Mapping Document

Country:	UK
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:

Washing machines, defined as:

'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.'

Data will be analysed for the following types of washing machine :

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

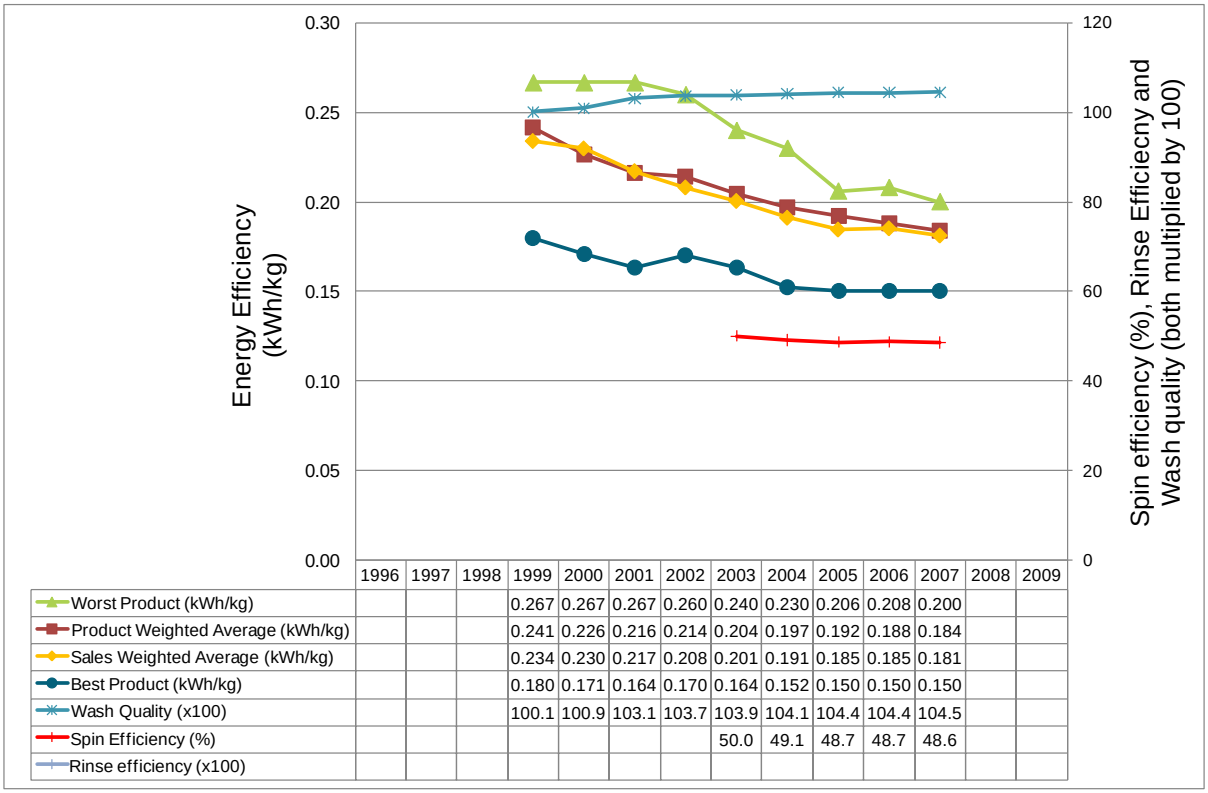
Energy Efficiency of New Washing Machines
UK

The UK has virtually no top loader washing machines and as a consequence the full market mapping is shown in the front loader washing machine section of this mapping document.

Energy Efficiency of New Top Loader Washing Machines UK

The UK market has virtually no top loader washing machines and as a consequence these have not been assessed in this analysis.

Energy Efficiency of New Front Loader Washing Machines UK



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Worst Product (kWh/kg)				0.267	0.267	0.267	0.260	0.240	0.230	0.206	0.208	0.200		
Product Weighted Average (kWh/kg)				0.241	0.226	0.216	0.214	0.204	0.197	0.192	0.188	0.184		
Sales Weighted Average (kWh/kg)				0.234	0.230	0.217	0.208	0.201	0.191	0.185	0.185	0.181		
Best Product (kWh/kg)				0.180	0.171	0.164	0.170	0.164	0.152	0.150	0.150	0.150		
Wash Quality (x100)				100.1	100.9	103.1	103.7	103.9	104.1	104.4	104.4	104.5		
Spin Efficiency (%)								50.0	49.1	48.7	48.7	48.6		
Rinse efficiency (x100)														

Key notes on Graph (see notes section 1)

- The data source was GfK purchased by Defra Market Transformation Programme. However, elements of the dataset are missing in years 1999-2001 and additional data has been removed from the datasets in all years for a variety of data quality reasons. Consequently, although the data is believed to be representative of the market, it should be viewed with caution, particularly for early years.
- Wash quality and spin efficiency data was provided by label classification and therefore an assumption has been made about what the actual rating of a typical machine in each label classification is.
- 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.
- In order to indicate a Worst performing product that reflects the broad market (as opposed to representing perhaps a single unusual or wrongly reported product), the 'energy efficiency of worst product' is in fact the energy efficiency of the product at the 'worst 5%' point of a ranked list in the dataset. The Best performing product is that with the lowest energy efficiency.

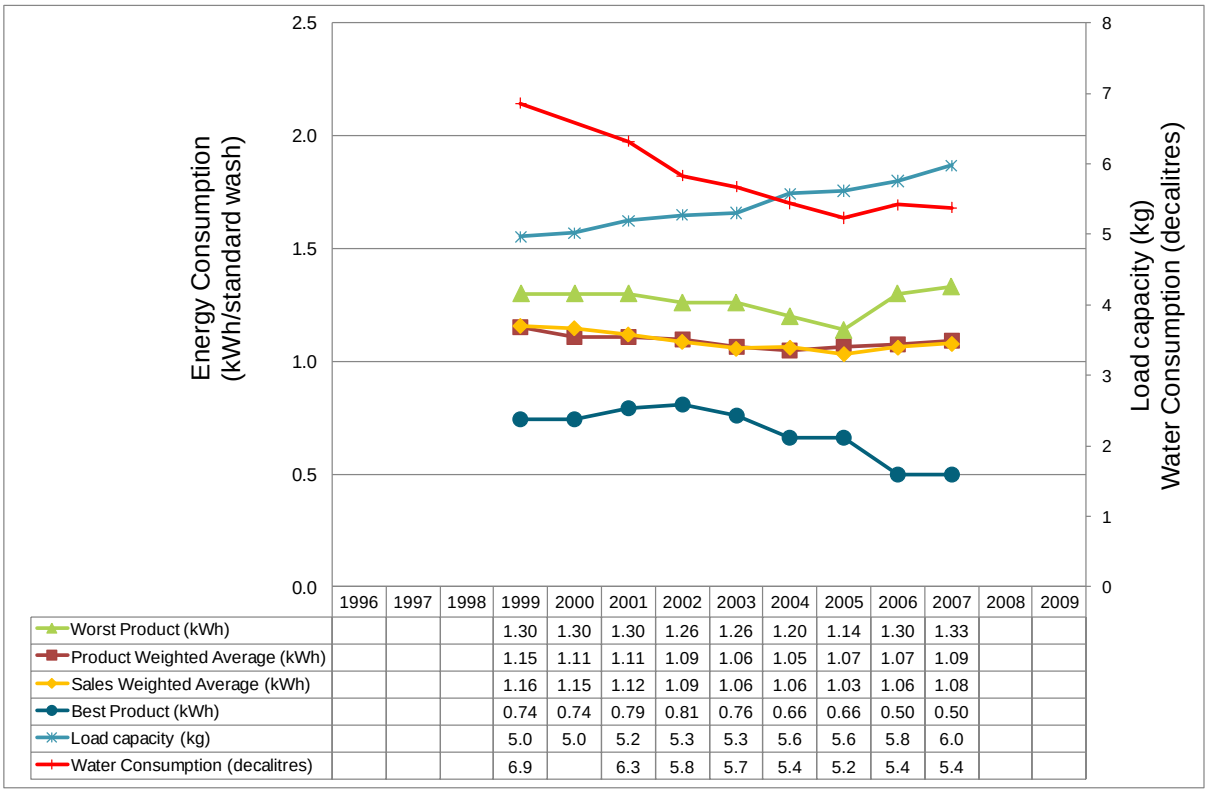
Energy Consumption of New Washing Machines UK

The UK has virtually no top loader washing machines and as a consequence the full market mapping is shown in the front loader washing machine section of this mapping document.

Energy Consumption of New top loader Washing Machines UK

The UK market has virtually no top loader washing machines and as a consequence these have not been assessed in this analysis.

Energy Consumption of New front loader Washing Machines UK



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Worst Product (kWh)				1.30	1.30	1.30	1.26	1.26	1.20	1.14	1.30	1.33		
Product Weighted Average (kWh)				1.15	1.11	1.11	1.09	1.06	1.05	1.07	1.07	1.09		
Sales Weighted Average (kWh)				1.16	1.15	1.12	1.09	1.06	1.06	1.03	1.06	1.08		
Best Product (kWh)				0.74	0.74	0.79	0.81	0.76	0.66	0.66	0.50	0.50		
Load capacity (kg)				5.0	5.0	5.2	5.3	5.3	5.6	5.6	5.8	6.0		
Water Consumption (decalitres)				6.9		6.3	5.8	5.7	5.4	5.2	5.4	5.4		

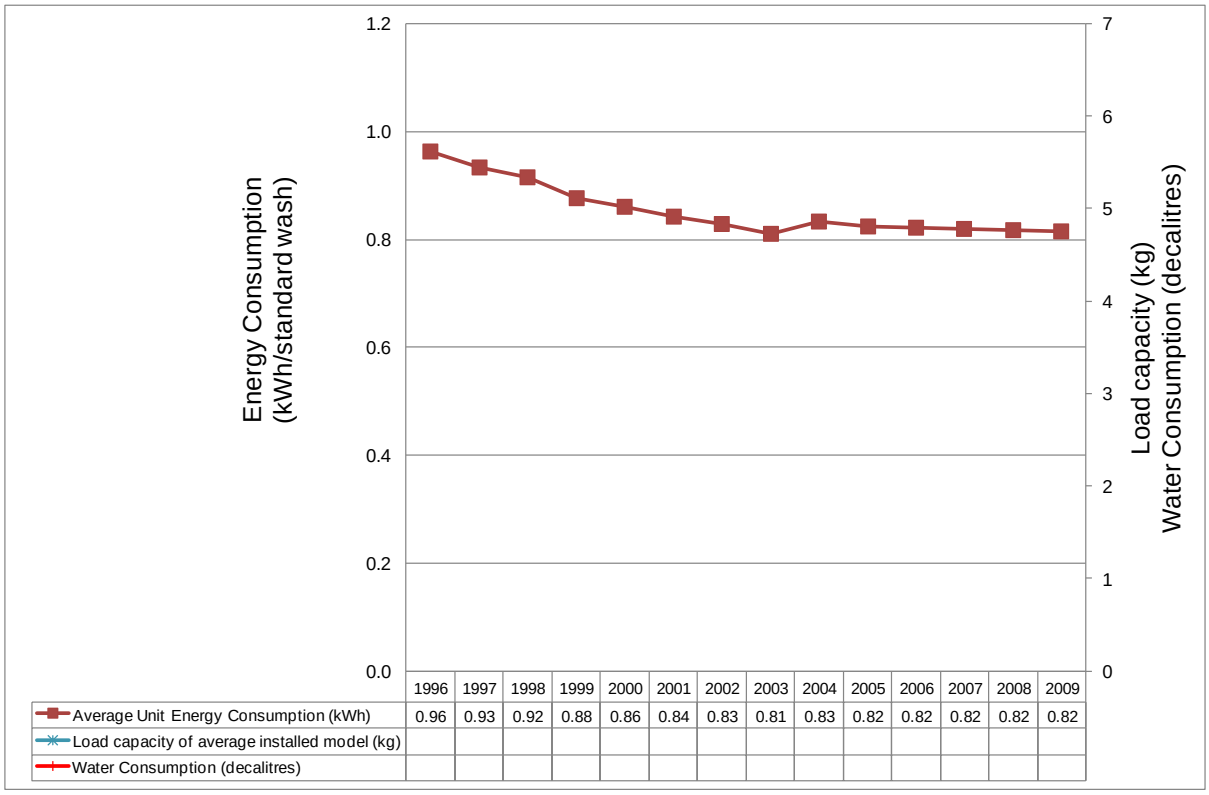
Key notes on Graph (See notes section 2)

- The data source was GfK purchased by Defra Market Transformation Programme. However, elements of the dataset are missing in years 1999-2001 and additional data has been removed from the datasets in all years for a variety of data quality reasons. Consequently, although the data is believed to be representative of the market, it should be viewed with caution, particularly for early years.
- In order to indicate a Worst performing product that reflects the broad market (as opposed to representing perhaps a single unusual or wrongly reported product), the 'energy efficiency of worst product' is in fact the energy efficiency of the product at the 'worst 5%' point of a ranked list in the dataset. The Best performing product is that with the lowest energy efficiency.

Unit Energy Efficiency of Washing Machines Installed in the Stock - UK

Data on Unit energy efficiency in the stock was not made available to the annex at the time of publication.

Unit Energy Consumption of Washing Machines Installed in the Stock - UK

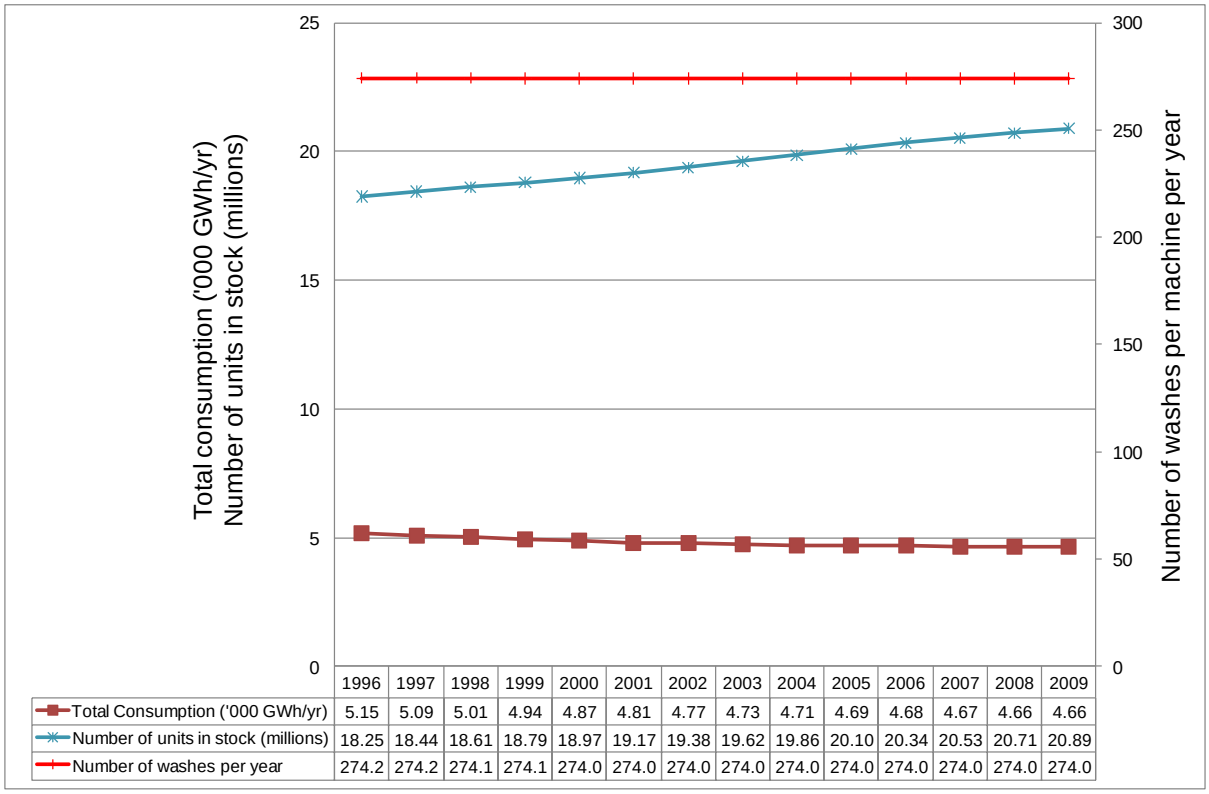


Key notes on Graph (See notes section 3)

- Unit energy consumption is calculated from the Market Transformation Programme's "What-If?" tool[1] which is used to provide projections of Annual energy consumption based on assumptions such as average number of washes per year.

[1] http://efficient-products.defra.gov.uk/cms/product-data/

Energy Consumption of the total stock of Installed Washing Machines - UK



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Consumption ('000 GWh/yr)	5.15	5.09	5.01	4.94	4.87	4.81	4.77	4.73	4.71	4.69	4.68	4.67	4.66	4.66
Number of units in stock (millions)	18.25	18.44	18.61	18.79	18.97	19.17	19.38	19.62	19.86	20.10	20.34	20.53	20.71	20.89
Number of washes per year	274.2	274.2	274.1	274.1	274.0	274.0	274.0	274.0	274.0	274.0	274.0	274.0	274.0	274.0

Key notes on Graph (See notes section 4)

- Data is taken directly from projections made by the Market Transformation Programme's "What-If?" tool[2].

[2] http://efficient-products.defra.gov.uk/cms/product-data/

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 within the UK only.

Pan-EU Policy

Policy name	Period in force	Description
EU Energy Label[3]	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 to encourage consumers to replace older appliances with more efficient new ones.

[3] See notes section 1.1.2

National Level Policy

Policy name	Period in force	Description
EEC 2005-2008	2005 - 2008	Energy supplier subsidy or purchasing incentive for class A or better washing machines[4] (full specification often based on "Energy Efficient Recommended" (see below).
Energy Saving Recommended[5]	2001 onwards	Point of sale promotion to identify the most efficient models. Criteria for 2006 onwards are EU Energy Label A class for energy, wash performance and spin performance. From 2009 standby energy consumption is included in the criteria.

Other relevant interventions in the market

Some additional policies are expected to contribute to the delivery of energy savings in the sector in the reference and policy scenarios.

- Carbon Emissions Reduction Target (CERT) - The Carbon Emissions Reduction Target (CERT) (2008 – 2011) is the third three-year phase of the energy supplier obligation. Under CERT, energy suppliers must, by 2011, deliver measures that will provide overall lifetime carbon dioxide savings of 154 MtCO2. It is expected to lead to energy supplier investment of some £2.8bn in household energy efficiency measures.
- Government's Act on CO2 campaign which aims to help people save money, save energy and reduce their CO2 emissions. The campaign highlights how individuals can act to make a difference. ACT ON CO2 is a cross-government initiative, currently involving the Department of Energy and Climate Change (DECC), the Department for Transport (DfT) and the Department for Communities and Local Government (DCLG).
- Code for Sustainable Homes - measures the sustainability of a new home against categories of sustainable design, rating the 'whole home' as a complete package. The Code uses a 1 to 6 star rating system to communicate the overall sustainability performance of a new home. The Code sets minimum standards for energy and water use at each level and, within England, replaces the EcoHomes scheme, developed by the Building Research Establishment (BRE).

[4] Ofgem (energy regulator) claims that over 8 million cold and wet appliances were subsidised under the scheme.
[5] Run by the Energy Saving Trust http://www.est.org.uk/.

Cultural Issues (See Notes Section 6)

The majority (over 99.7% of sales in 2007) of household washing machines are front-loading, the small minority of products that are top loaders are included in the evidence base on the assumption that they have the same performance characteristics as front-loading appliances. The domestic laundry market has not seen a rapid growth in the last decade, ownership of washing appliances has almost reached a peak.

Appliance trends include a move towards larger load capacities, higher spin speeds, longer main wash times and shorter quick washes, and more programmes to cope with different fabric types. However, penetration of such units is limited by the average 12 year replacement cycle for units.

Energy efficiency is a key driver

- Consumers are increasingly selecting laundry appliances (and dishwashers) on the basis of their energy efficiency and water consumption. In Mintel's consumer research nearly four out of ten consumers considered energy efficiency as important when choosing a new washing machine.
- Although a high proportion of consumers seek energy savings on appliances when purchasing, less than one in five indicate that they are prepared to pay a premium price for energy efficiency.

Future prospects

- New detergentless clothes washing systems are now becoming available and could produce a substantial boost to the market once they are demonstrated to be effective

Key Attitudes and Typologies

- Washing machines are seen as a necessity by around three-quarters of consumers, whiledryers and dishwashers are seen as much less essential.
- Consumers show high levels of interest in energy efficiency, although less than one in five indicate a willingness to pay for improved energy performance.
- Space continues to be a major constraining factor on appliance selection, although very few consumers would like to see smaller appliances.
- The largest single consumer segment, representing almost four in ten consumers, are those that want to combine energy efficiency with washing performance.
- Just over a third of consumers are mainly concerned with washing performance and show limited interest in green issues.

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 BSEN 60456 contains a number of methods for measuring the various performance characteristics of washing machines. The tests that are relevant to MTP 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[6]

Specific Test Details

Voltage	*230V +/- 1V, 50Hz +/- 1Hz*
Test Cycle	*60^{o}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.*
Ambient Temperature	*23^{o}C +/-2^{o}C*
Load	*Rated Kg*

[6] UK MTP Briefing Notes: See www.mtprog.com

Detergent	*Type A* as defined in Annex F of IEC 60456.*
Water Supply	*Cold Water: 15°C +/-2°C* *Hot Water (for use in units without heating elements): 60°C +/-2°C (or as directed by manufacturer)*
Reference Unit	*As defined in Annex A of EN60456*
Water Test Temperature	*60°C*
Energy Consumption	*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)*
Cycle Efficiency	*TOTAL Energy of Model under test divided by rated load (kWh/cycle/kg).*
Measurement of Water Volume	*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)*
Spin Extraction Ratio	*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)*
Rinsing Index	*Section 9: EN60456 - Based on alkinity of of detergent in base load following normal cycle. Value of 2-5 cycles (1st cycle after normalising not to be used)*
Wash Quality Index	*Section 9: EN60456 - As a ratio of average reflectance measured (compared with reference unit). At least 5 cycles from series.*
Spin Speed	*The lowest speed achieved during highest spin speed variation which runs continuosly for 60 seconds.* *TOLERANCE: Not greater than 10% or 100 rpm greater than manufacturer claim (if average of 1 or 3 units)*

Regulatory Requirements based on:

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

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

1.2 Product Efficiency Graphics

No combined front and top loader, nor top loader only graphics are produced as top loading units are negligible within the UK market and have been excluded from this analysis.

1.2.1 Data Source:

Product and sales data 1999-2007 originally sourced from GfK and purchased by the UK Government's (DEFRA) Market Transformation Programme – this data remains confidential and will not be published.

1.2.2 Data Clarifications

Original Data Limitations

2001 Data:

- No details about number of sales for trade brand (own brand).
- Only data for 3/4 of the year's sales for branded models (Q1,2 &3)
- Only data for 1/2 the years sales for own brand (Q1 & Q3)

2000 Data

- Own brand has no Annual Sales data
- Branded no water consumption

1999 Data

- Branded is all 4 quarters
- Own brand is Q3 and Q4 only

Proportion of data set excluded

The following data was removed from the full GfK dataset by the UK as the models listed either had no energy data and could not be analysed or because the energy data was believed to be incorrectly reported.

Year	%of all Models Excluded	% of all Sales Excluded
1999	10%	1%
2000	10%	3%
2001	12%	3%
2002	46%	16%
2003	40%	28%
2004	37%	26%
2005	26%	9%

2006	33%	22%
2007	25%	12%

No combined front and top loader, nor top loader only graphics are produced as top loading units are negligible within the UK market and have been excluded from this analysis. In number of top loader models excluded by year are:

Year	Number of Top Loader Models Excluded
1999	14
2000	11
2001	3
2002	4
2003	6
2004	5
2005	7
2006	7
2007	6

Following a further review of base data by the UK Government representative, a number of better performing products are thought to have been wrongly recorded. Hence the following products were removed from the data set:

Year	Products removed (EEI=kWh/kg)
1999	8 products with EEI better than 0.17
2000	35 products with EEI better than 0.17
2001	60 products with EEI better than 0.16
2002	45 products with EEI better than 0.16
2003	32 products with EEI better than 0.16
2004	21 products with EEI better than 0.15
2005	21 products with EEI better than 0.15
2006	27 products with EEI better than 0.15
2007	17 products with EEI better than 0.15

In order to indicate a Worst performing product that reflects the broad market (as opposed to representing perhaps a single unusual or wrongly reported product), the ‘energy consumption of worst product’ is in fact the energy consumption of the product at the ‘worst 5%’ point of a ranked list in the dataset.

Additional Specific Data Cautions

In the majority of years, the units with the lowest consumptions were typically 3-3.5kg units as shown in the following table. The size of the average capacity of a (new) UK washing machine was 4.6kg in 1999 and 5kg in 2009. Therefore “Best Performing” products, ie those

with lowest consumption should be treated with some caution as they appear not to be representative of the typical machine in the market.

Year	Capacity and Claimed Performance of "Best Machine" on market
1999	3kg claiming 0.74
2000	3kg claiming 0.79
2001	3kg claiming 0.79
2004	3.5kg claiming 0.66kWh
2005	3.5kg claiming 0.66kWh
2006	3kg claiming 0.5kWh
2007	3.5kg claiming 0.66kWh

1.2.3 Key calculations undertaken:

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")).

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 (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:

	Spin Efficiency		Wash Quality	
Machines Label:	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 Efficiency of Stock

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

Section 4: Notes on Consumption of Stock

3.1 Stock Consumption Graphic

Stock consumption graphic derived from the following data.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Average Unit Energy Consumption (kWh)	*0.96*	*0.93*	*0.92*	*0.88*	*0.86*	*0.84*	*0.83*	*0.81*	*0.83*	*0.82*	*0.82*	*0.82*	*0.82*	*0.82*
Total Consumption (GWh/yr)	5,154.65	5,092.38	5,013.60	4,937.65	4,871.36	4,813.64	4,768.41	4,730.55	4,708.34	4,691.41	4,681.08	4,666.72	4,661.07	4,664.73
Number of units in stock (millions)	18.25	18.44	18.61	18.79	18.97	19.17	19.38	19.62	19.86	20.10	20.34	20.53	20.71	20.89
Number of washes per year (90°C)	8.26	7.48	6.84	6.34	5.96	5.70	5.53	5.47	5.45	5.46	5.47	5.48	5.48	5.48
Number of washes per year (60°C)	95.74	94.12	92.32	90.46	88.63	86.96	85.55	84.51	83.63	82.94	82.42	82.08	81.89	81.89
Number of washes per year (40°C)	170.23	172.57	174.95	177.27	179.44	181.35	182.91	184.01	184.90	185.59	186.10	186.44	186.63	186.63
Number of washes per year Total	*274.23*	*274.17*	*274.11*	*274.07*	*274.03*	*274.01*	*273.99*	*273.99*	*273.98*	*273.99*	*273.99*	*274.00*	*274.00*	*274.00*

Modelling is from the UK Government's projections (see source).

Average Unit Energy Consumption is derived from assumed average in use wash temperature using in use load and assumed washes per year.

Three wash temperatures are included in the modelling, and the number of times each is used is expected to vary over time. Reference line modelling does not project further changes in washing machine habits, such as increasing numbers of lower temperature washes below 40°C or a changing number of washes. Including the effect of more lower temperature washes is hampered by a lack of knowledge concerning the stock of washing machines that are capable of washing a full load at 30°C or lower and the habits of people who own those machines.

NOTE: In 2009, the unit energy consumption of the stock is approximately 25% lower than the unit energy consumption of the average new unit in the same year. This is due to modelling assumptions on the efficiency of older units (less efficient), lifetime of units (12 years) increases in load capacity in recent years and the mixture of test temperatures used in stock modelling (see above) compared with fixed 60^{o}C testing of new models.

3.1.1 Data Source

Stock Data: Market Transformation Programme What If? Tool (refer http://efficient-products.defra.gov.uk/cms/product-data/)

Section 5: Notes on Policy Interventions

5.1.1 Data Source

Policy table extracted from the UK Government's standards 2009 briefing note for the reference scenario (http://efficient-products.defra.gov.uk/cms/product-strategies/subsector/wet-appliances)

5.1.2 Requirements of 1995 95/12/EC implementing directive[8] 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	$0{,}39 < C$

[8] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1995L0012:20070101:EN: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	$0,88 \geq P$

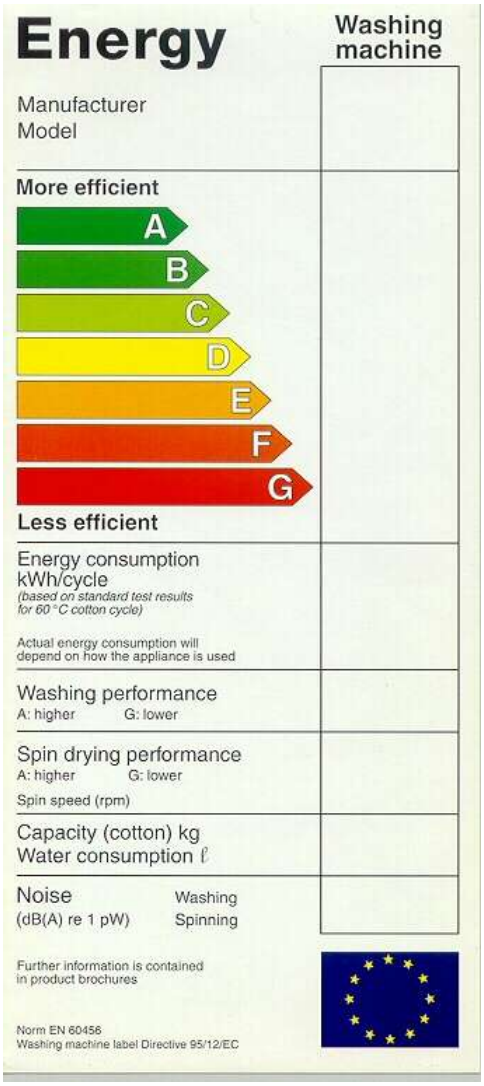
3. The drying efficiency class of an appliance shall be determined by the following table 3:

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 % ≤ D < 81 %
F	81 % ≤ D < 90 %
G	90 % ≤ D

The label itself is shown below[9]



[9] Source from: http://www.ceced.org/energy/Washer_energy_label.jpg

Section 6: Notes on Cultural Issues

6.1.1 Data Source

Cultural information extracted from the UK Government's standards 2009 briefing note for the reference scenario (http://efficient-products.defra.gov.uk/cms/product-strategies/subsector/wet-appliances) and from Mintel[10] reports.

[10] Laundry and Dishwashers Appliances UK February 2008