

## Ecodesign Preparatory Study ENER Lot 24: Professional washing machines, dryers and dishwashers

### Minutes of the First Stakeholder Meeting on Dishwashers

**Place:** European Commission  
Centre Albert Borschette, Brussels

**Date / Time:** July 13, 2010  
09h30 – 17h00

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#### **Agenda:**

- 09h30 – 10h00 Welcome of participants
- 10h00 – 10h15 Introduction and scope of the meeting
- 10h15 – 11h15 Presentation and discussion of Task 1 (Definition)
- 11h15 – 13h00 Presentation and discussion of Task 2 (Market Analysis)
- 13h00 – 14h00 Lunch break
- 14h00 – 15h30 Presentation and discussion of Task 3 (Consumer Behaviour)
- 15h30 – 16h00 Presentation and discussion of Task 4 (Technical Analysis)
- 16h00 – 16h45 Presentation and discussion of first considerations regarding Base Cases (Task 5)
- 16h45 – 17h00 Any Other Business

*The times of the agenda are different from the originally planned times as they reflect the reality of the events that occurred.*

**Annex:** Stakeholders who read these minutes should also consult the powerpoint presentations of the meeting that are available on the project website.

## Participants:

### European Commission

*AC*      Alix Chambris      EC – DG ENER

### Lot 2 consortium

*IR*      Ina Rüdener      Öko-Institut

*COG*      Carl-Otto Gensch      Öko-Institut

*SM*      Shailendra Mudgal      BIO Intelligence Service

*TF*      Thibault Faninger      BIO Intelligence Service

*DS*      Dieter Seifried      Büro Ö-quadrat

### Stakeholders

*AB*      Anna Brückner      University of Bonn

*KB*      Karl Büttner      Hobart

*DDS*      Duccio De Santis      CECED Italia (also on behalf of EFCEM - European Federation of Catering Equipment Manufacturers)

*BG*      Bruno Gaus      Meiko

*MG*      Markus Gessler      Winterhalter Gastronom GmbH

*AH*      Andreas Helm      HKI Industrieverband

*KV*      Kathrin Völker      HKI Industrieverband

*EK*      Eike Kellermeier      Miele

*MM*      Matthias Meiwes      Miele

*EM*      Erika Menosso      Electrolux

*EN*      Evelien Nijs      Federal Public Service of Belgium - Health, Food Chain Safety and Environment

*SP*      Siegfried Päsler      VGG (Vereinigung Gewerbliches Geschirrspülen – Association of commercial dishwashing)

JJ	Johannes Jager	Stichting Natuur & Milieu / European Environmental Citizens' Organisation for Standardisation (ECOS)
JK	Jørgen Kjeldgaard	Danish Technological Institute

## 1. INTRODUCTION

Ina Rüdener (IR) of Öko-Institut welcomed participants to the meeting and presented the agenda. Alix Chambris (AC) from the European Commission DG ENER initiated introductions by all participants.

## 2. TASK 1

IR makes a presentation on the current content of Task 1.

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### *Discussing the terminology*

About the terminology, Jørgen Kjeldgaard (JK) explained that based on the experience of a CENELEC meeting, the term “commercial” would be more appropriate than “professional” in this study. Markus Gessler (MG) shared this point of view. Erika Menosso (EM) explained that in the refrigeration sector, the two terms are used and commercial rather refers to supermarkets customers; but in the dishwashers sector, they consider themselves as a professional equipment manufacturer. Shailendra Mudgal (SM) said that in Lot 1 (DG ENTR) EuP preparatory study the term “commercial” was used in order to exclude industrial equipment. He also thinks it would be more relevant in case of dishwashers. A paragraph will be added in the chapter to make this point clearer.

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### *Discussing the standards*

EM spotted a spelling error in the presentation: regarding test standards, TC59C is only related to safety and should be replaced by TC59X.

JK explained that this quote from the CENELEC meeting that the Committee should “make sure that standards for household and professional dishwashers are not separate” is not exactly true, regarding what was actually said during the meeting: household and commercial equipment have very different use; commercial equipment standards should be set based on the experience of household standards and by the same working group, instead of starting from scratch.

MG argued that it is not entirely true the cleaning performance is not covered by the current standards: it is assessed, but only with a “pass” or “fail” indication.

Siegfried Päsler (SP) confirmed that the DIN standards are currently under revision. AC explained that the existing link between energy consumption and cleaning performance has been an issue for the study on household dishwashers (Lot 14, DG TREN) and wonders if the situation is similar for the commercial sector. MG told that the sector is so wide that the minimum criteria “pass/fail” is the only realistic option found so far. Also, if the customers are not satisfied with the level of cleaning provided by the machine (regarding hygiene), they provide feedback and ask support to the manufacturer. In short, the customer

chooses its level of performance desired, even if the cleaning performance is not covered by the standards in a more differentiated way. EM explained that a different approach is used in Italy: the hygiene is still the primary parameter of the dishwasher but the measurement of the cleaning performance is used to ensure the hygiene. JK added that the water consumption has also an influence on the cleaning performance achieved (tests on several hood-type dishwashers based on old VGG method).

Anna Brückner (AB) stressed the need for the customer to be able to compare products before the purchase on an equal basis. JK added that the persons in charge of the equipment purchase are not always familiar with dishwashers' technology. The cleaning index can be an important criterion.

MG and SP explained that the VGG testing paper that JK referred to has not been updated for 40 years and is neither applicable nor used.

EM will provide further information on some standards that were presented, that are actually not relevant for commercial equipment (related to noise, electromagnetic field, etc.).

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#### *Discussing the scope*

Duccio de Santis (DDS) repeated the comments he already gave during a previous phone call. He does not consider category 1 dishwashers (undercounter, water change) as commercial appliances which should therefore be out of scope and he suggests combining category 5 and 6.

Eike Kellermeier (EK) considers category 1 (undercounter, water change) as a commercial appliance (as the intended use is commercial): it should be considered for the rest of the study.

### **3. TASK 2**

TF made a presentation on the current results of task 2.

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#### *Discussing the lifetimes*

After discussion between all the stakeholders, it was agreed to update the following lifetimes: 12 years for one tank conveyor-type dishwashers, 17 years for multi-tank conveyor-type dishwashers, 8 years for one tank undercounter dishwashers and 8 years for hood-type dishwashers.

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#### *Discussing redesign cycles and employment figures*

AC explained that this information is important in order for the Commission to set an appropriate planning if regulations are adopted: there is a need to find a balance between the setting of ambitious requirements while taking into account the logistic and technical constraints of the manufacturers.

The current figures look realistic but EM specified that it is very specific to the type of redesign.

Stakeholders estimated at 5000 the number of employees in Italy, and 2500 in Germany (direct employment only). Feedback on indirect employment is still needed.

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#### *Discussion on improvement trends*

The figure of 20% reduction of the water and electricity consumption between 2010 and 2020 looks realistic for manufacturers. However, EM added that it will depend on the level of performance at which the consumption will be measured. She is a bit more sceptical about this figure as she considers that the market has already made important progress. Johannes Jager (JJ) said that this EuP preparatory study is a common goal and should push 'late' people to do a bit more to catch up with the technological trends: he thinks that it is not a technical problem.

Bruno Gaus (BG) said that 60% reduction of electricity consumption by using heat recovery systems is not realistic: it is less than that. IR invited especially stakeholders from Italy to comment on the table with the implementation of technological trends in the future as she thinks that the current figures are too optimistic. Also input of other stakeholders is welcome.

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#### *Discussion on technical parameters*

Stakeholders think that the capacity of type 4 (utensil/pot dishwashers) should not be presented in litres, but rather in rack size (possibly surface unit).

Regarding prices, EM said that there is a huge price variation for category 2 (under counter, one tank) as small glass washers are also included. BG said that category 6 (transport, multi tank) is customer specific so that there is no average or typical product. SM and AC insisted that at this stage of the study, a full picture of the market is required to give the Commission all the clues to take appropriate decisions: if exemptions are made, they need to be justified with evidence. DDS explained that in Italy they took the most important shares of the market to provide prices averages and ranges.

MG will provide the project team with an excel spreadsheet that is used by customers to estimate the life cycle costs.

Matthias Meiwes (MM) thinks that the detergent price should be slightly higher (3€/L) but the project team should contact Ecolab or Diversey as the most important detergent manufacturers. There is a large variation on the market regarding concentration and price.

EK said that the maintenance prices should have a smaller share for types 1 and 2 than for the other categories. Karl Büttner (KB) will come back to the project team with additional data on the maintenance expenditure.

## **4. TASK 3**

IR presents the results of Task 3.

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#### *Discussing the capacity range*

The capacity ranges of conveyor-type dishwashers were discussed: the ranges presented are correct, however especially at the upper end they include extreme values that can be found in only few

dishwashers. The typical range for category 5 is between 1 500 and 2 000 plates / hour, for category 6 between 1 700 to 6 000 plates per hour. The capacity unit will be harmonised within the report (currently plates/hour in task 2 and dish/hour in task 3).

The typical capacity of category 5 dishwashers should be lower than 2.000 plates / hour as typical range is only between 1.500 and 2.000 plates / hour. For hood type dishwashers 120 cycles per day is a rather hard use. 80 cycles per day is more realistic. The typical capacity will be harmonised within the report.

MG offers to provide the excel-file used at Winterhalter to do LCC calculations for customers to Öko-Institut (on a confidential basis).

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#### *Discussing the technological options (water heating)*

JJ asked whether the commercial dishwashers with tank(s) have insulated tank(s). KB said that it is an option to insulate. According to MG, Winterhalter products have a “double skin” that helps keeping the water warm.

DDS and AC suggested to replace the term “standby” by “ready to use” in the whole report, and explain this term.

IR asked for written comments on measures to optimise user behaviour.

In the table presenting the input energy sources (slide 22), the second column should be split in two different columns: one called “hot water” (for high pressure hot water/steam heating) and the other one called “connected to warm water” (connection to the tap) which are two different design options. EM specified that all Electrolux appliances can be connected to warm water. EK added that the connection to warm tap water is more common for type 1 (under counter water change) as per cycle more water has to be heated up to the desired temperature. These products have two inlets, one for cold tap water and the other for warm tap water. The balance between the uses of these two inputs depends on the application. Manufacturers are invited to provide estimations on the share of tank operated dishwashers connected to warm water. KB will check for further figures regarding this table.

MG underlined that the connection to warm water is not always possible: when options such as heat recovery or water treatment system (softening) are included, the appliance require cold water at the input.

IR and DS suggested keeping cold water supply as standard, which seems the best option to have a base. Whatever the source of energy to bring to the system (electricity if water heated in the dishwasher, others if hot water coming from the outside), the quantity of energy is the same, but the efficiency of heating may be different. It therefore may make an environmental difference but this depends on how the water is heated outside the dishwasher and how the specific infrastructure is (e.g. length of stub lines). Additionally it is possible to have the initial filling of the wash tanks with warm water and / or the water consumption during operation. The project team will think about this topic to see how it can be integrated in EcoReport. SM added that it does not make a difference if the same options are kept for both base-cases (Task 5) and products with improvement options (Task 7). It is agreed to keep cold water supply as base.

## 5. TASK 4

AC suggested taking into account the use of silver that can be added for hygienic reasons. BG and EM do not use silver in their products. The project team will consider this parameter in the study. Similarly, the analysis of detergents is in the scope of the study and should be taken care of.

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### *Discussion on energy inputs/outputs*

COG explained that it would be interesting to have a chart like slide 22 for all different product categories. On the figure slide 22, KB thinks that the energy inputs look realistic but the heat losses in output seem too high as meanwhile heat recovery is standard for conveyor-type machines. COG added that the previously discussed insulation option (of wash tanks) would not make a significant difference given the share of convection losses (4.3%).

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### *Discussion on technological constraints*

DDS said that 55°C should not be a strict minimum limit, as others improvements might be possible. EM endorsed that manufacturers can focus on different aspects of the sinner cycle, so that putting a limit to one parameter might prevent some options. The hygiene always remains the first goal though. All other stakeholders supported this idea: the dishwasher should be considered as a system. KB added that certain minimum temperatures are no longer mandatory in the DIN standards currently under revision. MG added that also the detergent should not be fixed to allow for improvements through different formulations. IR agreed not to present this value as a “must”. The values in the report were rather explanatory not suggestions for minimum requirements. However if there are no constraints regarding the detergent this would open the possibility for manufacturers to achieve high hygienic performance by chemical means (as in the US market) with important environmental consequences. AC explained that if the EU was to set performance targets, technology constraints cannot be imposed, only the results can be targeted.

## 6. TASK 5

TF launched the discussion on the definition of the base-cases.

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### *Discussion on type 1*

For type 1 (under-counter water change), DDS claimed that these appliances should be excluded from the scope but EK repeated that these appliances are commercial appliances and should be included. AC explained that they cannot be covered by household appliances regulations now as these have been finalised. However, results from the household dishwashers study (Lot 14) may be re-used, if relevant. Types 1 and 2 (under counter one tank) cannot be combined in one single base-case, from a technological point of view. The type 1 will be considered as a single base-case.

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#### *Discussion on types 2-3*

According to DDS and EM, types 2 and 3 could be combined. MG said that it could be feasible.

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#### *Discussion on types 5-6*

According to DDS and EM, types 5 and 6 could be combined. KB and MG do not share this point of view because multi tank conveyor-type dishwashers are customer-specific. Every machine is unique and a typical product does not exist. SG and BG supported the idea of excluding category 6 products from the scope of the project.

AC stressed that the preliminary results of this category show that its impact is quite important. SM added that the analysis needs to be carried out before we can say what can be done in terms of regulation or not. The final outcome could even be a voluntary agreement between the industries.

SM made it clear that the challenge is more methodological than technical: the point is not to define an existing product as a base-case. A base-case can be a “conscious abstraction of reality”. Assumptions can be made if they are clearly shown. The point is to find the right balance between what can be generalised within the product category, and what is specific. AC said there are probably basic technologies that are used by all manufacturers and that should be available with different levels of performance so that a comparison between a base-case product and a product with better efficiency should be feasible.

BG and EM said they are open to provide data even if it will not be straightforward.