



# CONSUMER RELEVANT ECO-DESIGN AND LABELLING REQUIREMENTS FOR DOMESTIC DISHWASHERS

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## Summary

In the context of the implementation of the Eco-design of energy-using products the European Commission is proposing eco-design requirements for household dishwashers (Lot 14). Moreover the Commission is proposing requirements for the labelling of dishwashers. This paper outlines the main consumer relevant issues related to possible eco-design and labelling requirements for this category of products and recommends improvement options.

We welcome that the proposed Eco-design requirements address energy consumption but also address the cleaning and drying performance. However, we emphasise the need to limit maximum water consumption and to introduce requirements on drying efficiency as quickly as possible. Furthermore, while we strongly welcome a common ecological programme (so-called “Eco-programme”) as default setting for all dishwashers, we also call for technical solutions to be developed in order to avoid unwanted energy losses after the cleaning cycle. Moreover, we argue that benchmarks should also indicate values for airborne acoustical noise for compact machines.

Regarding the labelling of domestic dishwashers, we emphasise the need to keep the A-G energy label simple and meaningful for consumers. In this context, we strongly criticise the proposed layout of the Energy Label as it introduces a double scale of numbers and letters which would be far too confusing for consumers. We urge the Commission and Member States to keep the layout of the well-known A-G label. The label should also include important aspects such as the programme time and the cleaning performance of the appliance on the label.

## Introduction

Already in the year 2004, ANEC investigated how Eco-label criteria for dishwashers could be used to set mandatory minimum requirements for all products on the market. The report investigated at which level environmental baseline criteria should be set in order to allow for a significantly lower negative impact of dishwashers on the environment. On the basis of this study it was already proposed to eliminate the 20% of worst performing products from the market<sup>1</sup>. We therefore strongly welcome the Commission's initiative to set mandatory eco-design requirements for dishwashers which will phase out the worst performing dishwashers.

Moreover, we welcome the Commission's intention to link the Implementing Measure on the Energy Label to the Implementing Measure on eco-design for dishwashers as this will lead to more consistency and ensures that both instruments reinforce each other.

In this paper, we address the core consumer interests with regard to eco-design requirements and set out our concerns with regard to the proposed Energy Label's layout, the distribution of classes and missing elements on the label such as cleaning performance. Our comments are based on the Working Documents of the Commission<sup>2</sup> which were provided to stakeholders on 7 November 2008<sup>3</sup>.

### 1. General remarks

The sales of dishwashers have been increasing considerably since the early 1990's. The distribution of dishwashers, however, differs significantly between EU countries. Less than 3% of households in the so-called new Member States have a dishwasher while about 50% of households in Germany, Austria and Sweden possess a dishwasher. In 2005, circa 67.6 million units of dishwashers were installed in households<sup>4</sup>.

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<sup>1</sup> Evans, Chris (2005): Study on the suitability of eco-label criteria to derive environmental baseline requirements applicable to all products on the market, part II: Specific criteria for dishwashers, Final report produced for ANEC by Consumer Research Associates LTD.

<sup>2</sup> Working Document on a possible Commission Regulation implementing Directive 2005/32/EC with regard to household dishwashers and Working Document on a possible Commission Directive implementing Council Directive 92/75/EC with regard to household dishwashers.

<sup>3</sup> Based on the working documents for possible eco-design requirements for household dishwashers the Commission will prepare a draft Implementing Measure (IM). This draft IM will be submitted for voting to the Regulatory Committee of the Eco-design Directive. After the vote of the Regulatory Committee the European Parliament has a right of scrutiny.

<sup>4</sup> Preparatory Study, Lot 14, task 2.

Most of the models have place for 12 place settings (about 80%). Although the market share for smaller or compact machines is not large (about 12%), there is a trend to replace 8 place setting machines with 9 plate setting machines. Very small machines (4-5 place settings) and very large machines (14-15 place settings) only have a very small market share.

Due to a decline in dishwasher prices it is likely that the number of dishwashers purchased will continue to increase in the future. Considering the increasing number of dishwashers in households, the increase of energy and water prices and considering that the use-phase of a dishwasher has the most considerable environmental impact from a life cycle perspective, we see a strong need for ambitious eco-design requirements on dishwashers.

## **2. Eco-design requirements for energy efficiency**

We welcome that dishwashers with an energy efficiency performance below current class "A" thresholds will be phased out one year after the envisaged implementing measure enters into force.

However, considering that most models fulfil this minimum requirement already today<sup>5</sup>, a second set of eco-design requirements is envisaged to phase out current class "A" machines. Unfortunately the working document does not contain a figure on how the Energy Efficiency Index (EEI) within the current class "A" is distributed, and what percentage of dishwashers would be phased out with the second requirement. While we in principle support phasing out current class 'A' dishwashers in a second stage and consider that the five years envisaged between the two steps would allow manufacturers sufficient time to place more energy efficient models on the market, we also ask the Commission to provide more information on this point.

## **3. Introduction of Eco-programme**

We strongly welcome the requirement that all dishwashers should be equipped with an eco-wash programme which operates on the basis of 55° C. Moreover, we welcome that this eco-programme will be the default setting for dishwashers. The introduction of a common, default eco-wash

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<sup>5</sup> The preparatory study showed that based on data from the year 2005 about 90% of appliances fall under class "A". That means that 10% of the worst performing models would be taken off the market during the year 2010 (assuming that the Implementing Measure enters into force in 2009). However, as the data from the preparatory study are three years old, the percentage of products being phased out will be even less than 10%.

programme will allow for increased energy efficiency and will therefore be a cost-saving measure for both consumers and the environment.

It will also be for the benefit of consumers that this programme will have the common name “ECO” (instead of Eco, bio, energy saving etc.), as this will reduce the possibilities for confusion from one appliance to another as well as between countries.

However, as the cleaning performance may deteriorate due to lower temperatures it is of utmost importance that minimum requirements on cleaning performance are set, and that programmes which operate at a higher temperature level of 65° C are also allowed.

Moreover it has to be ensured that the resource savings in the Eco programme are not introduced on the expense of the programme duration. A very energy efficient Eco programme with unacceptable long programme duration might give an incentive to consumers to switch to less efficient programmes and thereby undermine the impact of this eco-design measure.

We call for such an “Eco-programme” to be introduced together with the first step of eco-design requirements one year after the measure enters into force.

#### **4. Eco-design requirements for water consumption**

Contrary to the proposed eco-design requirements for domestic washing machines<sup>6</sup> for which water consumption was addressed, we are disappointed to see that the proposed eco-design requirements for dishwashers do not contain limits on maximum water consumption.

A 2005 report on dishwashers<sup>7</sup> proposed a maximum water consumption of 17 litres per cycle for dishwashers with capacity for 10 place settings (ps) and above. However, as the study was compiled in 2005 and the benchmarks show models with a consumption of 9l per cycle for a 12 ps machine, the possibility for even lower values as minimum requirements for dishwashers should be investigated.

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<sup>6</sup> Working Document on a possible Commission Regulation implementing Directive 2005/32/EC with regard to household washing machines and Working Document on a possible Commission Directive implementing Council Directive 92/75/EC with regard to household washing machines.

<sup>7</sup> Evans, Chris (2005): Study on the suitability of eco-label criteria to derive environmental baseline requirements applicable to all products on the market, part II: Specific criteria for dishwashers, Final report produced for ANEC by Consumer Research Associates LTD, p. 21.

Considering that eco-design measures should also take into account environmental impacts other than energy efficiency and that a coherent approach between products with similar environmental aspects (washing machines and dishwashers) should be ensured, we urge the Commission to set mandatory minimum requirements for water consumption of dishwashers in the final Implementing Measure.

## **5. Eco-design requirements for cleaning performance**

Setting clear requirements on cleaning performance is necessary to ensure high quality performance despite reductions in energy and water consumption<sup>8</sup>. Considering that 90% of dishwashers already have a cleaning performance rated as class "A" we ask to phase out all appliances with a lower performance in the first step of eco-design requirements.

## **6. Eco-design requirements for drying efficiency**

We are disappointed to note that minimum requirements on drying efficiency are not foreseen for the first step of eco-design requirements. Taking into account that 80% of dishwashers already have a drying efficiency of class 'A' and only 8% of dishwashers belong to classes 'B' and 'C', we strongly believe that class 'C' should already be phased out during the first step of eco-design requirements. The drying efficiency index  $P_D$  should therefore be higher than 0,93 after one year and higher than 1,08 after six years.

## **7. Left-on mode should be avoided**

The preparatory study on dishwashers revealed that consumers often leave the dishwasher in on-mode<sup>9</sup> even several hours after the washing cycle has finished<sup>10</sup>. We therefore propose an auto-power down function which would

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<sup>8</sup> The Commission working document does not contain a minimum requirement for water consumption. However, it is crucial to define the cleaning performance to exclude that appliances appear on the market with an unrealistic low water performance which would be insufficient to clean the dishes.

<sup>9</sup> The "left-on mode" refers to a mode in which the washing cycle has finished and the consumer has unloaded the machine, but did not switch the dishwasher into off-mode. The definition for this term states moreover that this power consuming mode may persist for an indefinite time if the user does not finally switch off the dishwasher.

<sup>10</sup> The preparatory study showed that not all consumers switch the dishwasher off immediately after the end of the washing cycle. See Task 3, p. 76. in 50% of the washing cycles the dishwasher was in on mode for three hours on average.

switch the machine into standby as it would prevent unwanted energy losses.

If such an automatic power down function is not included in the eco-design requirements, it should at least be ensured that the doors of the dishwasher will be blocked until consumers switch the dishwasher off<sup>11</sup>. Without an automatic power down function or an automatic block for the doors consumers could unload the machine without switching it off and consequently the appliance would stay on for an indefinite period.

### **8. Mandatory hard-off switch for appliances without aquatic stop function**

Results from consumer testing show that some dishwashers consume energy in off-mode while others can be switched off to zero watts<sup>12</sup>. We therefore argue that only appliances with an aquatic stop should remain in standby, which allows the aquatic stop to function. On the other hand, all other dishwashers without such an aquatic stop function should have a mandatory hard-off switch as energy consumption in off-mode would not be justified.

### **9. Eco-design requirement for noise**

As dishwashers are most of the time installed in the kitchen, their noise level is an important convenience factor. Moreover, many consumers nowadays have open plan kitchens, meaning that a high noise level from the dishwasher would be even more disturbing.

ANEC proposed in 2005 to set a baseline standard for noise for all dishwashers at <53 dBA for free standing models and <50 dBA for built in models. However, taking into account that these results date from 2005 and that e.g. the EcoTopTen use 49 dB(A) for dishwashers with 10ps, this value seems to be more reasonable for a mandatory requirement on noise levels<sup>13</sup>.

We therefore call on the European Commission to introduce minimum requirements on noise levels for dishwashers at 49 dB(A)<sup>14</sup>.

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<sup>11</sup> With „off“ we mean here the activity of the consumer switching the programme button to the „off“ position (irrespective whether a zero watt consumption or a standby consumption is connected to this off switch).

<sup>12</sup> See Stiftung Warentest, test 4/2008.

<sup>13</sup> [http://www.ecotopten.de/prod\\_spuelen\\_prod.php](http://www.ecotopten.de/prod_spuelen_prod.php)

<sup>14</sup> We also call for a benchmark of 44 dB(A) (see point 13 of this paper).

## 10. Eco-design requirements on durability and repair

We must criticise the fact that the working document does not contain any proposals on how the durability of dishwashers could be improved. With appliances becoming increasingly resource efficient during the use phase, we should also make sure that the actual life time of these products is extended. The environmental benefits of even the most energy or resource efficient appliance will amount to little if the consumer needs to buy a new appliance every few years. To avoid such a scenario, the design of dishwashers should also take into account the issue of durability.

Further to the above, we also propose to enhance possibilities for repair by setting mandatory eco-design requirements on the availability of spare parts in order to extend the life-time of current dishwashers. Spare parts should be available for at least eight years after the last model has been produced<sup>15</sup>.

## 11. Requirement on recycling needed

We criticise the fact that the draft eco-design measures do not aim at improving recycling of dishwashers. We propose all plastic parts heavier than 50 grams to have a permanent marking identifying the material in conformity with ISO 11469<sup>16</sup> as this allows a more adequate treatment of product parts in the recycling process<sup>17</sup>.

## 12. Requirements on instructions

Based on the findings of the above-mentioned study on dishwashers we propose the following as a baseline standard for instructions in the manual on how to minimise environmental impact and operating costs:

Recommendations should be given for the optimal use of energy, water and additives (salt, detergents etc.) for the operation of the dishwasher as follows:

- Advice on the proper functioning of programmes and information on related water and energy consumption for all programmes;
- Advice to use full load whenever possible;
- Advice that programmes at lower temperatures save energy;

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<sup>15</sup> Ibid., p. 20.

<sup>16</sup> ISO 11469:2000 Plastics - Generic identification and marking of plastics products

<sup>17</sup> Evans, Chris (2005): Study on the suitability of eco-label criteria to derive environmental baseline requirements applicable to all products on the market, part II: Specific criteria for dishwashers, Final report produced for ANEC by Consumer Research Associates LTD, p. 7.

- Advice on types of detergents that wash best at temperatures below the 65° C programme and on correct dosage;
- Advice to avoid rinsing items or wrap dishes with paper before placing them into the machine;
- Advice to use the pre-wash programme only when needed;
- Advice on the best use of rinse and hold options if applicable;
- Advice to adjust salt dosing with regard to the local water hardness;
- Advice on the correct installation in order to minimise the noise emitted;
- Advice on correct maintenance of the dishwasher;
- Advice on whether the machine can be operated with hot-fill water or not;
- Information on manufacturers' take back procedure<sup>18</sup>.

### 13. Benchmarks

The values for the annual energy consumption of 209 kWh/year for 12ps machines and 176 kWh/year for 9ps machines seem to be incorrect as the calculation was based on 220 washing cycles per year. This value is correct for washing machines but, for dishwashers, the calculation must be based on 280 washing cycles per year. Therefore benchmark technology based on 280 cycles per year would have energy consumption of 266 kWh/year for a 12ps machine and of 224 kWh/year for 9ps machines. The numbers for the related EEI should also be corrected.

Benchmarks for compact machines of 9ps do not contain values for airborne acoustical noise. Information collected in for EcoTopTen shows that the best performing dishwashers with 9ps could reach 44 dB(A). This information should be added to the benchmarks.

Furthermore, dishwashers that operate with hot-fill could save a large amount of primary energy, thereby reducing related CO<sub>2</sub> emissions. Benchmarks should therefore indicate machines that can operate with hot-fill water. This is particularly important for consumers in Southern European countries which already use solar panels to heat hot water.

### 14. Calculation of the Energy Efficiency Index

Generally we appreciate the new method of calculating the Energy Efficiency Index (EEI) which takes into account several important aspects compared to the existing system. First, it displays the annual energy

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<sup>18</sup> These recommendations are based on the findings of Evans, Chris (2005): Study on the suitability of eco-label criteria to derive environmental baseline requirements applicable to all products on the market, part II: Specific criteria for dishwashers, Final report produced for ANEC by Consumer Research Associates LTD, p. 19.

consumption instead of merely energy consumption per wash cycle or per kg of dishes. With this new approach consumers will be better informed about the overall energy consumption of dishwashing. Second, the method includes the power consumption of left-on mode and off-mode into the calculation of the overall energy consumption.

The EEI is based on the assumption of full load while the real load could be lower than currently assumed in the standard EN 50242<sup>19</sup> which is used for the Energy Label.

We therefore ask the Commission to reconsider their position and take this aspect into account when calculating the EEI.

#### **15. Definition for off-mode should be changed**

The working document refers to off-mode as a condition where the product is switched into the lowest power consumption mode possible. Zero consumption for dishwashers is however not achieved in order to allow controls which prevent accidental water leakage to function. From a consumer perspective only power modes that do not consumer power at all should be called "off-mode".

We therefore propose to use the term "stand-by" instead for this mode as it more alerts consumers to the fact that a small amount of energy will continue to be consumed by the appliance.

#### **16. Verification procedure**

We call on the Commission to decrease the measurement tolerances for the annual energy consumption, water consumption, cleaning performance and programme duration from 10% to below 5% as we believe that this value is achievable.

We also do not consider a tolerance of 19% for the drying efficiency index to be justified as this would allow in certain cases to exaggerate the drying efficiency performance by one class and would be therefore misleading for consumers.

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<sup>19</sup> EN 50242 Electric dishwashers for household use - Test methods for measuring the performance

## 17. Energy Label

Consumer organisations have for many years asked to revise the classes of the Energy Label for dishwashers as most appliances on the market fall under class “A” and the scheme has not been updated since the introduction of the Energy Label on the basis of the Implementing Measure 97/17/EC. We therefore welcome the Commission’s proposal for a new Implementing Measure based on Council Directive 92/75/EC for dishwashers.

Our concerns relate however to the proposed layout, the distribution of classes, and the missing elements of the label such as the cleaning performance. Moreover, we are concerned about the high measurement tolerances allowed.

### A-G scale must be kept

We reiterate our position to keep the layout of the A-G scale unchanged to inform consumers on the energy efficiency of dishwashers<sup>20</sup>. Numbers on the left hand side of the scale do not perform a function in terms of consumer information and should therefore be deleted.

We particularly oppose the proposal to keep the A-G scheme only for a transition period, as stated in the explanatory notes of the Implementing Measure.

Considering that the label for dishwashers has already been in place for many years and consumer research<sup>21</sup> has clearly showed that the label works well in pulling the market up towards more energy efficient appliances, we do not see any benefit in introducing a new layout which would only confuse consumers.

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<sup>20</sup> See ANEC/ BEUC input to the European Commission on the revision of the EU Energy Label, BEUC X/09/08 – 18/02/08, ANEC-ENV-2008-G-001final, 19 February 2008.

<sup>21</sup> ANEC, BEUC, Consumer Focus (formerly UK National Consumer Council), the UK Energy Saving Trust and the UK Department for Environment, Food and Rural Affairs (DEFRA) asked Ipsos MORI to carry out empirical research concerning consumers’ perception of the A-G Energy label. See <http://docshare.beuc.org/docs/1/IMNDMHNCPIGBNPIHIJGOPPAAPDBW9DBWBY9DW3571KM/BEUC/docs/DLS/2008-00802-01-E.pdf>  
<http://www.anec.eu/attachments/ANEC-ENV-2008-G-040a.pdf>

### Distribution of A-G classes on the new label

Due to the proposed mandatory eco-design requirements all dishwashers below the current class “A” would be phased out of the market. Hence, after stage one of the eco-design requirements only class “A” and class “B” dishwashers would be available on the market. Consequently consumers would not find any appliances of class C to G on the market as these would be banned. This situation would not change significantly after six years once the Energy Label is envisaged to be updated because it is only foreseen to downgrade appliances by one class (e.g. previous “A” would become “B”).

However, we argue that the Energy Label classes must be distributed in a way for it to remain a useful tool for consumer information on the one hand, and provide sufficient incentives for manufacturers to reach a better energy efficiency class on the other. We have serious concerns that the effect of pulling the market up will be hampered by the Commission proposal, as having only “A” and “B” appliances on the market for many years would not allow consumers to see a differentiation in products and would thus not provide an incentive for manufacturers to improve their products. When all products are “A”, why should manufacturers invest in the development of more energy efficient appliances?

Although the energy efficiency of dishwashers has improved considerably in recent years and we acknowledge that technology has its limits with regard to ever increasing efficiency, we do not consider that the optimum technical level has been achieved. In the coming years innovative and more resource-efficient dishwashers will undoubtedly appear on the market. Therefore the distribution of labelling classes should leave some headroom for development.

The rescaling should therefore be more ambitious and differentiate at least models from A-D and leave sufficient headroom within the A-G scale for future development.

A situation in which classes C to G are left empty, would inevitably lead to a situation in a few years time in that manufacturers will want to advertise their dishwashers as “A+” because they are considerably better than the average “A” class.

### Missing elements on the label: cleaning performance, programme duration

The core information to consumers on the label is on energy and water consumption, drying efficiency and cleaning performance. Moreover, indication of noise levels, programme duration and place settings are necessary to inform consumers at first sight when buying a new dishwasher.

We therefore do not support the Commission proposal to delete information on the cleaning performance from the future label. As the cleaning performance is one of the most important criteria for consumers when purchasing a dishwasher, it would be a step back not to show this information on the label. Although the phasing out of appliances below a certain cleaning performance would lead to a situation in which most appliances show the same cleaning performance, we believe that improvements in the cleaning performance are still possible in the future. Consequently, we consider it crucial to set a scale for cleaning performance which would still have headroom for upward development.

Another important convenience factor for consumers is the programme duration which differs considerably from one model to the other.

#### Drying efficiency has to be displayed in terms of A-G

We welcome that information on the drying efficiency will be shown on the label. However, as we do not support the Commission's proposal to inform consumers about efficiency in figures, we ask to replace the numerical scale for drying efficiency with the A-G scale. As recent consumer research<sup>22</sup> has shown that consumers know to correctly interpret the A-G scale in order to identify the most energy efficient appliances they would also understand that an appliance with a drying efficiency "A" is the best available drying efficiency at the moment of purchase.

#### Other communications (Annex V)

It has to be ensured that also in other communications, e.g. catalogues and website consumer see exact the same label than in shops is shown to consumers.

End.

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<sup>22</sup> Ibid.