63
 8.5W 806 lm PF>0.5
 1901552 3000 K
 1901553 4000 K
 1901554 6400 K



E27 220-240V
Duramax LED D120
 15W 1521lm DF>0.7
 1900342 3000 K
 1900343 4000 K
 1900344 6400 K



E27 220-240V
Duramax LED D120
 18W 1850 lm DF>0.7
 1900352 3000 K
 1900353 4000 K
 1900354 6400 K



E27 220-240V
Duramax LED R80
 10W 1055lm PF>0.5
 1901562 3000 K
 1901563 4000 K
 1901564 6400 K



E27 220-240V
Duramax LED R80
 15W 1521lm PF>0.5
 1901572 3000 K
 1901573 4000 K
 1901574 6400 K

