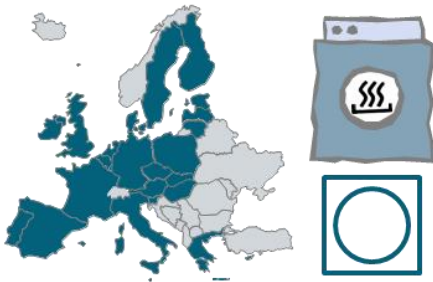
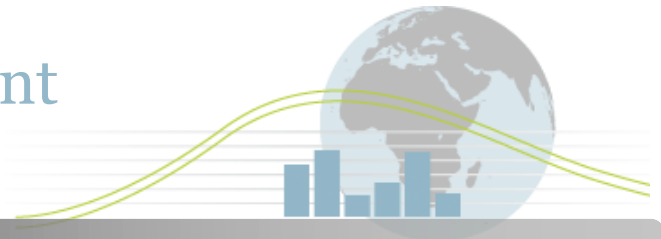


4E

Mapping Document



Country: Europe

Technology: Laundry Dryers

Sub Category: Vented and condenser electric models

Introduction

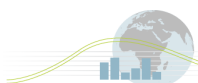
The first stage in the Mapping and Benchmarking process is the definition of the products, i.e. clearly setting the boundaries that define the products for use in data collection and analysis. Doing this ensures that comparison between the participating countries is done against a specific and consistent set of products.

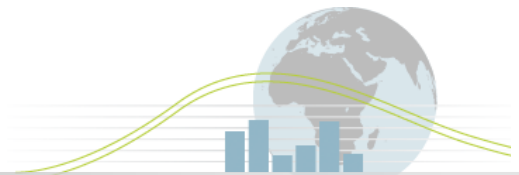
The summary definition for this product is:

<p>Laundry Dryers defined as: <i>'An energy using appliance for use in households designed to remove the moisture of a (given) load of clothing or other textiles.'</i></p>			
<p>Data will be analysed for the following types of laundry dryer:</p>			
Laundry Dryers	Heat source	Electrical	
	Mode of drying	Tumble dryer	
	Air usage	Vented (fresh air is heated, passed through textiles and exhausted from the appliance)	Condenser (noting whether air condenser, or heat pump condenser) (air used for the drying process is dehumidified by cooling and re-circulated)
Functionality	Layout	Noted whether top loader or front loader.	
	Capacity (dry load)	Less than 10 kg. Full analysis only for appliances with capacity between 4 kg and 10 kg.	
	Wash capability	Washer dryers are excluded from the analysis.	
	Automation	To be noted whether the appliance has moisture sensor, load sensor or just timer /manual control.	

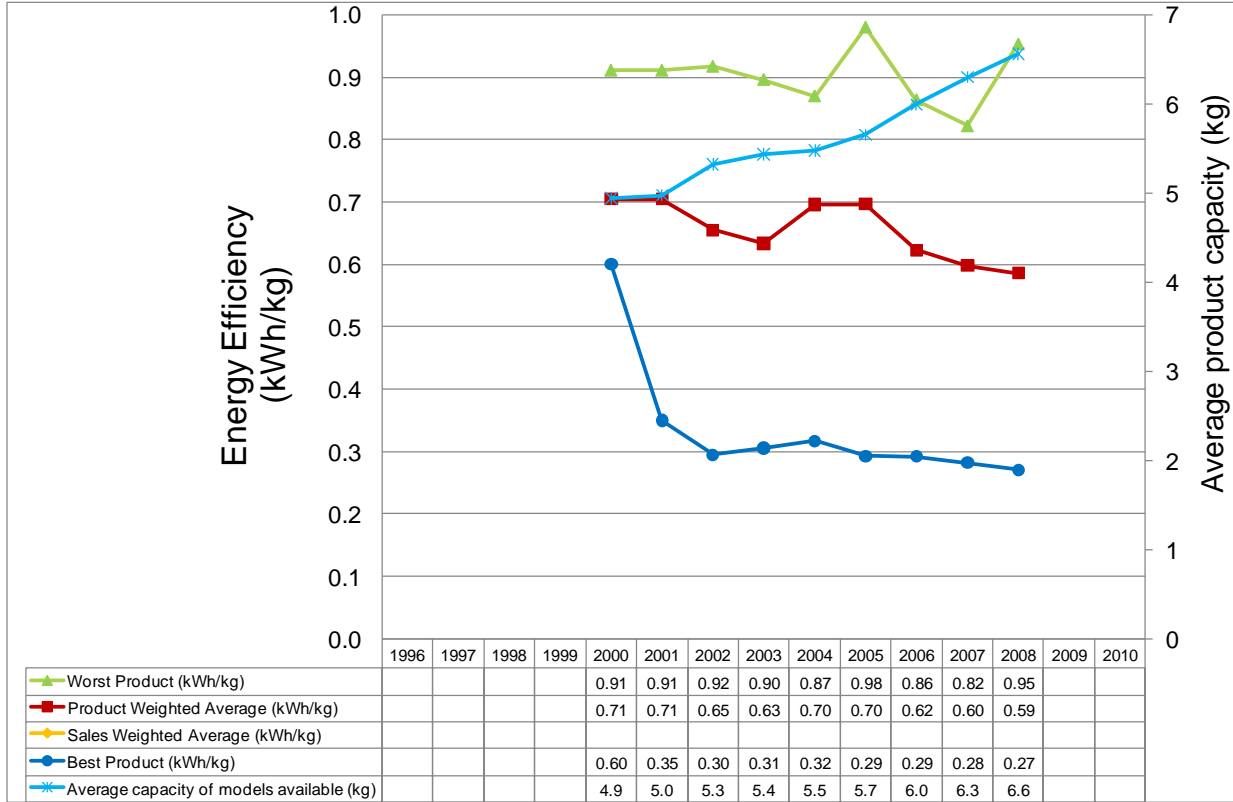
The detailed product definitions can be found at the Annex website:

<http://mappingandbenchmarking.iea-4e.org/matrix>



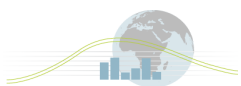


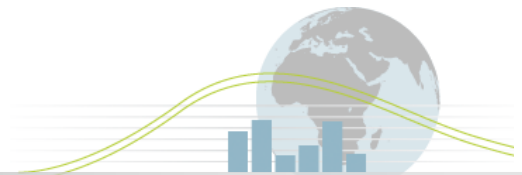
Energy Efficiency of New Laundry Dryers Europe



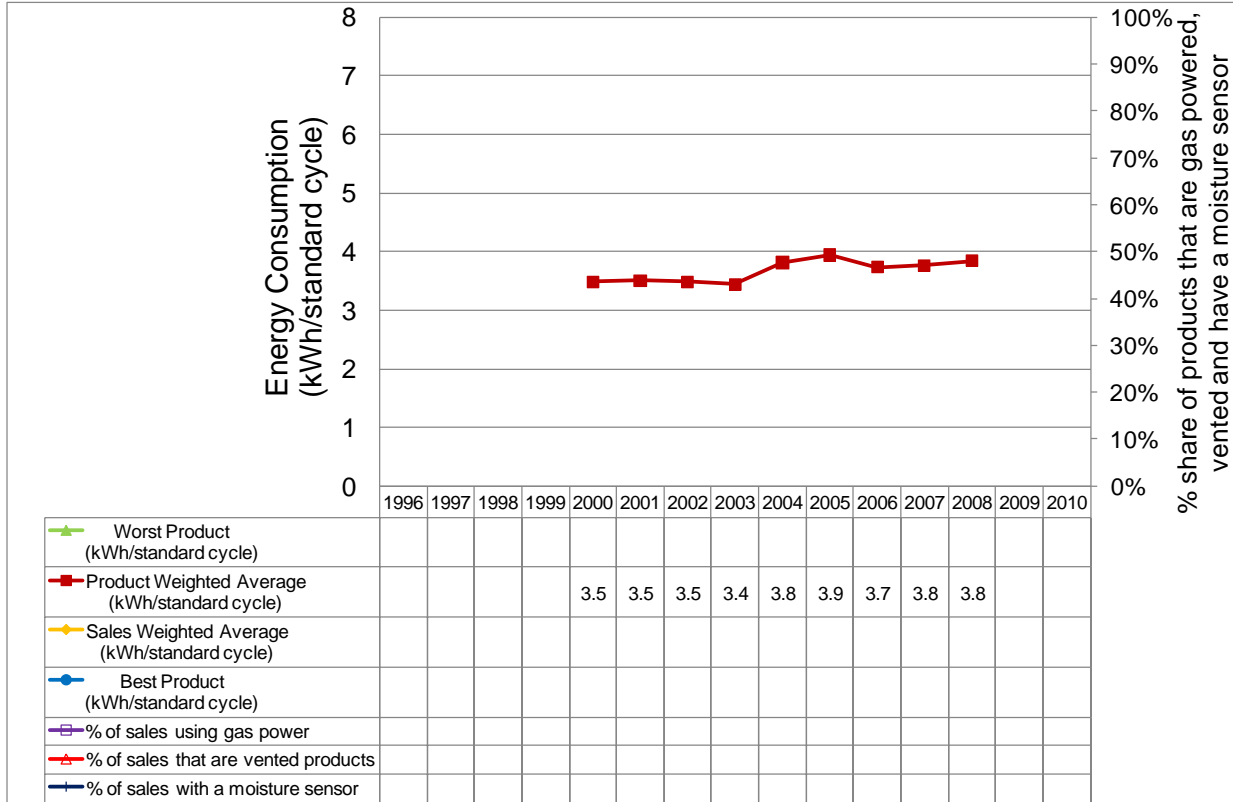
Key notes on Graph (see notes section 1)

- All data supplied by the European Committee of Domestic Equipment Manufacturers (CECED) covering more than 85% of the European market.
- Data points for 2002 and 2003 are interpolated.



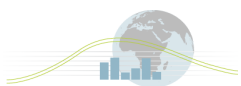


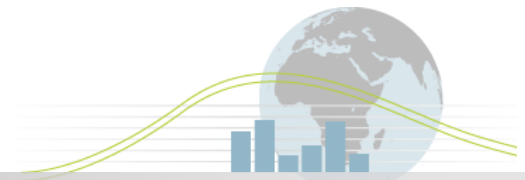
Energy Consumption of New Laundry Dryers Europe



Key notes on Graph (see notes section 2)

- All data supplied by the European Committee of Domestic Equipment Manufacturers (CECED) covering more than 85% of the European market.
- Data points for 2002 and 2003 are interpolated.



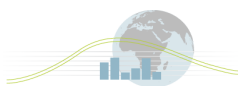


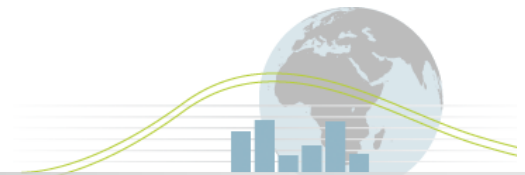
Energy Efficiency in the Installed Laundry Dryers Stock Europe

No data on the efficiency of units installed in the stock was made available to the Annex at the time of publication.

The European Commission has estimated that the installed stock of electric dryers in the EU was almost 57 million units in 2005¹.

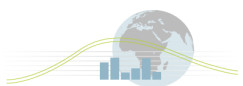
¹ Correspondence with Hans Paul Siderius, 7 December 2010.





Energy Consumption in the Installed Laundry Dryers Stock Europe

No data on the Consumption of units installed in the stock was made available to the Annex at the time of publication.



Major Policy Interventions (See notes Section 5)

There is one directly relevant regional policy:

1. EU energy labels for electrically heated laundry dryers were established in 1996², allocating a label A to G based on drying a cotton load sized to the maximum capacity of the appliance. The label class thresholds are different for vented and condensing dryers, with condensing dryers allowed to consume slightly more energy within each label class (see section 5 Notes on Policy Interventions for further information). Changes were made to the test methodology for tumble dryers that underpins the EU label scheme in 2005, reducing the starting moisture content and adjusting the ambient temperature and humidity. In order to ensure that products did not shift classes as a result of these changes, the calculation of the efficiency index C was adjusted to compensate. There are no EU energy label requirements for gas tumble dryers.

There have been no EU regulatory minimum standards nor an EU ecolabel category for laundry dryers in Europe up to time of publication in December 2010.

However, a new EU ecodesign regulation and a revised EU energy label for laundry dryers are expected during early 2011, following a three year ecodesign study³ and policy consultation process. It is not yet decided whether or not the new ecodesign regulation will include MEPS. The new energy label will include additional energy classes A+, A++ and A+++ above the existing classes.

² Under Commission Directive 95/13/EC of 23 May 1996.

³ See <http://www.ecodryers.org/>.

Cultural Issues (See Notes Section 6)

Around 34% of European homes had laundry dryers in 2005 and condensing dryers accounted for 60% of European sales in 2007⁴. Heat pump dryer sales remain very low as an average across Europe, but have risen significantly in Switzerland and Austria since 2007 reaching around 25% of sales in 2009. The trend is towards an increase in the number of functionalities available to consumers.

A survey carried out as part of the EU ecodesign preparatory study³ investigated the criteria consumers use for their buying decision. The results largely coincided with those from a similar manufacturer survey: the main aspects taken into account by consumers are the purchase price (which 60% of respondents considered as of high importance), the estimated running costs (48% considered high), some environmental aspects and particularly the energy consumption (45% high) and a longer lifetime (42% high).

⁴ Price Waterhouse Cooper (PWC), 2009, Ecodesign of Laundry Dryers Preparatory studies for Ecodesign requirements of Energy-using-Products (EuP) – Lot 16, Final Report March 2009, available from www.ecodryers.org.

Notes on data

Section 1: Notes on Product Efficiency

1.1 Test methodologies, Performance Standards and Labelling Requirements

Laundry dryers in Europe are tested to EN61121 as amended in 2005. This test methodology is also the basis of EU energy labelling for laundry dryers. The key elements of the test methodology including those that impact on energy consumption are summarised in the table below:

Test methodology	IEC61121:2005
Capacity metric	Kg dry weight of load
Ambient temperature for test	23°C±2°C
Ambient relative humidity for test	55%
Test cloths	All 100% Cotton
Load during test	Rated capacity
Initial moisture content	60% remaining moisture content (=67% of bone dry)
Final moisture content	7% ± 3.2% of bone dry
Metric for efficiency arising from local test	kWh/cycle and kWh/kg

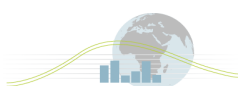
Significant changes were made to test methodology in 2005 that affect the energy consumption and efficiency data derived from it:

- The initial moisture content was changed to 60% (previously 70%)
- The ambient test temperature was changed to 23°C (previously 20°C)
- The ambient humidity was changed to 55% (previously 65%)

The calculation of the energy consumption figure (which is used to calculate the applicable EU energy label) in the test standard was modified, however, at the same time to compensate for the energy advantage gained by vented dryers due to the increased temperature and reduced humidity of the air they draw in from the test room. This compensation also means that labels earned after 2005 should be directly comparable to those earned afterwards. In this analysis therefore, data based on EU energy label or energy efficiency index should be continuously comparable. In contrast, kWh/cycle data as declared on the energy label, and kWh/kg efficiency data derived from the test methodology will not be comparable before and after 2005 without normalisation.

The EU energy label requires an A to G classification, declaration of kWh per cycle and classification as vented or condensing. A declaration of noise performance is optional.

1.2 Product Efficiency Graphic



1.2.1 Data Source:

All data supplied by the European Committee of Domestic Equipment Manufacturers (CECED). Models included account for more than 85% of those available on the European market.

1.2.2 Data Clarifications

As the data for this analysis has been provided from a third-party source the limitations of the data set are unknown.

1.2.3 Glossary of energy metrics for laundry dryers:

The key metrics for laundry dryers and the key calculations undertaken in the wider Annex analysis are described below. Some metrics and/or calculations are not relevant to all data sets due to absence of data or for other reasons.

Declared Unit Load Capacity: Unit load capacity in kg is defined by local regulations and declared by manufacturers Unit kg).

(Note: This capacity is defined using the mixture of materials defined in the local regulations which is not necessarily in line with the mixture of material used elsewhere (for local load mix, refer to Section 1.1 on “Notes on Data”).

Unit Energy Consumption (UEC): Unit Energy Consumption is the energy consumed by the unit to complete one drying cycle as defined by local test conditions (Unit: kWh/cycle).

Sales Weighted UEC of New Models: Value calculated by [Sum of (UEC multiplied by sales volume of Model in year) for all Models] divided by [Sum of (sales volume of all Models in year)]. (Unit: kWh/cycle).

Product Weighted UEC of New Models: Value calculated by [Sum of (Model UEC for all models sold in year)] divided by [Sum of (Number of Models sold in year)]. (Unit: kWh/cycle).

Unit Energy Efficiency (UEE): Value calculated by dividing UEC by Declared Unit Load Capacity (kWh/Kg/cycle).

Sales Weighted UEE of New Models: Value calculated by [Sum of (UEE multiplied by sales volume of Model in year) for all Models] divided by [Sum of sales volume of all Models in year]. Unit kWh/kg/cycle.

Product Weighted UEE of New Models: Value calculated by [Sum of UEE for all models sold in year] divided by [Number of Models sold in year]. (Unit kWh/Kg/cycle).

Section 2: Notes on Product Consumption

2.1 Test methodologies, Performance Standards and Labelling Requirements

No further information available.

2.2 Product Consumption Graphic

No further information available.

Section 3: Notes on Efficiency of Stock

No further information available.

Section 4: Notes on Consumption of Stock

No further information available.

Section 5: Notes on Policy Interventions

5.1 Requirements of Commission Directive 95/13/EC with regard to energy labelling of household electric tumble dryers of 23 May 1995.

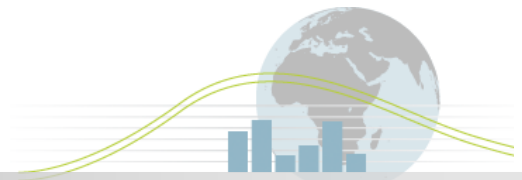
A new EU energy labelling regulation for electric tumble dryers is expected in early 2011, but this section describes the current requirements. The energy efficiency of each appliance is based on the specific energy consumption (C) in kWh per kg of load measured for a dry cotton cycle according to the conditions and test methodology described in Notes section 1.1.

For air **vented driers**, the energy efficiency class is determined in accordance with the following table:

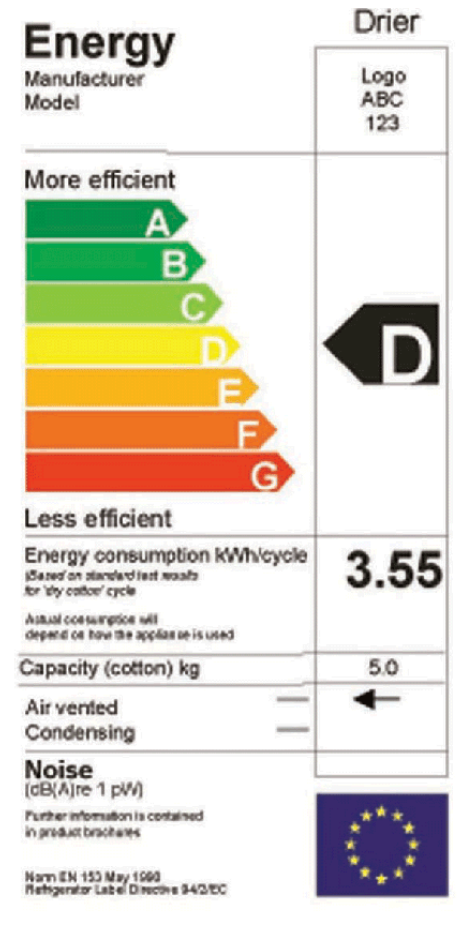
Energy efficiency class	Energy consumption C
A	$C \leq 0.51$
B	$0.51 < C \leq 0.59$
C	$0.59 < C \leq 0.67$
D	$0.67 < C \leq 0.75$
E	$0.75 < C \leq 0.83$
F	$0.83 < C \leq 0.91$
G	$C > 0.91$

For **condenser driers**, the energy efficiency class is determined in accordance with the following table:

Energy efficiency class	Energy consumption C
A	$C \leq 0.55$
B	$0.55 < C \leq 0.64$
C	$0.64 < C \leq 0.73$
D	$0.73 < C \leq 0.82$
E	$0.82 < C \leq 0.91$
F	$0.91 < C \leq 1.00$
G	$C > 1.00$



The label itself is shown below⁵



Section 6: Notes on Cultural Issues

None.

⁵ Source from: http://www.clasponline.org/clasp_online_worldwide.php?programinfo=54

