

# 4E

## Mapping Document



Country: European Union

Technology: Washing Machines

Sub Category: Domestic top and front loaders

### Introduction

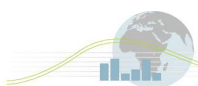
The first stage in the Mapping and Benchmarking process is the definition of the products, i.e. clearly setting the boundaries that define the products for use in data collection and analysis. Doing this ensures that comparison between the participating countries is done against a specific and consistent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

The summary definition for this product is:

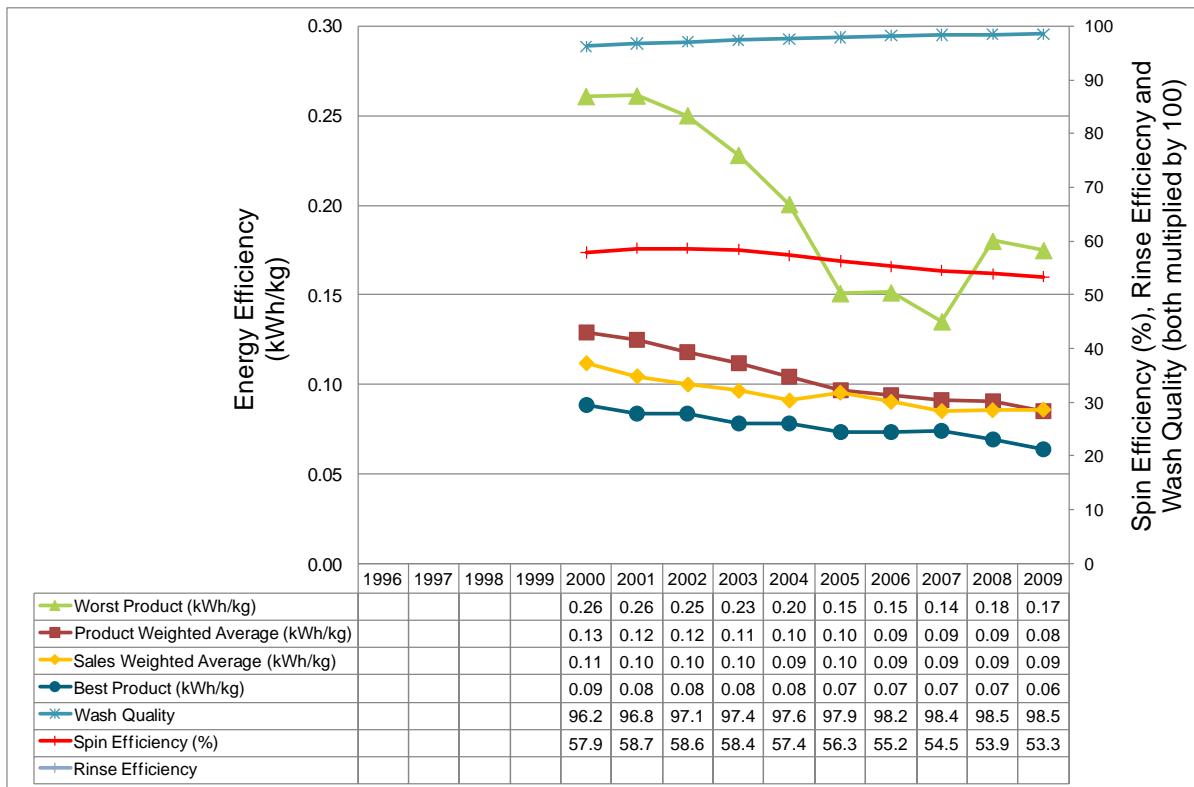
<p>Washing machines, defined as:  <i>'An appliance for cleaning and rinsing of textiles using water which is principally designed for use within a domestic environment. The appliance may draw water from a cold and/or hot water supply and may also have a means of extracting excess water from the textiles.'</i></p> <p>Data will be analysed for the following types of washing machine :</p>		
Technology	User intervention	All Types - Automatic, semi-automatic and manual
	Orientation	All Types - Horizontal (front loaders) and Vertical Plane (top loader)
	Configuration	All Types - Drum, Impeller, Agitator, Nutators Exclude all types of Washer/Dryer
	Coin/Card Operation	All Types
	Water intake	All Types - Hot fill/cold fill
	Spin Speed	All Speeds
Other variables	Capacity	Consider only units between 1kg - 13kg

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

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

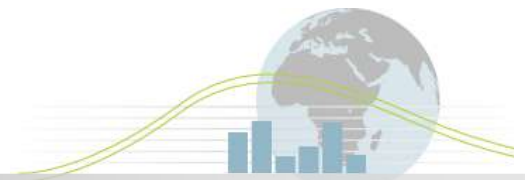


## Energy Efficiency of New Washing Machines in the EU

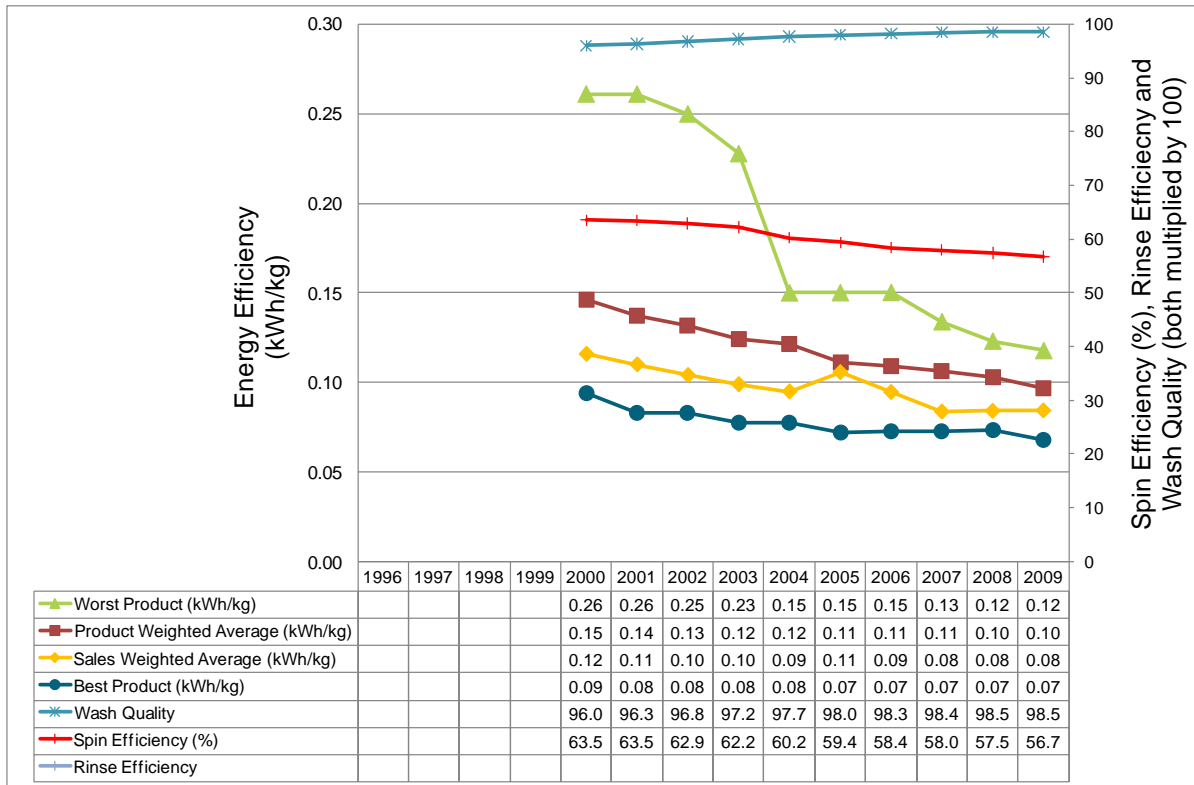


### Key notes on Graph (see notes section 1)

- Front loaders accounted for 79% of all sales in 2000 rising to 85% in 2009.
- Aggregated data table supplied by GfK based on:
  - Information covering Austria, Belgium, Germany, Spain, France, UK, Italy, Netherlands, Portugal, Sweden, Czech Republic, Hungary, Poland, Slovakia only (i.e. not all the EU), for Fully Automatic Washing Machines for the years 2000-2009.
  - Data is reported to cover approximately 65% of total sales in specified countries in 2000, but by 2009 coverage is reported to be in excess of 90% of specified market.
- Data supplied is restricted to products with greater than 0.1% share of the sales. As such:
  - Best and worst product may not represent the absolute best and worse products on the market, i.e. there could be some models with marginal sales, but with some better or worse consumption/efficiency values.
- Wash quality and spin efficiency data was provided by label classification and therefore an assumption has been made that the actual rating of a typical machine is the mid-point of each label classification.
- Furthermore, wash quality results have been multiplied by 100 to allow better visibility on the graphic. Actual wash quality values are within in a scale from 0 – 1.1.



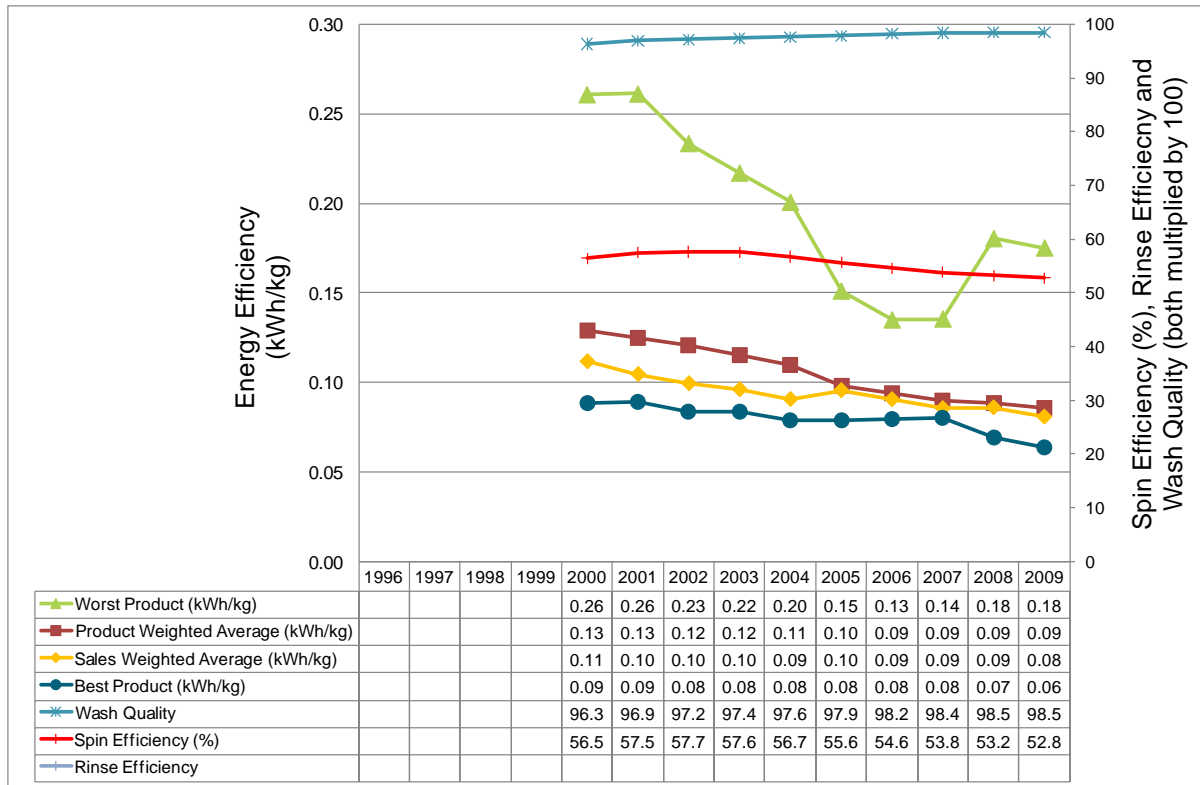
## Energy Efficiency of New Top Loader Washing Machines in the EU



### Key notes on Graph (see notes section 1)

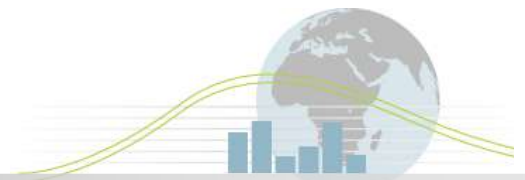
- Aggregated data table supplied by GfK based on:
  - Information covering Austria, Belgium, Germany, Spain, France, UK, Italy, Netherlands, Portugal, Sweden, Czech Republic, Hungary, Poland, Slovakia only (i.e. not all the EU), for Fully Automatic Washing Machines for the years 2000-2009.
  - Data is reported to cover approximately 65% of total sales in specified countries in 2000, but by 2009 coverage is reported to be in excess of 90% of specified market.
- Data supplied is restricted to products with greater than 0.1% share of the sales. As such:
  - Best and worst product may not represent the absolute best and worse products on the market, i.e. there could be some models with marginal sales, but with some better or worse consumption/efficiency values.
- Wash quality and spin efficiency data was provided by label classification and therefore an assumption has been made that the actual rating of a typical machine is the mid-point of each label classification.
- Furthermore, wash quality results have been multiplied by 100 to allow better visibility on the graphic. Actual wash quality values are within in a scale from 0 – 1.1.
- Top Loaders account for only 21% of all sales in 2000 falling to 15% in 2009.

## Energy Efficiency of New Front Loader Washing Machines in the EU

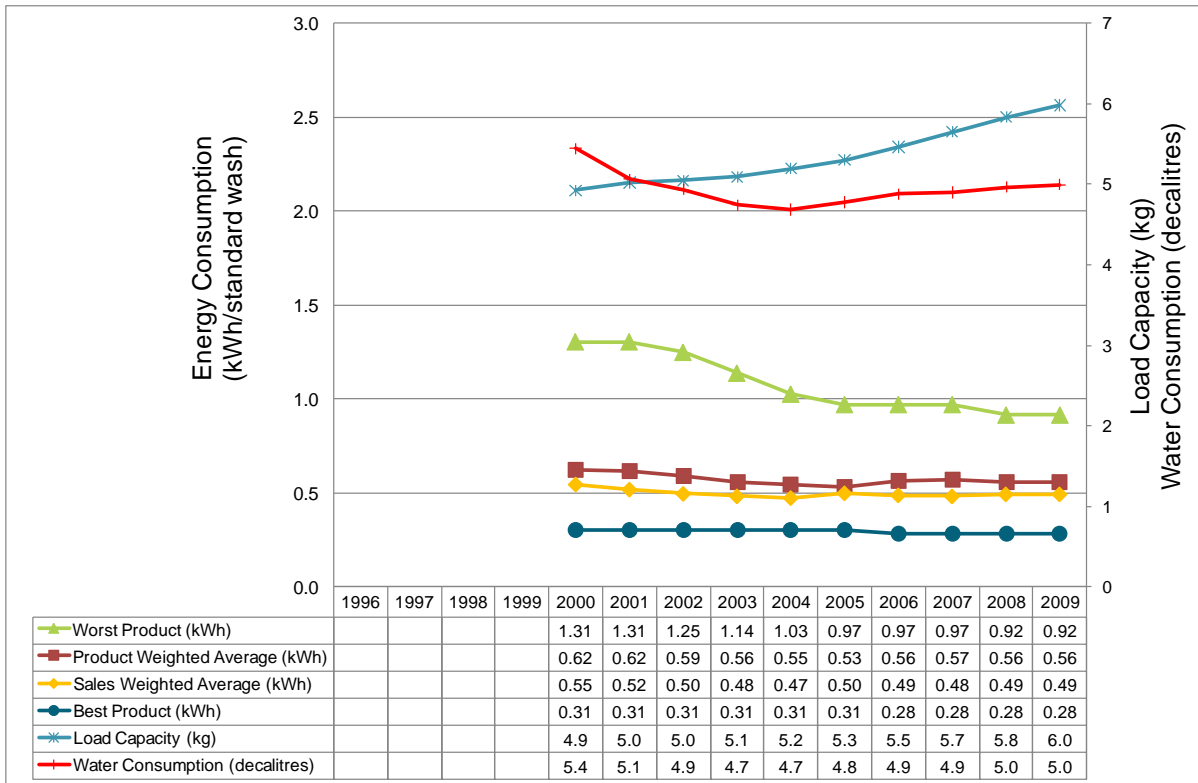


### Key notes on Graph (see notes section 1)

- Aggregated data table supplied by GfK based on:
  - Information covering Austria, Belgium, Germany, Spain, France, UK, Italy, Netherlands, Portugal, Sweden, Czech Republic, Hungary, Poland, Slovakia only (i.e. not all the EU), for Fully Automatic Washing Machines for the years 2000-2009.
  - Data is reported to cover approximately 65% of total sales in specified countries in 2000, but by 2009 coverage is reported to be in excess of 90% of specified market.
- Data supplied is restricted to products with greater than 0.1% share of the sales. As such:
  - Best and worst product may not represent the absolute best and worse products on the market, i.e. there could be some models with marginal sales, but with some better or worse consumption/efficiency values.
- Wash quality and spin efficiency data was provided by label classification and therefore an assumption has been made that the actual rating of a typical machine is the mid-point of each label classification.
- Furthermore, wash quality results have been multiplied by 100 to allow better visibility on the graphic. Actual wash quality values are within in a scale from 0 – 1.1.
- Front loaders accounted for 79% of all sales in 2000 rising to 85% in 2009.



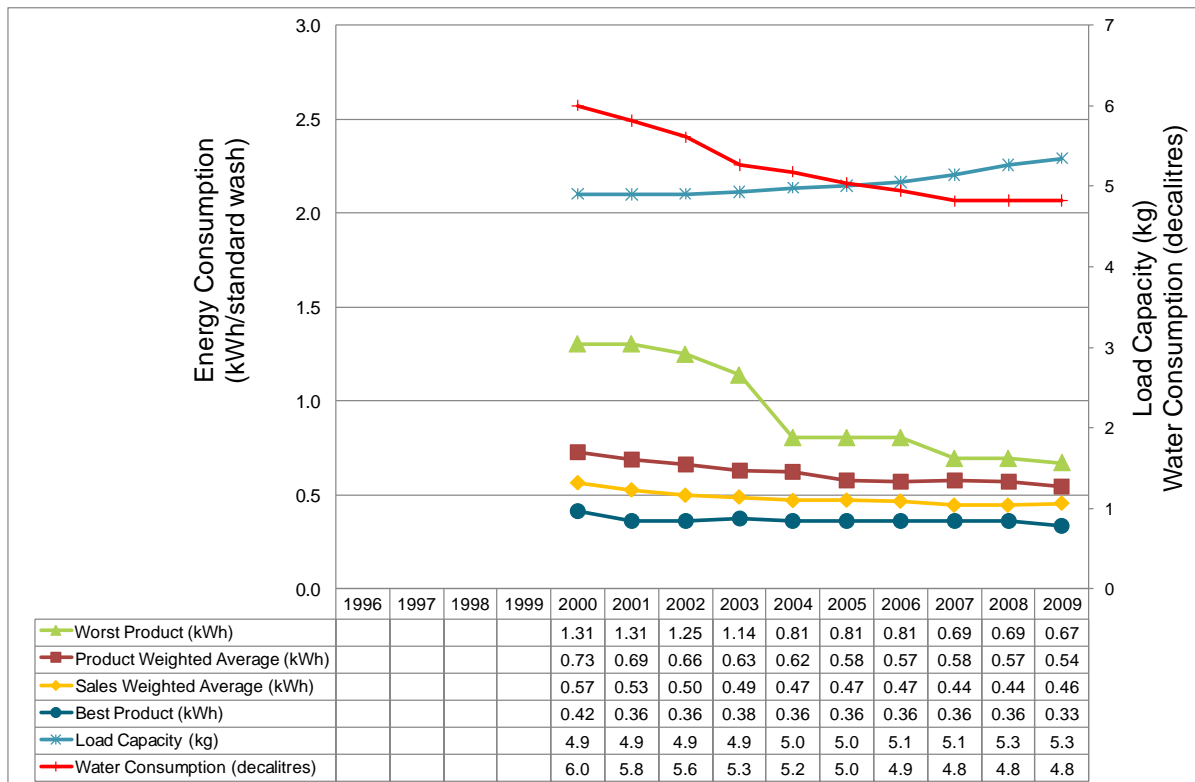
## Energy Consumption of New Washing Machines in the EU



### Key notes on Graph (see notes section 1)

- Front loaders accounted for 79% of all sales in 2000 rising to 85% in 2009
- Aggregated data table supplied by GfK based on:
  - Information covering Austria, Belgium, Germany, Spain, France, UK, Italy, Netherlands, Portugal, Sweden, Czech Republic, Hungary, Poland, Slovakia only (i.e. not all the EU), for Fully Automatic Washing Machines for the years 2000-2009.
  - Data is reported to cover approximately 65% of total sales in specified countries in 2000, but by 2009 coverage is reported to be in excess of 90% of specified market.
- Data supplied is restricted to products with greater than 0.1% share of the sales. As such:
  - Best and worst product may not represent the absolute best and worse products on the market, i.e. there could be some models with marginal sales, but with some better or worse consumption/efficiency values.
- Front loaders accounted for 79% of all sales in 2000 rising to 85% in 2009.

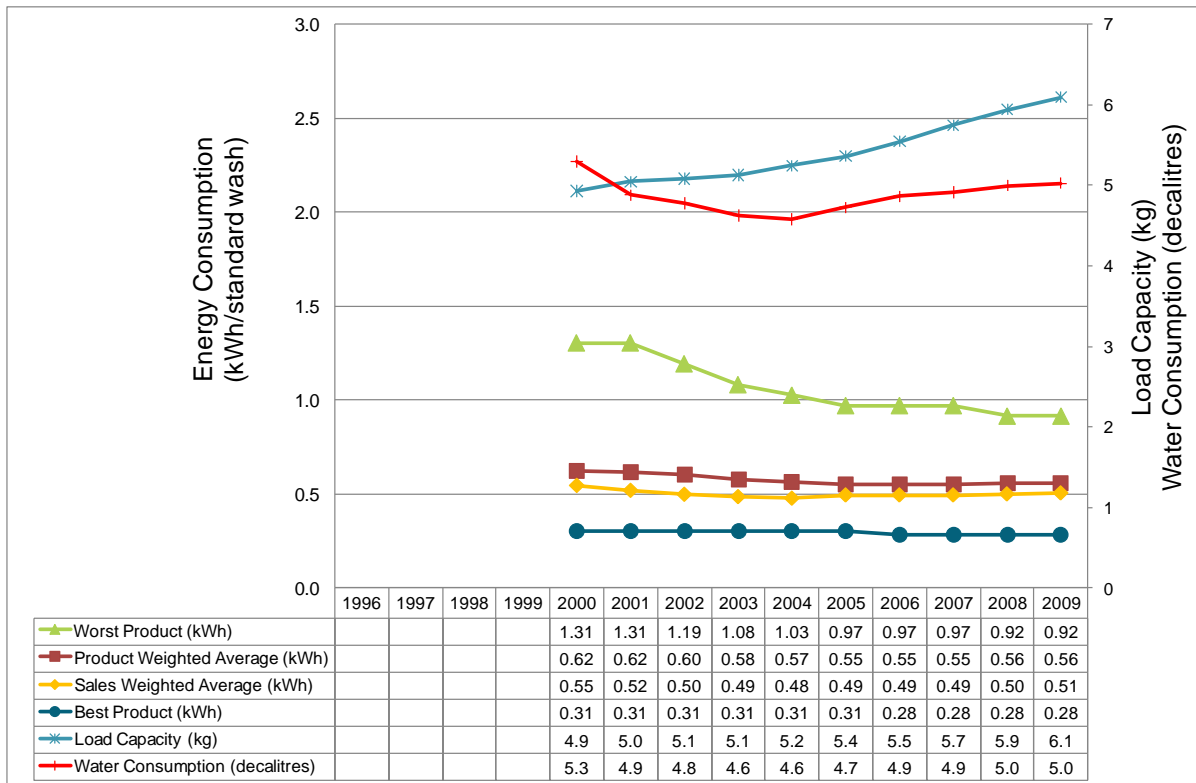
## Energy Consumption of New top loader Washing Machines in the EU



### Key notes on Graph (see notes section 1)

- Aggregated data table supplied by GfK based on:
  - Information covering Austria, Belgium, Germany, Spain, France, UK, Italy, Netherlands, Portugal, Sweden, Czech Republic, Hungary, Poland, Slovakia only (i.e. not all the EU), for Fully Automatic Washing Machines for the years 2000-2009.
  - Data is reported to cover approximately 65% of total sales in specified countries in 2000, but by 2009 coverage is reported to be in excess of 90% of specified market.
- Data supplied is restricted to products with greater than 0.1% share of the sales. As such:
  - Best and worst product may not represent the absolute best and worse products on the market, i.e. there could be some models with marginal sales, but with some better or worse consumption/efficiency values.
- Top Loaders account for only 21% of all sales in 2000 falling to 15% in 2009.

## Energy Consumption of New front loader Washing Machines in the EU



### Key notes on Graph (See notes section 2)

- Aggregated data table supplied by GfK based on:
  - Information covering Austria, Belgium, Germany, Spain, France, UK, Italy, Netherlands, Portugal, Sweden, Czech Republic, Hungary, Poland, Slovakia only (i.e. not all the EU), for Fully Automatic Washing Machines for the years 2000-2009.
  - Data is reported to cover approximately 65% of total sales in specified countries in 2000, but by 2009 coverage is reported to be in excess of 90% of specified market.
- Data supplied is restricted to products with greater than 0.1% share of the sales. As such:
  - Best and worst product may not represent the absolute best and worse products on the market, i.e. there could be some models with marginal sales, but with some better or worse consumption/efficiency values.
- Front loaders accounted for 79% of all sales in 2000 rising to 85% in 2009.





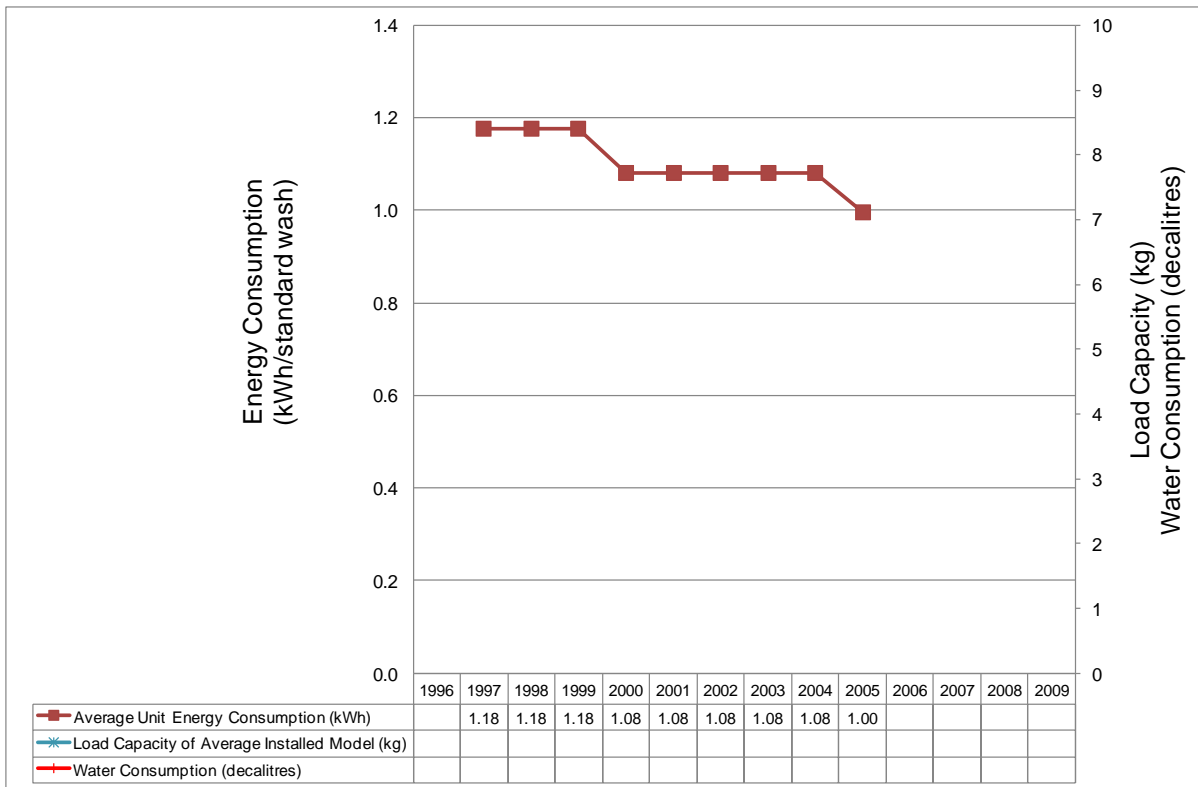
## Unit Energy Efficiency of Washing Machines Installed in the Stock in the EU

No data on the Unit Energy Efficiency of washing machines in the installed stock was available to the Mapping and Benchmarking Annex at the time of publication.





## Unit Energy Consumption of Washing Machines Installed in the Stock in the EU



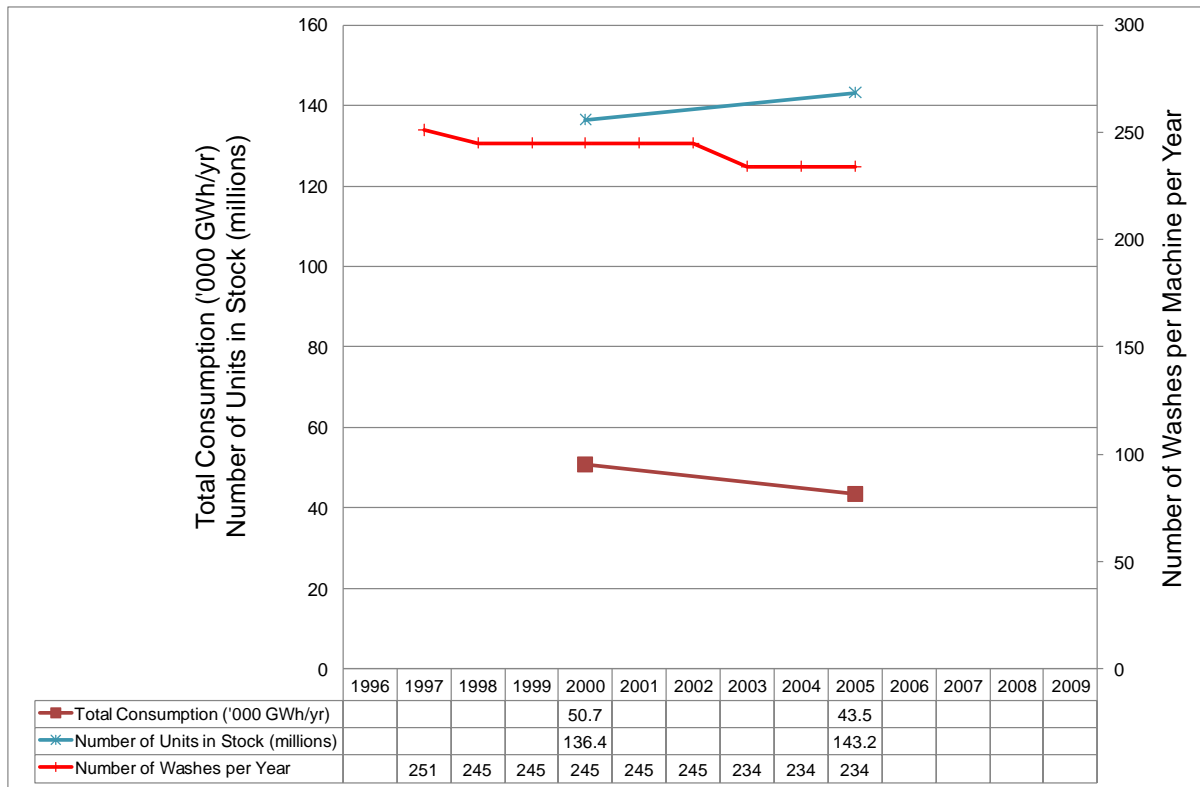
### Key notes on Graph (See notes section 3)

Data is sourced from “Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2<sup>1</sup> (pages 141 and 146)”

- Data is for “EU” 15 only
- Information is based on a combination of modelling and other source material but not all assumptions are known to the Annex and therefore *may* not be consistent.

<sup>1</sup> <http://www.ecowet-domestic.org/>

## Energy Consumption of the total stock of Installed Washing Machines in the EU



### Key notes on Graph (See notes section 4)

Data is sourced from “Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2<sup>2</sup> (pages 141 and 146)”

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- Information is based on a combination of modelling and other source material but not all assumptions are known to the Annex and therefore *may* not be consistent.

<sup>2</sup> <http://www.ecowet-domestic.org/>

## Major Policy Interventions (See notes Section 5)

Primary policy interventions related to washing machines can broadly be divided into two groups, those developed and implemented at a pan-European level (although often through national legislation mandated through the EU), and those developed and implemented at the national level only.

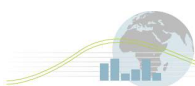
### *Pan-EU Policy*

Policy name	Period in force	Description
EU Energy Label <sup>3</sup>	1996 - 2010	Required labelling of all new washing machines. Defines A to G classes for energy efficiency, wash performance and spin performance. Gives maximum spin speed information and water consumption.
EC Ecolabel	1999 - ongoing	Voluntary declaration for resource efficiency. For the standard 60°C cotton programme: energy consumption equal to or lower than 0.17 kWh/kg, water consumption equal to or lower than 12 litres/kg.
Industry voluntary commitments	1996 – 2002 and 2002 – 2010	Removed EU Energy Label energy classes E, F and G by 1999.  Removed class D by 2003.  New Labelling category introduce A+ (EEI > 0.17) introduced at the end of 2002  Set target for efficiency of sales weighted ("fleet") average efficiency of 0.2 kWh/kg by 2008.  Promotes models with 0.17 kWh/kg and A rated wash performance.
Early replacement	2007 - ongoing	Industry promotion to consumers for replacing old appliances by new, more efficient ones.

Note: it is anticipated that the European Commission will be publishing new energy labels and the ecodesign requirements for washing machines. The efficiency figure for both the MEPS and the label will be based on a different calculation than the current labels, i.e. the calculation will take into account "standby" and off mode and will also take into account the 40°C cotton cycle. Also for the label additional classes will be introduced (A+, A++, A.

The proposed revised regulation is now under scrutiny in the European Parliament and the Council and - when both have no objections - it is expected that the Regulation will be

<sup>3</sup> See notes section 1.1.2



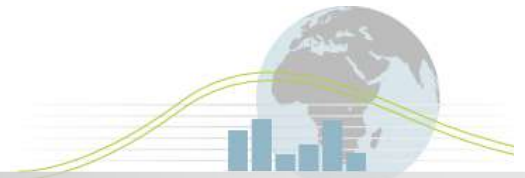
published towards the end of 2010. This would result in the new label becoming mandatory a year later.

### *National Level Policy*

There are innumerable national policy initiatives undertaken by EU countries ranging from fiscal, through endorsement labelling (e.g. EST recommended in the UK) to general promotional activities targeting machine temperature use. An excellent summary of these policies can be found in *“Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2<sup>4</sup>”*. This is available at : [http://www.ecowet-domestic.org/index.php?option=com\\_docman&task=cat\\_view&gid=27&Itemid=40](http://www.ecowet-domestic.org/index.php?option=com_docman&task=cat_view&gid=27&Itemid=40)

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<sup>4</sup> <http://www.ecowet-domestic.org/>



## Cultural Issues (See Notes Section 6)

Due to the diverse nature of the EU, buying habits and product use is extremely variable and no simple explanation is possible. A reasonable summary of cultural issues related to washing machines can be found in *“Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2”*<sup>5</sup>

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<sup>5</sup> <http://www.ecowet-domestic.org/>



## Notes on data

### Section 1: Notes on Product Efficiency

#### 1.1 Test methodologies and Performance Standards

##### 1.1.1 Test methodology

From 1 Jan 2007 EN 60456: 2005 (derivative IEC 60456:2003)

Previously EN 60456: 1999 + A11:2001 + A12:2001 + A13:2001. Primary difference with preceding method is the allowance of 3 methods to condition the load prior to test.

##### 1.1.2 Key Testing Parameters and Regulatory Requirements

###### Overview of test method

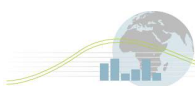
The test standard EN 60456 contains a number of methods for measuring the various performance characteristics of washing machines. The key relevant tests are: cleaning performance, energy consumption, water consumption, spin extraction performance and spin speed. All these tests are performed using the rated capacity cotton load and a 60°C cotton programme nominated by the manufacturer. The cleaning performance of a washing machine is measured by using it to wash a set of standard soiled test strips together with a base laundry load. Each soiled test strip consists of five fabric squares, soiled with carbon black / mineral oil, blood, chocolate and milk, red wine, with the fifth square left unsoiled. The different soils challenge the various cleaning characteristics of the washing machine such as mechanical action, mixing and distributing the wash liquor, and wash temperature control. After washing, drying, and ironing, soil removal is assessed by measuring the reflectance of the test strips. Cleaning performance is calculated from the reflectance values.

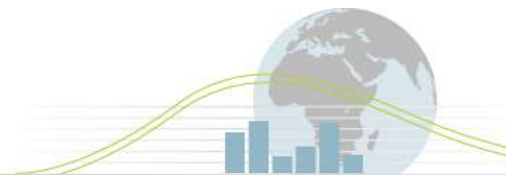
The energy and water consumption are measured during the cleaning performance test. If the machine draws hot water rather than cold, the energy associated with the hot water is added to the electrical energy used to give the total energy consumption. The spin extraction performance is assessed after the cleaning performance test by weighing the base load. Comparing the wet load weight with the dry load weight<sup>6</sup>

###### Specific Test Details

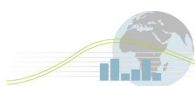
<b>Voltage</b>	230V +/- 1V, 50Hz +/- 1Hz
<b>Test Cycle</b>	60°C Cotton Cycle (without pre-wash) in accordance with the manufacturer's instructions. At least 5 complete cycles should be completed with new soil strips added before each new cycle commences.
<b>Ambient Temperature</b>	23°C +/-2°C

<sup>6</sup> UK MTP Briefing Notes: See [www.mtprog.com](http://www.mtprog.com)





<b>Load</b>	Rated Kg
<b>Detergent</b>	Type A* as defined in Annex F of IEC 60456.
<b>Water Supply</b>	<p>Cold Water: 15°C +/-2°C                      Hot Water (for use in units without heating elements): 60°C +/-2°C (or as directed by manufacturer)</p> $E_c = \frac{Q_c \times (t_c - 15)}{860}$ <p>Where:                      E<sub>c</sub> is the cold water energy correction in kWh during a complete test                      t<sub>c</sub> is the measured inlet temperature of the cold water in degree Celsius, 13–17°C                      Q<sub>c</sub> is the volume of the cold water used during the prewash and main wash only, in l</p>
<b>Reference Unit</b>	As defined in Annex A of EN60456
<b>Water Test Temperature</b>	60°C
<b>Energy Consumption</b>	<p>Consumption of unit under test corrected for energy in water as follows:                      Total Energy = Tested Energy + Cold Water Correction + Hot Water Correction,                      where:                      Cold Water Correction = (volume of cold water x (cold water inlet temp - 15))/860                      and                      Hot Water Correction = (volume of hot water x (hot water inlet temp - 15))/860                      Average of 5 cycles                      TOLERANCE: Not greater than 15% greater than manufacturer claim (for one unit)                      or 10% greater than manufacturer claim (if average of 3 units)</p>
<b>Cycle Efficiency</b>	TOTAL Energy of Model under test divided by rated load (kWh/cycle/kg).
<b>Measurement of Water Volume</b>	<p>Complete volume of water used during energy consumption test (litres). Average of 5 cycles                      TOLERANCE: Not greater than 15% greater than manufacturer claim (for one unit)                      or 10% greater than manufacturer claim (if average of 3 units)</p>
<b>Spin Extraction Ratio</b>	<p>Section 9: EN60456 - Moisture remaining in base load after spinning relative to the conditioned mass of the same load.                      (Mass of Base Load after Spin - Mass of conditioned base load)/Mass of conditioned base load.                      Average of at least 5 cycles                      TOLERANCE: Not greater than 15% greater than manufacturer claim (for one unit)                      or 10% greater than manufacturer claim (if average of 3 units)</p>
<b>Rinsing Index</b>	Section 9: EN60456 - Based on alkalinity of detergent in base load following normal cycle. Value of 2-5 cycles (1st cycle after normalising not to be used)
<b>Wash Quality Index</b>	Section 9: EN60456 - As a ratio of average reflectance measured (compared with reference unit). At least 5 cycles from series.
<b>Spin Speed</b>	<p>The lowest speed achieved during highest spin speed variation which runs continuously for 60 seconds.                      TOLERANCE: Not greater than 10% or 100 rpm greater than manufacturer claim (if average of 1 or 3 units)</p>





*Regulatory Requirements based on:*

1995 95/12/EC implementing directive<sup>7</sup> implementing 92/75/EEC with regard to energy labelling of washing machines. (see also policy in Notes Section 5)

## 1.2 Product Efficiency Graphics

### 1.2.1 Data Source:

Direct purchase from GfK Retail and Technology GmbH (courteously of finance by the UK Government)

### 1.2.2 Data Clarifications

#### **Original Data Limitations**

Aggregated data table supplied by GfK based on:

- Information covering Austria, Belgium, Germany, Spain, France, UK, Italy, Netherlands, Portugal, Sweden, Czech Republic, Hungary, Poland, Slovakia. Percentages of markets covered in each individual countries is as follows<sup>8</sup>: porting PowerPoint File “GfK\_Panelnews\_MDA\_Total\_COVERAGES EU 14\_SEP09-OCT09.ppt”
- For Fully Automatic Washing Machines (excluding Washdryers) data covers the years 2000-2009 for **all** countries.
- Data is reported to cover approximately 65% of total sales in specified countries in 2000, but by 2009 coverage is reported to be in excess of 90% of specified market.

Data supplied is restricted to products with greater than 0.1% share of the sales. As such:

- Best and worst product may not represent the absolute best and worse products on the market, i.e. there could be some models with marginal sales, but with some better or worse consumption/efficiency values.
- While not evidenced, it is believed this exclusion of peripheral models will lead to a slight tendency (undefined but thought to be marginal) for under estimating consumption/over estimating efficiency as not all models recorded by GfK in the market report consumption, and it is believed these are typically the less well performing units. This is likely to have greatest effect on product weighted analysis and graphics.

### 1.2.3 Key calculations undertaken

Note calculations undertaken by GfK using original source material:

<sup>7</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1995L0012:20070101:EN:PDF>

<sup>8</sup> Drawn from supporting PowerPoint File “GfK\_Panelnews\_MDA\_Total\_COVERAGES EU 14\_SEP09-OCT09.ppt”



**Declared Unit Load Capacity:** Unit load capacity in kg is defined by local regulations (in this case the EU regulations on use of the EN test methodology and allowable tolerance) 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”).

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

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

**Model Weighted Consumption of New Models:** Value calculated by [Sum of (Model Energy Consumption for all models sold in year)] divided by [Sum of (Number of Models sold in year)]. Unit kWh/wash.

**Model Energy Efficiency:** Value calculated by dividing Model Energy Consumption by Declared Unit Load Capacity (kWh/Kg/Wash).

**Sales Weighted Energy Efficiency of New Models:** Value calculated by [Sum of (Derived Model Energy Efficiency 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/Wash.

**Model Weighted Energy Efficiency of New Models:** Value calculated by [Sum of Model Energy Efficiency for all models sold in year] divided by [Number of Models sold in year]. Unit kWh/Kg/Wash.

**Spin Efficiency:** The efficiency of removal of water from the test load as defined in local test conditions (refer to Section 1.1 on “Notes on Data”).

**Wash Quality:** The efficiency of cleansing of test load as defined in local test conditions/regulations (in this case the EU regulations on use of the EN test methodology and allowable tolerance) (refer to Section 1.1 on “Notes on Data”).

**Rinse Efficiency:** The efficiency of removal of detergent, softener or other additive from the test load as defined in local test conditions (Unit: comparative percentage).

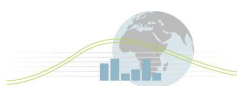
**Spin Speed:** The highest spin speed attainable by the unit (Unit: revolutions per minute – rpm).

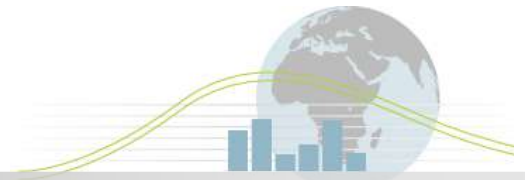


**Wash quality** and **spin efficiency** data was provided by label classification and therefore an assumption has been made that on average, machines achieve the mid-point rating for their label classification. This means that machines are rated as follows:

Machines Label:	Spin Efficiency		Wash Quality	
	Rating used:	Range:	Rating used:	Range:
A*	40.5%	< 45%	1.045	>1.03
B	49.5%	45-54%	1.015	1-1.03
C	58.5%	54-63%	0.985	0.97-1
D	67.5%	63-72%	0.955	0.94-0.97
E	76.5%	72-81%	0.925	0.91-0.94
F	85.5%	81-90%	0.895	0.88-0.91
G*	94.5%	> 90%	0.865	< 0.88

\* Note: the average difference between range bottom and its mid-point was also added to the A class minimum rating and subtracted from the G class maximum rating for those classifications





## **Section 2: Notes on Product Consumption**

### *2.1 Test methodologies and Performance Standards*

Refer to section 1.1

### *2.2 Product Consumption Graphic*

Refer to section 1.2



**Section 3: Notes on the Efficiency and Consumption of units in the installed Stock**

**3.1 Unit Stock Efficiency Graphic**

**3.1.1 Data Source**

- Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2<sup>9</sup> (pages 141 and 146)

**3.1.2 Data Clarifications**

Extracts from the source data provide the following data

**Products installed, total Energy Consumption and Unitary Energy Consumption**

136.424	50,684	372
143.193	43,525	304

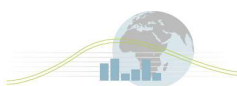
**Average Energy Consumption (kWh/cycle) and Number of Washes per Machine per Year**

1.177	251
1.177	245
1.177	245
1.081	245
1.081	245
1.081	245
1.081	234
1.081	234
0.997	234

**Important notes for clarification**

- Data is for “EU” 15 only
- Information is based on a combination of modelling and other source material but all assumptions are not transparent and *may* not be consistent.

<sup>9</sup> <http://www.ecowet-domestic.org/>



## 3.2 *Unit Stock Consumption Graphic*

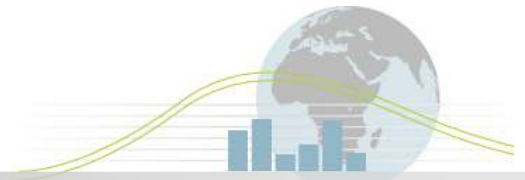
Please refer to section 3.1.

### 3.2.1 *Data Source*

Please refer to section 3.1.1

### 3.2.2 *Data Clarifications*

Please refer to section 3.1.2



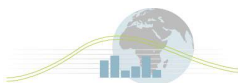
## **Section 4: Notes on Consumption of Stock**

### *4.1 Stock Consumption Graphic*

Refer to section 3.1

#### *4.1.1 Data Source*

Refer to section 3.1





## Section 5: Notes on Policy Interventions

### 5.1.1 Data Source

- 1995 95/12/EC implementing directive<sup>10</sup> implementing 92/75/EEC with regard to energy labelling of washing machines
- Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2<sup>11</sup>
- Second Voluntary Commitment on Reducing Energy Consumption of Domestic Washing Machines (2002 - 2008)<sup>12</sup>

### 5.1.2 Requirements of 1995 95/12/EC implementing directive implementing 92/75/EEC with regard to energy labelling of washing machines.

Limits for various labelling criteria are defined in the directive as follows (refer to policy table for criteria that are now no longer applicable due to the introduction of minimum standards or voluntary agreements):

#### ANNEX IV

#### ENERGY EFFICIENCY CLASS

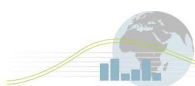
1. The energy efficiency class of an appliance shall be determined in accordance with the following table 1:

Table 1

Energy efficiency class	Energy consumption 'C' in kWh per kg washed for standard 60 °C cotton cycle using test procedures of the harmonized standards referred to in Article 1 (2)
A	$C \leq 0,19$
B	$0,19 < C \leq 0,23$
C	$0,23 < C \leq 0,27$
D	$0,27 < C \leq 0,31$
E	$0,31 < C \leq 0,35$
F	$0,35 < C \leq 0,39$
G	$0,39 < C$

<sup>11</sup> <http://www.ecowet-domestic.org/>

<sup>12</sup> [http://ec.europa.eu/energy/efficiency/doc/agreements/2002\\_ceced\\_washing\\_machines.pdf](http://ec.europa.eu/energy/efficiency/doc/agreements/2002_ceced_washing_machines.pdf)



2. The washing performance class of an appliance shall be determined by the following table 2:

Table 2

Washing performance class	Washing performance index P as defined in the harmonized standards referred to in Article 1 (2), using a standard 60 °C cycle
A	$P > 1,03$
B	$1,03 \geq P > 1,00$
C	$1,00 \geq P > 0,97$
D	$0,97 \geq P > 0,94$
E	$0,94 \geq P > 0,91$
F	$0,91 \geq P > 0,88$
G	$0,88 \geq P$

3. The drying efficiency class of an appliance shall be determined by the following table 3:

Table 3

Spin drying efficiency class	Water extraction efficiency D as defined in the harmonized standards referred to in Article 1 (2), using a standard 60 °C cycle
A	$D < 45 \%$
B	$45 \% \leq D < 54 \%$
C	$54 \% \leq D < 63 \%$
D	$63 \% \leq D < 72 \%$

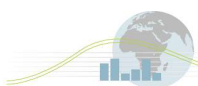
Spin drying efficiency class	Water extraction efficiency D as defined in the harmonized standards referred to in Article 1 (2), using a standard 60 °C cycle
E	$72 \% \leq D < 81 \%$
F	$81 \% \leq D < 90 \%$
G	$90 \% \leq D$

The label itself is shown below<sup>13</sup>

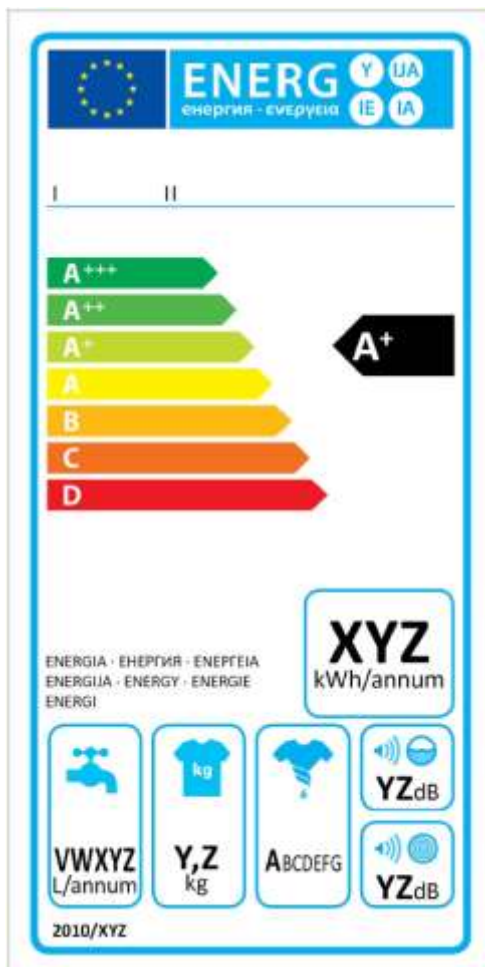


**Note:** it is anticipated that the European Commission will be publishing new energy labels and the ecodesign requirements for washing machines. The efficiency figure for both the MEPS and the label will be based on a different calculation than the current labels, i.e. the calculation will take into account "standby" and off mode and will also take into account the 40°C cotton cycle. Also for the label additional classes will be introduced (A+, A++, A+++). It

<sup>13</sup> Source from: [http://www.cecce.org/energy/Washer\\_energy\\_label.jpg](http://www.cecce.org/energy/Washer_energy_label.jpg)



is anticipated that the new requirements will be published in 2010. The proposed label will look as follows:



The proposed revised regulation is now under scrutiny in the European Parliament and the Council and - when both have no objections - it is expected that the Regulation will be published towards the end of 2010. This would result in the new label becoming mandatory a year later.

Given the complexity of the full regulations (e.g. the new methodology for deriving energy consumption), readers are referred to the the proposed regulatory document (current at the time of publication) which can be found in the Washing Machine area of the Mapping and Benchmarking website – see <http://mappingandbenchmarking.iea-4e.org/matrix>.

### 5.1.3 CECED Voluntary Agreements

There have been two voluntary agreements have been negotiated between the EU and CECED (the European Committee of Manufacturers of Domestic Equipment). The following description of the first agreement and outcome and detailing of the second agreement is

drawn from: “SECOND VOLUNTARY COMMITMENT ON REDUCING ENERGY CONSUMPTION OF DOMESTIC WASHING MACHINES (2002 - 2008)<sup>14</sup>”

*“The European Committee of Manufacturers of Domestic Equipment (CECED) represents the interests of domestic washing machines manufacturers in Europe. Its members are domestic appliances manufacturers and a number of national trade associations.*

*In April 1996 the European Committee of Manufacturers of Domestic Equipment (CECED) presented a first Commitment about energy saving to the European Commission. This Commitment was made on behalf of the European manufacturers of domestic washing machines and was aimed at a considerable reduction of energy consumption of washing machines. The proposal was negotiated with the EU Authorities and notified, in October 1997, to EC DG IV. The final approval followed on 9. December 1998, when the Commitment was published in the Official Journal. Exemption according to Art. 81 of the EU Treaty was granted by decision of the Commission for the period up to end of year 2001.*

*The overall saving target of this Commitment was to reduce the specific energy consumption of domestic washing machines by 20% in the period 1994 - 2000. Practically, this targeted at bringing the average consumption value of 0.30 kWh/kg<sup>1</sup> down to 0.24 kWh/kg within 6 years. To achieve this goal, a catalogue of different technical and marketing related measures was set up, specifying so called “hard targets” and also “soft targets”.*

*In addition, CECED committed itself to monitor the progress and to report regularly - every year – to the European Commission on the basis of a notary report and the technical database of washing machines of CECED. The targets of the Commitment were achieved at the end of 1999. The specific energy consumption was then calculated and reported with 0,228 kWh/kg. That way a saving of 24% had been achieved - without regulative measures and without adverse market distortion.*

*A recently completed study<sup>2</sup> came to the conclusion that in terms of energy efficiency of washing machines there is no real reason for a change in the present energy label. Other conclusions of this study have been taken on board in this proposal if considered as a support to contribute to energy savings in the future.*

*The successful fulfilment of this first Commitment prompted manufacturers to elaborate the possibility of a new - second - Voluntary Commitment, covering the period from 2002 to 2008. The proposal of this new Commitment is described thereafter.*

*This Industry Commitment is developed at Community level as it aims to ensure that free circulation of goods is not hampered by diverging practices at national level. Its logical reference could be ECTreaty article 95.*

<sup>14</sup> [http://ec.europa.eu/energy/efficiency/doc/agreements/2002\\_ceced\\_washing\\_machines.pdf](http://ec.europa.eu/energy/efficiency/doc/agreements/2002_ceced_washing_machines.pdf)





....

*[In the second voluntary commitment, CECED members] commit to:*

*“Hard targets”:*

- *By 31.12.2003<sup>4</sup> participants will have stopped producing for and importing in the CommunityMarket domestic washing machines which belong to energy efficiency class D*

*“Fleet target”:*

- *Each participant will commit himself to contribute to the Commitment overall objective of achieving a European production weighted average of 0.20 KWh/Kg for the year 2008. Each participant will provide to the CECED notary consultant, as specified in part B of this clause, and according to the procedure specified in annex 2; production weighted energy consumption data for the previous calendar year.*

*“Soft targets”:*

*In addition to the above commitments, all participants commit themselves to strengthen their overall activities to achieve further energy savings and to educate consumer on the way to save energy, in particular, they commit to:*

- *Support the introduction of a new 'quality mark' on the present energy label, identifying and promoting super efficient machines at a level of 0,17 kWh/kg by giving additional public awareness.*
- *Support at EU or national level, rebates schemes aiming at fostering the introduction of efficient washing machines, e.g. by replacing old and inefficient machines as long as the balance between energy and washing performance is maintained (minimum class B for washing performance)*
- *Co-operate preferably at national level in setting up targets and measures for achieving a high level of spinning efficiency for markets where tumble drying is relevant*
- *Inform in their brochures about the advantages of a high spin speed washing machine when tumble drying is preferred*
- *Promote the energy efficient use of washing machines by giving information in the user manual*
- *Co-operate with detergent industry on new energy saving detergents and promotion of an energy saving consumer behaviour*
- *Push the development of a new standard for testing washing machines taking into account the change of consumer behaviour towards lower wash temperatures and not using always full load. This development will be done in close co-operation with*



*CENELEC and consumer organisations and testing institutes if actively supported by member states and/or the European Commission and is targeting to be used as a basis for a revised label in 2008. 4 Models of classes E,F and G were already eliminated by the first negotiated agreement Voluntary Commitment II - Washing Machines - 31.08.2002 7”*

#### 5.1.4 National Policy

There are innumerable national policy initiatives undertaken by EU countries ranging from fiscal, through endorsement labelling (e.g. EST recommended in the UK) to general promotional activities targeting machine temperature use. An excellent summary of these policies can be found in *“Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2<sup>15</sup>”*

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<sup>15</sup> <http://www.ecowet-domestic.org/>







### **Section 6: Notes on Cultural Issues**

Due to the diverse nature of the EU, buying habits and product use is extremely variable and no simple explanation is possible. A reasonable summary of cultural issues related to washing machines can be found in *“Preparatory Studies for Eco-design Requirement of EuPs, Lot 14 Domestic Washing Machines and Dishwashers, Final Report Tasks 1-2”*<sup>16</sup>

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<sup>16</sup> <http://www.ecowet-domestic.org/>