

ESPR – Commercial Dishwashers: Proposals for Ecodesign and Energy Label requirements

Stakeholder Meeting – 23 June 2026

Oeko-Institut, Fraunhofer ISI, Trinomics, Ecomatters, Fraunhofer IZM, and VITO



Welcome & Aim of this meeting in the context of the Ecodesign for Sustainable Products Regulation (ESPR)

Commercial Dishwashers

23 June 2026



Wojtek SITARZ
DG ENV B4
Sustainable Products

Agenda – Part 1

- 9:00 – 9:10 **Welcome | Opening Remarks |**
Aim and background of this stakeholder meeting
ENV B.4
- Proposal for Ecodesign requirements**
Martin Möller – Senior Researcher – Oeko-Institut
Antoine Durand – Senior Consultant – Fraunhofer ISI
- 9:10 – 9:35 - **Scope, Definitions**
- **Requirements, Measurement methods, Verification tolerances**
 - Programme requirements
 - Functional requirements
 - Q&A
- =====
- 9:35 – 10:15 ○ **Energy consumption requirements**
○ **Water consumption requirements**
○ Q&A
- =====
- 10:15 – 10:45 ○ **Resource efficiency requirements**
○ Q&A
- 10:45 – 11:00 Coffee break

Agenda – Part 2

| | |
|---------------|--|
| 11:00 – 11:15 | <ul style="list-style-type: none">○ Information requirements (general)○ Q&A |
| 11:15 – 12:00 | <ul style="list-style-type: none">○ Information requirements (Substances of Concern)○ Q&A |
| 12:00 – 12:45 | <p>Proposal for Energy labelling requirements <i>Antoine Durand – Senior Consultant – Fraunhofer ISI</i> <i>Martin Möller – Senior Researcher – Oeko-Institut</i></p> <ul style="list-style-type: none">- Energy efficiency classes- Q&A |
| 12:45 – 13:00 | <p>Next steps Closing remarks End of the meeting <i>ENV B.4</i></p> |

Background documents & next steps

- Final MEERP Preparatory study Task 1-7 report and draft documents for Ecodesign and Energy Label requirements available for download under <https://ecodesign-commdishwashers.eu/en/documents>
- **Stakeholder feedback to Draft Ecodesign and Energy Label requirements the latest by 13 September 2026:** Please send the **feedback template** (available on project website) back to ecodesign-commdishwashers@oeko.de.
- EU Ecodesign Forum meeting envisaged for 21 October 2026 (date tbc)
- **Stakeholder registration** still possible, please inform your network: <https://ecodesign-commdishwashers.eu/en/register>

Proposal for Ecodesign requirements

Martin Möller – Oeko-Institut

Antoine Durand – Fraunhofer ISI



- Scope and definitions
- Programme requirements
- Functional requirements

Martin Möller - Oeko-Institut



Scope of Ecodesign and Energy label requirements on commercial dishwashers

Commercial dishwashing machines:

- Category 1: Undercounter water-change dishwashers
- **Category 2: Undercounter one-tank dishwashers**
- **Category 3: Hood-type dishwashers**
- Category 4: Utensil / Pot dishwashers
- Category 5: One-tank conveyor-type dishwashers (belt/basket)
- Category 6: Multi-tank conveyor-type dishwashers (belt/basket)

Definition of commercial dishwasher

‘commercial dishwasher’ means a machine which cleans, rinses, and *optionally* dries wash ware, **such as ~~like~~** dishware, glassware, cutlery, and other utensils connected to the preparation, cooking, arrangement or serving of food (including drinks), **using ~~by~~** chemical, mechanical, and thermal means; which is connected to electric mains and which is designed to be used principally for commercial (*non-household, non-industrial*) purposes as stated by the manufacturer in the Declaration of Conformity (DoC)

(ED Art. 2 1, ED Annex I 1, EL Art. 2 1, EL Annex I 2)

Programme requirements

- Commercial dishwashers shall provide a **standard programme** set as the **default** programme for commercial dishwashers equipped with automatic programme selection or any function maintaining the selection of a programme, or, if there is no automatic programme selection, available for direct selection without the need for any other selection such as a specific temperature or load. (ED Annex II 1)
- ‘Standard programme’ means the name of the programme of a commercial dishwasher declared by the manufacturer, importer or authorised representative as suitable to clean **normally soiled washware**, and to which the **ecodesign requirements** on energy and water efficiency, cleaning, resoiling* and hygiene performance relate (ED Annex I 14)
- The **pre-selection** of the standard programme as default programme **can be changed** after the first use.

* Resoiling performance only relevant for information requirements

Functional requirements

- Commercial dishwashers shall meet the following **requirements for the standard programme (ED Annex II 2)**:
 - (a) the cleaning performance (x_{clean}) shall be greater than 90 %;
 - (b) the minimum hygiene requirements as specified in Annex III.
- x_{clean} shall be calculated in accordance with Annex III and rounded to two decimal places **(ED Annex III 3)**:

$$x_{\text{clean}} = 1 - \frac{T_{\text{NRD}}}{T_{\text{NAD}}} \cdot 100\%$$

where:

T_{NRD} is the total number of remaining dots

T_{NAD} is the total number of applied dots

Functional requirements

- (...) commercial dishwasher shall fulfil the following **hygiene requirements** in the applied standard programme (ED Annex III 3):
 - (1) Bacterial reduction measured at bioindicators in the cutlery tray:
 - (a) Minimum 7 out of 8 bioindicators shall show a minimum reduction of 5-log levels*;
 - (b) None of the bioindicators shall show a reduction below 4-log levels*;
 - (2) Bacterial reduction measured at bioindicators on test plates:
 - (a) Minimum 90 % of the bioindicators shall show a minimum reduction of 5-log levels*;
 - (b) None of the bioindicators shall show a reduction below 4-log levels*;
 - (3) Bacterial reduction measured at bioindicators in the test rack: All 10 bioindicators shall show a minimum reduction of 5-log levels*.

* Log levels are expressed as logarithms (base 10)

Functional requirements

- **Standard programme** refers to the 'test programme' of EN IEC 63136 for normally soiled washware (standard cleaning)
- Besides **cleaning performance**, also minimum **hygiene requirements** have to be met by the standard programme
 - Stringent hygiene measures are essential in commercial dishwashing due to the **reuse of tableware by numerous unrelated individuals**, which increases the risk of **cross-contamination** and the transmission of microorganisms compared to private households
 - Provide a **general and fair baseline** for measuring energy and water consumption requirements
 - **No precedent** for elevating EN 17735 to the status of law
- **Resoiling performance** is not considered by the standard programme due to the lack of reliable verification tolerances.

Review

- Commission shall review this Regulation **6 years after its entry into force** in the light of technological progress and shall present the results of this review, including, if appropriate, a draft revision proposal (ED Art. III 8)
- The review shall in particular focus on the following:
 - (a) the **improvement potential** with regard to energy and environmental performance of commercial dishwashers;
 - (b) extending the **scope** of this Regulation to include product categories that are currently excluded according to Article 1(2)(a);
 - (c) the level of **verification tolerances**;
 - (d) the **revised version of EN IEC 63136** and any resulting implications for the functional requirements of commercial dishwashers;
 - (e) an assessment of the **evolution of consumer behaviour** and of the penetration rate of commercial dishwashers in EU Member States;
 - (f) the effectiveness of existing requirements on **resource efficiency**;
 - (g) the appropriateness of setting additional resource efficiency requirements for products in accordance with the objectives of the circular economy, including whether **more spare parts** should be included.

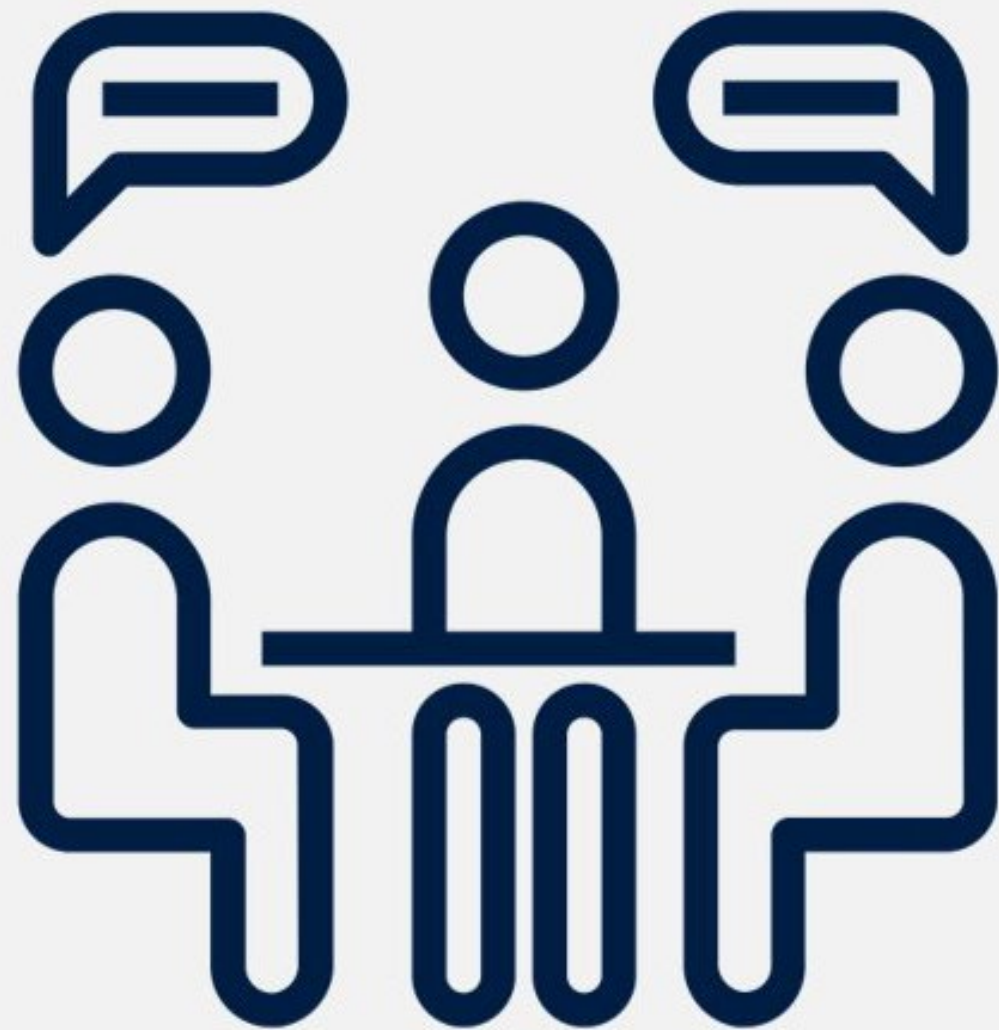
Verification tolerances

| Parameter | Verification tolerances |
|---|--|
| Cleaning performance (x_{clean}) | The determined value* shall not be less than the declared value of x_{clean} by more than 10 % . |
| Hygiene performance | n.a. |

*In the case of three additional units tested as prescribed in point 4 of ED Annex IV, the determined value means the arithmetical mean of the values determined for these three additional units.

(ED Annex IV, Table 3)

Questions & Answers



Requirements on

- Energy consumption
- Water consumption

Antoine Durand – Fraunhofer ISI



Update since Task 7 of the ESPR preparatory study

Task 7:

- analysis carried out based on the data from the Swiss market
- hygiene requirements likely not considered in the available data

New data gathered after the Preparatory Study :

- Performance assessed according to requirements for the **standard programme** (including hygiene requirements)
 - In total: 7 x BC2 and 7 x BC3 models (anonymised data from 2 different EU markets)
- Deviation between Task 7 results and the updated requirements
- **Further data (anonymous) welcome!**

Energy consumption

The **standard programme energy consumption (SPEC)** is calculated as follows and rounded to three decimal places:

$$SPEC = \frac{E_C}{p_R}$$

where:

- E_C is the standard programme energy consumption of the commercial dishwasher measured in **kWh/cycle** and rounded to three decimal places;
- p_R is the **number of plates per rack** of the commercial dishwasher in the standard programme.

(ED Annex III 1)

Water consumption

The **standard programme water consumption (SPWC)** is calculated as follows and rounded to three decimal places:

$$SPWC = \frac{V_C}{p_R}$$

where:

- V_C is the standard programme water consumption of the commercial dishwasher measured in **l/cycle** and rounded to one decimal places;
- p_R is the number of **plates per rack** of the commercial dishwasher in the standard programme.

(ED Annex III 2)

Requirements

Consumption requirements for the standard programme cycle:

| | energy consumption for the standard programme cycle (SPEC) in kWh/plate | water consumption for the standard programme cycle (SPWC) in l/plate |
|--|---|--|
| under-counter one-tank dishwashers (BC2) | 0.021 | 0.179* |
| hood-type dishwashers (BC3) | 0.023 | 0.169* |

*: corrected value compared to documents shared to the stakeholders (all models considered)

Remark: Requirements set to ban products in the bottom 25% of the performance range

(ED Annex II 3 and 4)

Benchmarks

Indicative benchmarks for commercial dishwashers on water and energy consumption and programme duration:

At the time of entry into force of this Regulation, the best available technology on the market for commercial dishwashers in terms of their energy and water consumption and programme duration for the standard programme was identified as follows:

- (1) Under-counter one-tank dishwasher:
 - (a) energy consumption: 0.0143 kWh/plate;
 - (b) water consumption: 0.0944* L/plate;
 - (c) programme duration: 122 seconds;

- (2) Hood-type dishwasher
 - (a) energy consumption: 0.0177* kWh/plate;
 - (b) water consumption: 0.0928* L/plate;
 - (c) programme duration: 60* seconds.

*: corrected value compared to documents shared to the stakeholders (all models considered)
(ED Annex V)

Verification tolerances

| Parameter | Verification tolerances |
|--|--|
| Energy consumption per cycle | The determined value* shall not exceed the declared value by more than 10 % . |
| Water consumption per cycle | The determined value* shall not exceed the declared value by more than 10 % . |
| Standard programme energy consumption per plate (SPEC) | The determined value* shall not exceed the declared value of SPEC by more than 10 % . |
| Standard programme water consumption per plate (SPWC) | The determined value* shall not exceed the declared value of SPWC by more than 10 % . |
| Programme duration (T_{SPR}) | The determined value* shall not exceed the declared value of T_{SPR} by more than 5 % or 6 seconds , whichever is the longer. |

*In the case of three additional units tested as prescribed in point 4 of ED Annex IV, the determined value means the arithmetical mean of the values determined for these three additional units.

(ED Annex IV, Table 3)

Questions

- Data collected representative enough?
- XLS template to collect additional models:

<https://ecodesign-commdishwashers.eu/>

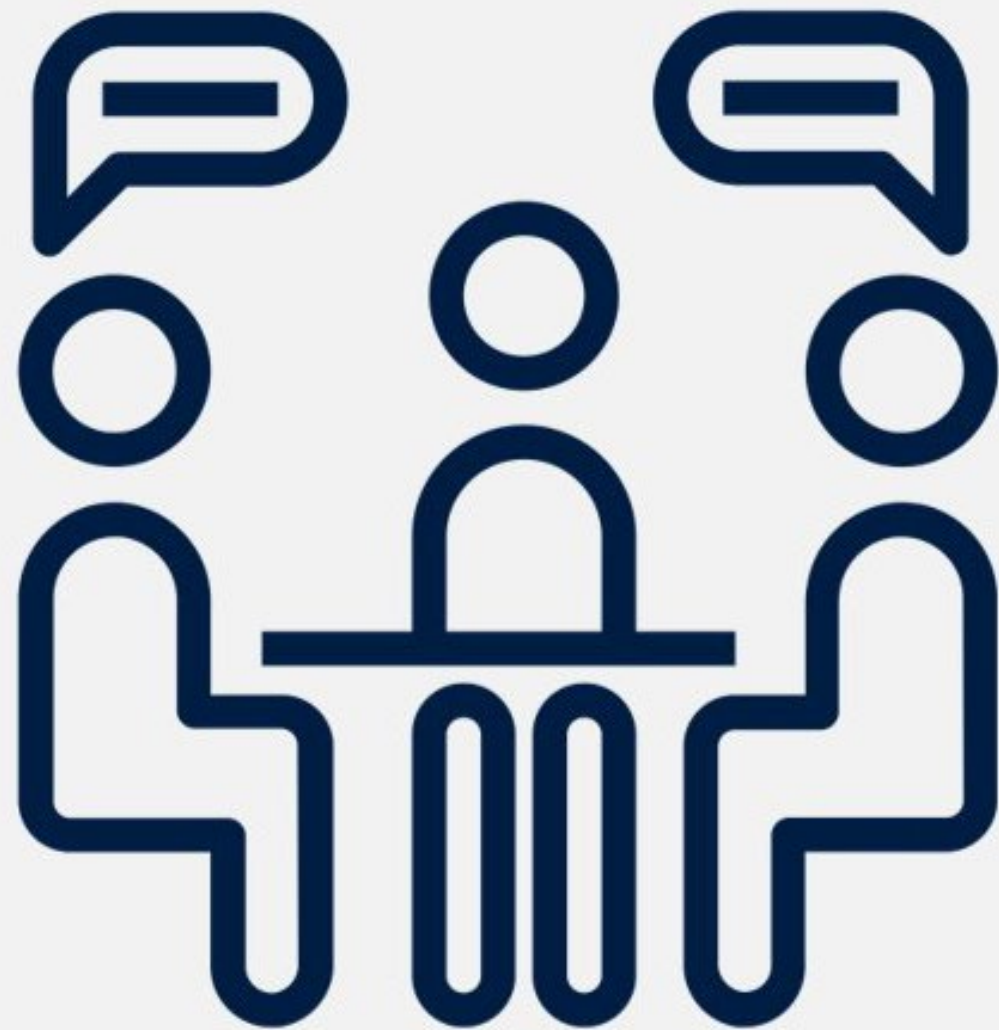
Contact:
 - Antoine Durand (Fraunhofer ISI): antoine.durand@isi.fraunhofer.de
 - and Martin Möller (Oeko Institut): m.moeller@oeko.de

Data to provide according to EN IEC 63136:2019

| | |
|------------|--|
| Priority 1 | Tested in a program fulfilling following requirements - Xc ≥ 0.9 according to EN IEC 63136:2019 - Hygiene requirements according to EN 17735 |
| Priority 2 | |
| Optional | |

| Data | Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--|-------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| Type of dishwasher / BaseCase | | | | | | | | | | | | | | | | |
| EN 17735 passed with the same programme | | | | | | | | | | | | | | | | |
| Manufacturer/provider: | | | | | | | | | | | | | | | | |
| Model name: | | | | | | | | | | | | | | | | |
| Serial number: | | | | | | | | | | | | | | | | |
| Programme used: | | | | | | | | | | | | | | | | |
| Manufacturer's setting of tank temperature | | | | | | | | | | | | | | | | |
| Manufacturer's setting of boiler temperature | | | | | | | | | | | | | | | | |
| Features | | | | | | | | | | | | | | | | |
| Detergent solution concentration | [g/l] | | | | | | | | | | | | | | | |
| Rinse aid solution concentration | [g/l] | | | | | | | | | | | | | | | |
| Energy consumption for initial fill (ES) | kWh | | | | | | | | | | | | | | | |
| Water consumption for initial fill (VS) | l | | | | | | | | | | | | | | | |
| Start-up time (TS) | s | | | | | | | | | | | | | | | |
| Number of plates per rack | | | | | | | | | | | | | | | | |
| Cleaning performance (xclean) | % | | | | | | | | | | | | | | | |
| Resoiling performance (xres) | | | | | | | | | | | | | | | | |
| Energy consumption per cycle (EC) | kWh | | | | | | | | | | | | | | | |
| Water consumption per cycle (VC) | l | | | | | | | | | | | | | | | |
| Energy consumption per plate (EP) | kWh | | | | | | | | | | | | | | | |
| Water consumption per plate (VP) | l | | | | | | | | | | | | | | | |
| Average programme time (TPR) | s | | | | | | | | | | | | | | | |
| Average cycle time (TC) | s | | | | | | | | | | | | | | | |
| Power ready-to-use mode (PU) | kW | | | | | | | | | | | | | | | |

Questions & Answers



Resource efficiency requirements

Martin Möller - Oeko-Institut



Availability of spare parts (I)

Manufacturers, importers or authorised representatives of commercial dishwashers shall make available to professional repairers at least the **following spare parts**, for a **minimum period of ten years** after placing the last unit of the model on the market:

- parts of the dosing system
- parts related to the water circulation system, e.g. circulation pump, piping, nozzles
- pumps
- heating elements
- chemical dispensers
- printed circuit boards (PCBs)
- relays/contactors
- thermostats and temperature sensors
- pressure sensors or switches

Availability of spare parts (II)

- Manufacturers, importers or authorised representatives of commercial dishwashers shall ensure that the mentioned spare parts can be replaced with the use of **commonly available tools and without permanent damage to the appliance**;
- The **list** of mentioned spare parts and the **procedure for ordering** them and the repair instructions shall be **publicly available on the free access website** of the manufacturer, importer or authorised representative, when placing the first unit of a model on the market and until the end of the period of availability of these spare parts;

Maximum delivery time of spare parts

- During the minimum period of ten years, the manufacturer, importer or authorised representative shall ensure the delivery of the spare parts within **five working days** after having received the order until the **handover of spare parts to an express logistics provider**
- Availability of spare parts may be limited to **registered professional repairers**

Access to repair and maintenance information (I)

When placing the first unit of a model on the market, and until the end of the period mentioned under (1), the manufacturer, importer or authorised representative shall **provide access to the appliance repair and maintenance information to professional repairers** in the following conditions:

- (a) the manufacturer's, importer's or authorised representative's website shall indicate the process for professional repairers to **register for access to information**; to accept such a request, the manufacturers, importers or authorised representatives may require the professional repairer to demonstrate that:
 - (i) the professional repairer has the **technical competence** to repair commercial dishwashers and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point;
 - (ii) the professional repairer is covered by **insurance** covering liabilities resulting from its activity regardless of whether this is required by the Member State;

Access to repair and maintenance information (II)

- (b) the manufacturers, importers or authorised representatives shall **accept or refuse the registration within 5 working** days from the date of the request;
- (c) the manufacturers, importers or authorised representatives may **charge reasonable and proportionate fees** for access to the repair and maintenance information or for receiving regular updates.
A fee is reasonable if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information;
- (d) once registered, a professional repairer shall have **access, within one working day after requesting** it, to the requested repair and maintenance information.
The information may be provided for an equivalent model or model of the same family, if relevant;

Access to repair and maintenance information (III)

- (e) the **available repair and maintenance information shall include:**
 - the unequivocal **appliance identification**;
 - a **disassembly map** or **exploded view**;
 - list of necessary **repair and test equipment**;
 - **component and diagnosis information** (such as minimum and maximum theoretical values for measurements);
 - **wiring and connection diagrams**;
 - **diagnostic fault and error codes** (including manufacturer-specific codes, where applicable);
 - instructions for installation of relevant **software and firmware** including reset software; and
 - information on how to access **data records of reported failure incidents** stored on the commercial dishwasher (where applicable);

Information requirements for refrigerant gases

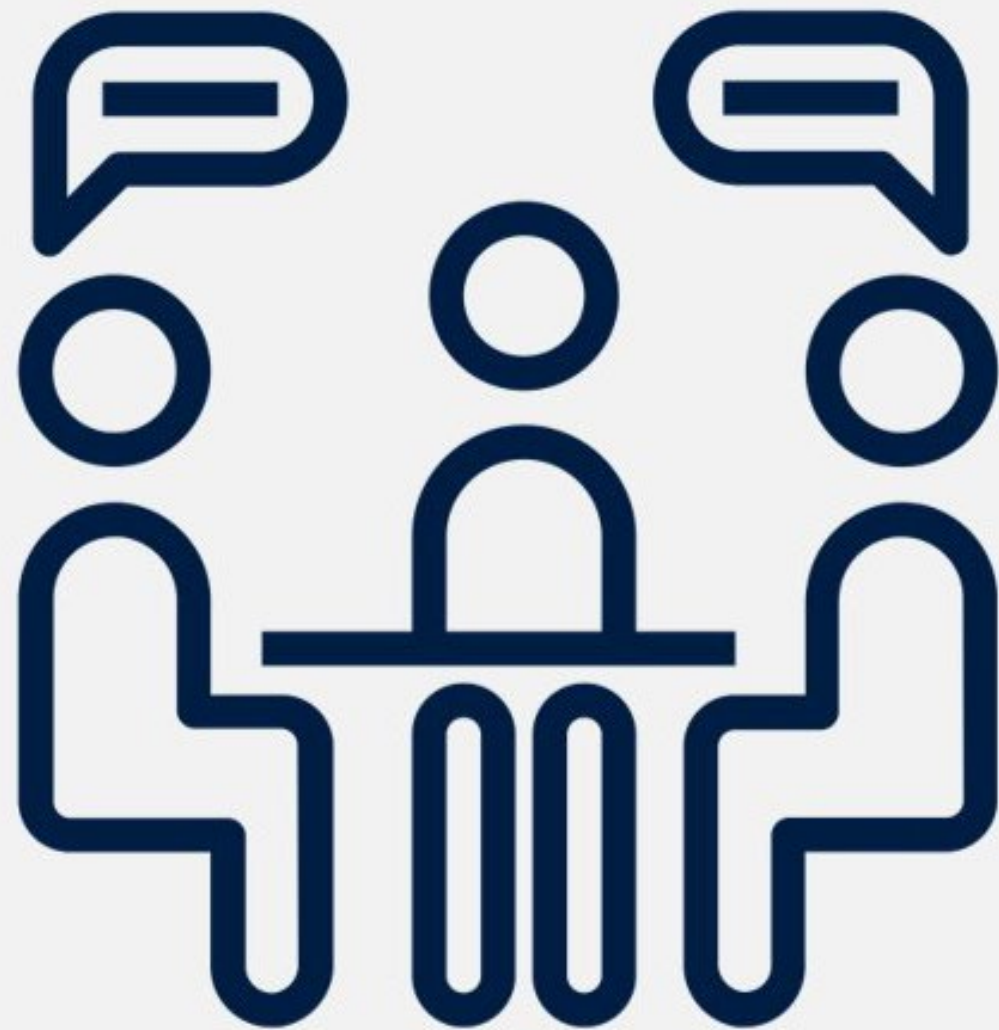
Without prejudice to Regulation (EU) 2024/573 of the European Parliament and of the Council*, for commercial dishwashers equipped with a **heat pump**, the **chemical name of the refrigerant gas used**, or equivalent reference such as a commonly used and understood symbol, label or logo, shall be **displayed** permanently and in a visible and readable way on the exterior of the appliance, for example on the back panel. More than one reference can be used for the same chemical name.

* Regulation (EU) 2024/573 of the European Parliament and of the Council of 7 February 2024 on fluorinated greenhouse gases, amending Directive (EU) 2019/1937 and repealing Regulation (EU) No 517/2014 (OJ L 253, 20.2.2024, p. 1–67)

Requirements for dismantling for material recovery and recycling while avoiding pollution

- Manufacturers, importers or authorised representatives shall ensure that commercial dishwashers are designed in such a way that the **materials and components referred to in Annex VII to Directive 2012/19/EU (WEEE Directive)** can be removed with the use of **commonly available tools**.
- Manufacturers, importers or authorised representatives shall fulfil the **obligations** laid down in **Article 15**, Point 1 of **Directive 2012/19/EU (WEEE Directive)** .

Questions & Answers



Information requirements (general)

Martin Möller - Oeko-Institut



Information for users and installers

- User and installer instructions shall be provided in the form of a **user manual** on a free access website of the manufacturer, importer or authorised representative, and shall include:
 - (1) the **information on technical parameters** included in Table 1 of ED Annex II, with its parameters measured and calculated (where necessary) in accordance with ED Annex III and showing the number of significant figures indicated in the table;
 - (2) information that the **standard programme** is suitable to clean normally soiled tableware and fulfil hygiene requirements, and that it is used to assess compliance with the EU Ecodesign for Sustainable Products Regulation (ESPR);
 - (3) information that **loading** the commercial dishwasher up to the capacity indicated by the manufacturer will contribute to **energy and water savings** and information on correct loading of tableware and main **consequences of incorrect loading**;
 - (4) information that **manual pre-rinsing** of tableware items leads to **increased water consumption** and is not recommended;
 - (5) information that the **values** given for **programmes other than the standard programme** are **indicative** only; and,
 - (6) instruction on how to find the model information stored in the **product database**, as set out in Regulation on ecodesign requirements for commercial dishwashers, by means of a weblink that links to the model information as stored in the product database or a link to the product database and information on how to find the model identifier on the product.

General information

- Supplier's name or trade mark
- Supplier's address
- Model identifier
- Type of commercial dishwasher
- Design options implemented

(ED Annex II 6, Table 1)

Performance of the standard programme

| | | |
|---|-----|-----|
| Energy consumption for initial fill | X,X | kWh |
| Water consumption for initial fill | X,X | l |
| Power of ready-to-use mode | X,X | kW |
| Number of plates per rack | X | - |
| Cleaning performance (x_{clean}) | X | % |
| Resoiling performance (x_{res}) | X,X | - |

(ED Annex II 6, Table 1)

Performance of the standard programme

| | | |
|---------------------|---|---|
| Hygiene performance | Number of bioindicators with a minimum reduction of 5-log level (in the cutlery tray) | X |
| | Number of bioindicators with a minimum reduction of 4-log level (in the cutlery tray) | X |
| | Share of bioindicators with a minimum reduction of 5-log level (on test plates) | X |
| | Number of bioindicators with a minimum reduction of 4-log level (on test plates) | X |
| | Number of bioindicators with a minimum reduction of 5-log level (in the test rack) | X |

Performance of the standard programme

| | | |
|-------------------------------------|-------|-----|
| Energy consumption per cycle | X,X | kWh |
| Water consumption per cycle | X,X | l |
| Energy consumption per plate (SPEC) | X,XXX | kWh |
| Water consumption per plate (SPWC) | X,XXX | l |
| Programme time (T_{SPR}) | X | s |

(ED Annex II 6, Table 1)

Instructions for maintenance operations

- The user instructions shall also include instructions for the user to perform **maintenance operations**. Such instructions shall as a minimum include instructions for:
 - (1) **correct installation** (including level positioning, connection to mains, connection to water inlets, cold and/or hot if appropriate);
 - (2) **correct use of detergent and rinse aid**, and main consequences of incorrect dosage;
 - (3) **foreign object removal** from the commercial dishwasher;
 - (4) **periodic cleaning**, including optimal frequency and limescale prevention, and procedure;
 - (5) **periodic checks of filters**, including optimal frequency, and procedure;
 - (6) **identification of errors**, the meaning of the errors, and the action required, including identification of errors requiring professional assistance;
 - (7) how to **access professional repair** (internet webpages, addresses, contact details).
- Such instructions shall also include information on:
 - (1) any **implications of self-repair or non-professional repair** for the safety of the end-user and for the guarantee;
 - (2) the minimum **period** during which **spare parts** for the commercial dishwasher are available.

Questions & Answers



Information requirements (Substances of Concern)

Kathrin Kutlescha – DG ENV

Martin Möller - Oeko-Institut



RECAP - SoC in the ESPR legal text

Twofold approach with different scope and different boundaries:

- **Information requirements** and display → TRACKING of all SoCs (a, b, c and d) to enable information flow (B2B and to consumers) and to waste management operators (recyclers, preparation for reuse, etc) to improve management of SoCs including via digital product passport (DPP) or other systems such as labels, tags, etc.
- By default, all SoCs are tracked – DA to define thresholds and exemptions where relevant
- **Performance requirements** → RESTRICTIONS for sustainability reasons on:
 - Focusing on impact on ecodesign criteria in Art 5(1): durability, resource use, presence of substances of concern, possibility of recycling, possibility of remanufacturing, environmental footprint ...
 - ESPR should NOT provide for the restriction of substances based primarily on chemical safety, as done under other Union legislation. Union legislation on chemicals already provides for the restrictions of substances or mixtures related to safety or risk, where needed.

RECAP - SoC in the ESPR legal text

SoC definition

(27) 'substance of concern' means a substance that:

- (a) meets the criteria laid down in Article 57 of **Regulation (EC) No 1907/2006** and is identified in accordance with Article 59(1) of that Regulation;
- (b) is classified in **Part 3 of Annex VI to Regulation (EC) No 1272/2008** in one of the following hazard classes or hazard categories:
 - carcinogenicity categories 1 and 2, germ cell mutagenicity categories 1 and 2, reproductive toxicity categories 1 and 2, endocrine disruption for human health categories 1 and 2, endocrine disruption for the environment categories 1 and 2, persistent, mobile and toxic or very persistent, very mobile properties, persistent, bioaccumulative and toxic or very persistent, very bioaccumulative properties, respiratory sensitisation category 1, skin sensitisation category 1, chronic hazard to the aquatic environment categories 1 to 4, hazardous to the ozone layer, specific target organ toxicity – repeated exposure categories 1 and 2, specific target organ toxicity – single exposure categories 1 and 2;
- (c) is regulated under **Regulation (EU) 2019/1021**; or
- (d) **negatively affects the reuse and recycling of materials in the product in which it is present;**

SoC tracking Dishwashers

General

Performance requirements

- No performance requirements for SoC were envisaged in the prep study

Information requirements – tracking of SoC

- Obligation of tracking of SoC a-d) present IN the product at 'priority' component level
- “Relevant” Components will be defined (next slides)
- No unique SoC d) substances have been identified during the prep study
- Tracking of SoC a-c) is envisaged to be applied in tiered approach giving stakeholders sufficient time to gather information and implement the requirements
- Differences in availability/ease of gathering of SoC information across the supply chain are being taken into account

SoC tracking Dishwashers

Draft proposed thresholds and potential transition periods for tracking

- SoC a) (SVHC/ Candidate list substances)
 - Threshold: 0.1%w/w at 'priority' component level
 - Applies [18 months] after adoption of the DA

- SoC c) (PoPs)
 - Threshold: 0.1%w/w at 'priority' component level
 - Applies [18 months] after adoption of the DA

*Subject to impact assessment study

SoC tracking Dishwashers

Draft thresholds and potential transition periods for tracking – SoC b) (CLH substances)

- Lowest applicable threshold based on SoC classification(s) at priority component level
 - carcinogenicity cat 1 and 2: 0,1% w/w
 - germ cell mutagenicity cat 1: 0,1% w/w
 - germ cell mutagenicity cat 2: 1,0% w/w
 - reproductive toxicity cat 1 and 2: 0,1% w/w
 - endocrine disruption human health cat 1: 0,1 % w/w
 - endocrine disruption human health cat 2: 1,0% w/w
 - endocrine disruption environment cat 1: 0,1% w/w
 - endocrine disruption environment cat 2: 1,0% w/w
 - persistent, mobile and toxic or vPvM: 0,1% w/w
 - persistent, bioaccumulative and toxic or vPvB: 0,1% w/w
 - respiratory sensitisation cat1: 0,1% w/w
 - skin sensitisation cat 1: 0,1% w/w
 - hazardous to the aquatic environment cat chronic 1 to 4: 1,0% w/w
 - hazardous to the ozone layer: 0,1% w/w
 - specific target organ toxicity RE cat 1 and 2: 1,0 % w/w
 - specific target organ toxicity SE cat 1 and 2: 1,0 % w/w
- Applies [36 months] after adoption of the DA
- Exemptions for substances classified under ‘EU-CLP-only’ (hazard classes not present in GHS) – tracking applies [36 months] after inclusion of the hazard class in GHS

Priority components (I)

Components for the purpose of information requirements on substances of concern in commercial dishwashers include, but are not limited to (ED Annex II 7):

| Component | SoC potentially contained | Function of SoC |
|---|--|---|
| Casings | hexavalent chromium | anti-corrosion treatment |
| | PFAS | non-stick, anti-stain, or water-repellent coatings |
| Cooling agents (contained in heat pumps) | R-134a, R-407 | cooling agent |
| Dosing system (especially hoses, tubing, valves) | PFAS (PTFE, PVDF) | chemical resistance, dimensional stability |
| | phthalates (e.g. DEHP, diisononyl phthalate) | flexibility, chemical resistance |
| Fittings (for pumps, water inlets) | lead (as alloy in brass) | improves machinability of brass and leak-tightness |
| Gaskets | imidazolidine-2-thione | vulcanization accelerator |
| | dibutylbis(pentane-2,4-dionato-O,O')tin | catalyst in polymer curing |
| | PFAS (e.g. PTFE micro-powders) | improves manufacturing (e.g. demolding) |
| Housings (of motors and pumps) | brominated flame retardants (e.g. TBBA) | fire protection |
| LCD panels | lead monoxide | contained in glass frit seals |
| | lead titanium zirconium oxide | piezoelectric performance |
| | indium tin oxide (ITO) | electrical conductivity and optical transparency |
| Motors | polytetrafluoroethylene (PTFE) | insulating, low-friction, and heat-resistant material |
| | lead (as alloy in brass) | improves machinability of brass and leak-tightness |
| O-rings | PFAS, e.g. FKM | chemical resistance, dimensional stability |
| | 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol | antiaging agent |
| | imidazolidine-2-thione | vulcanization accelerator |

Priority components (II)

Components for the purpose of information requirements on substances of concern in commercial dishwashers include, but are not limited to (ED Annex II 7):

| Component | SoC potentially contained | Function of SoC |
|---|--|---|
| Printed circuit boards (especially program control unit) | brominated flame retardants (e.g. TBBA) | fire protection |
| | PFAS (e.g. fluorinated acrylates) | protective coating, moisture resistance |
| | lead | contained in piezo components |
| | lead monoxide | contained in program control unit and frequency inverters |
| | lead titanium zirconium oxide | contained in frequency inverters |
| | 2-methyl-1-[4-(methylsulfanyl)phenyl]-2-(morpholin-4-yl)propan-1-one | photo initiator in UV cured coatings |
| | melamine | crosslinking agent, thermal stability |
| Pumps | polytetrafluoroethylene (PTFE) | Sealing, low friction material |
| | lead (as alloy in brass) | improves machinability of brass and leak-tightness |
| Racks and baskets | hexavalent chromium | anti-corrosion treatment |
| | phthalates (e.g. DEHP) | flexibility, chemical resistance |
| Solenoid valves | lead (as alloy in brass) | improves machinability of brass and leak-tightness |
| Tanks | hexavalent chromium | surface treatments, passivation, or coating processes used during manufacturing |
| Wiring harness (electrical cables) | phthalates (e.g. DEHP) | flexibility, chemical resistance |

Information requirements

The information shall include the following (ED Annex II 7):

- (a) the name or numerical code of the substance of concern present in the product, as follows:
 - (i) name in the International Union of Pure and Applied Chemistry (IUPAC) nomenclature, or another international name when IUPAC name is not available;
 - (ii) other names, including usual name, trade name, abbreviation;
 - (iii) European Community (EC) number, as indicated in the European Inventory of Existing Commercial Chemical Substances (EINECS), the European List of Notified Chemical Substances (ELINCS) or the No Longer Polymer (NLP) list or the number assigned by the European Chemicals Agency (ECHA), if available and appropriate;
 - (iv) the Chemical Abstract Service (CAS) name and number, if available;
- (b) the location of the substances of concern within the product; [at a minimum at priority component level]
- (c) the concentration range of the substances of concern, at the level of the [priority] components;
- (d) relevant instructions for the safe use of the product;
- (e) information relevant for disassembly, preparation for reuse, reuse, recycling and the environmentally sound management of the product at end-of-life.

EPREL: how to include the SoC information

Two possibilities:

- Structured table directly included in EPREL
- Link in EPREL to structured table on economic operator's website

Questions I

- Do you have any comments on the tiered approach (tiered entry into force/timelines) proposed for tracking the SoC contained in commercial dishwashers?
- Does the approach of priority components provide reduced reporting burden compared to the calculation basis of the REACH Article 33 requirements (which would be on individual article basis for a complex article)?
- Would you find it useful to have the voluntary option for SoC a) only to report the 'same' information (i.e. same calculation basis/higher granularity) to avoid 're-calculating' SVHC info on component basis?
- Do you agree with the proposal to base SoC info on priority components?
Do you consider the list of priority components to be both complete and appropriate?
- Would a time-limited exemption of CLP-only classified substance (e.g. ED, PMT etc), for which no GHS information is available yet via international supply chains, simplify the SoC b) tracking?

Questions II

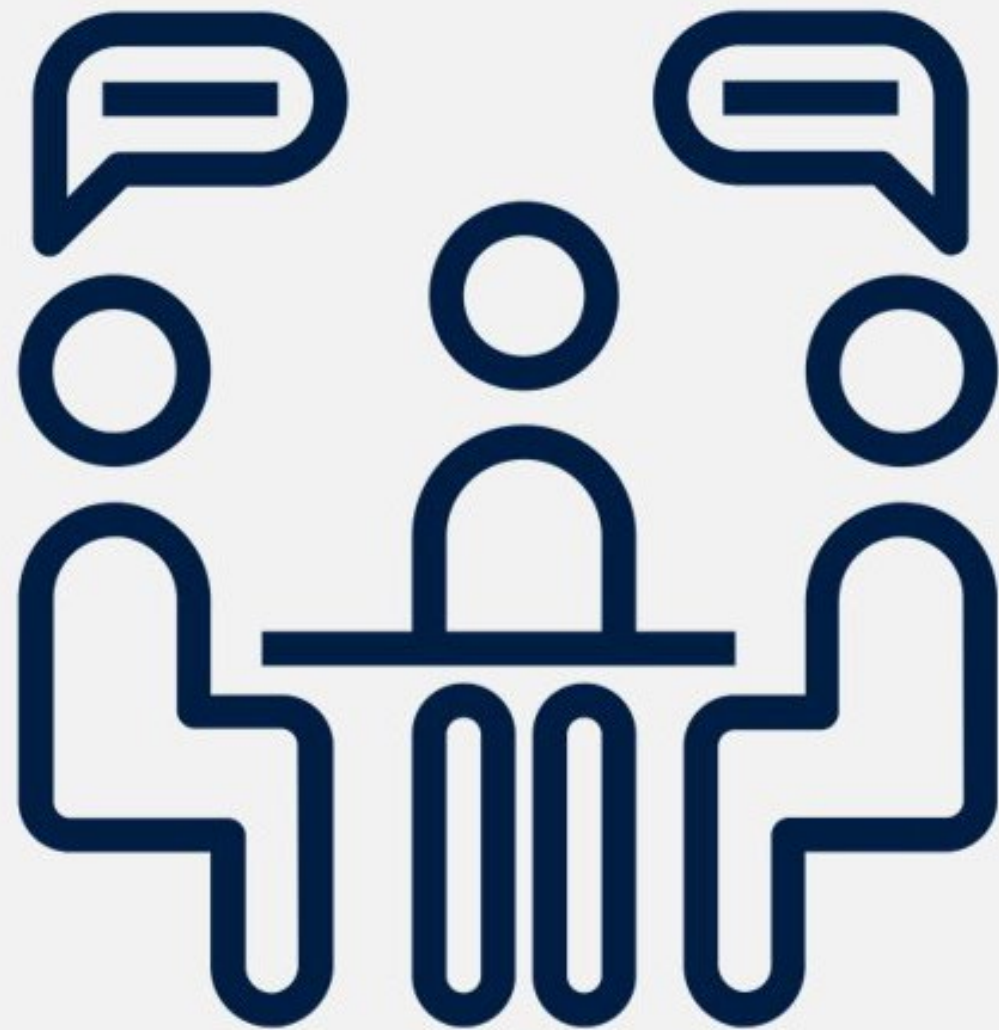
- Stakeholders are invited to provide additional technical evidence related to the impact on recycling of lead and TBBA-A from dishwashers as to further substantiate and justify the identification as SoC d) as well as relevant information thresholds.

If the identification of these substances as SoC d) remains, they will be covered by ED Annex II in the following form:

For SoC according to Article 2(27)(d) of Regulation (EU) 2024/1781 a threshold of 0.1 %w/w [on priority component basis] applies from XX.XX.XXXX [36 months after adoption of this Regulation], unless specific thresholds or transition periods are defined hereunder. The following SoC d) have been identified:

| Substance name | EC-No. | CAS-No. | Specific threshold [%w/w] | Specific transition period |
|----------------|--------|---------|------------------------------|----------------------------|
| XXX | | | | |
| XXX | | | | |
| ... | | | | |

Questions & Answers



Proposal for Energy Label requirements

Antoine Durand – Fraunhofer ISI

Martin Möller - Oeko-Institut



Ricardo Gomez Angel (Unsplash)

Why an Energy Label?

- Few stakeholders (Members / Industry) supported the Energy Label:
 - Energy using product
 - For BC2 and BC3: Energy Label could be a strong information, in particular for this rather small products
 - The associated EPREL database is (now) well established
- “Complexity” of the regulation:
 - DPP: only for 2 base cases and a rather small market volume
 - Commercial and household dishwashers are planned to be technically covered by the same regulation, and household dishwashers are already regulated with an Energy Label (and will keep it)

→ Energy label preferred for the working document

Energy efficiency classes: Energy Labelling regulation (EU) 2017/1369

Art. 11 - Procedure for the introduction and rescaling of labels

- 8) Where a label is introduced or rescaled, the Commission shall ensure that **no products are expected to fall into energy class A at the moment of the introduction of the label** and the estimated time within which a majority of models falls into that class is at least 10 years later.
 - threshold for B energy class: Benchmark level
- 9) By way of derogation from paragraph 8, where technology is expected to develop more rapidly, requirements shall be laid down so that no products are expected to fall into energy classes A and B at the moment of the introduction of the label.
 - not expected
- 10) Where, for a given product group, models belonging to **energy class E, F or G are no longer allowed to be placed on the market** or put into service because of an Ecodesign implementing measure adopted pursuant to Directive 2009/125/EC, the class or classes in question shall be shown on the label in grey as specified in the relevant delegated act. The label with the grey classes shall apply only to new product units placed on the market or put into service.
 - not applicable, as only one tier → G energy class: MEPS

Energy efficiency classes: Proposal

- BC2: under-counter one-tank dishwashers (EL Annex II Table 1)
- BC3: hood-type dishwashers (EL Annex II Table 2)

| Energy efficiency class | Energy Efficiency Index |
|-------------------------|-------------------------|
| A | $EEI \leq 100$ |
| B | $100 < EEI \leq 110$ |
| C | $110 < EEI \leq 120$ |
| D | $120 < EEI \leq 130$ |
| E | $130 < EEI \leq 140$ |
| F | $140 < EEI \leq 150$ |
| G | $150 < EEI$ |

| Energy efficiency class | Energy Efficiency Index |
|-------------------------|-------------------------|
| A | $EEI \leq 100$ |
| B | $100 < EEI \leq 106$ |
| C | $106 < EEI \leq 112$ |
| D | $112 < EEI \leq 118$ |
| E | $118 < EEI \leq 124$ |
| F | $124 < EEI \leq 130$ |
| G | $130 < EEI$ |

corrected value compared to documents shared to the stakeholders (all models considered)

Energy efficiency classes: Proposal and background

- A: empty (benchmark: B threshold)
- G: corresponds to the MEPS threshold

corrected value compared to documents shared to the stakeholders (all models considered)

- BC2: under-counter one-tank dishwashers (based on **EL Annex II Table 1**)

| | BC2 |
|-------------------------------------|---------------|
| REC | 0.0130 |
| EEl step | 10 |
| benchmark | 0.0143 |
| Benchmark x% worse than A threshold | 10% |
| Class of current benchmark | B |

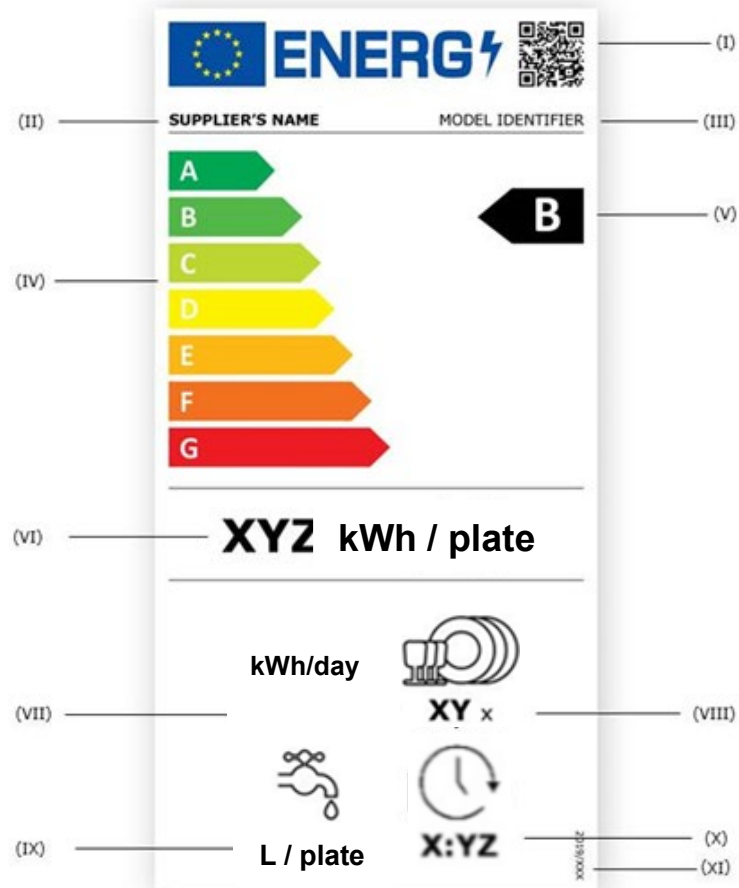
| EEl | EE Class | | SPEC kWh/plate |
|-----|----------|----------|----------------|
| 100 | A | A < 100 | 0.0130 |
| 110 | B | B < 110 | 0.0143 |
| 120 | C | C < 120 | 0.0156 |
| 130 | D | D < 130 | 0.0169 |
| 140 | E | E < 140 | 0.0182 |
| 150 | F | F < 150 | 0.0195 |
| 160 | G | G >= 150 | 0.0208 |

- BC3: hood-type dishwashers (based on **EL Annex II Table 2**)

| | BC3 |
|-------------------------------------|---------------|
| REC | 0.0167 |
| EEl step | 6 |
| benchmark | 0.0177 |
| Benchmark x% worse than A threshold | 6% |
| Class of current benchmark | B |

| EEl | EE Class | | SPEC kWh/plate |
|-----|----------|----------|----------------|
| 100 | A | A < 100 | 0.0167 |
| 106 | B | B < 106 | 0.0177 |
| 112 | C | C < 112 | 0.0187 |
| 118 | D | D < 118 | 0.0197 |
| 124 | E | E < 124 | 0.0207 |
| 130 | F | F < 130 | 0.0217 |
| 136 | G | G >= 130 | 0.0227 |

Design of the label



- I. QR code;
- II. supplier's name or trade mark;
- III. supplier's model identifier;
- IV. **scale of energy efficiency classes** from A to G;
- V. the **energy efficiency class** determined in accordance with point A of Annex II;
- VI. **standard programme energy consumption (SPEC)** in kWh per plate, rounded to three decimal places;
- VII. **daily energy consumption** for the standard programme in kWh, rounded to one decimal place;
- VIII. **rated capacity in plates**, for the standard programme;
- IX. **standard programme water consumption (SPWC)** in litres per plate, rounded to three decimal places;
- X **programme duration** of the standard programme (T_{SPR}) in seconds;
- ~~XI. **airborne acoustic noise emissions (to be deleted);**~~
- XII. the number of this Regulation, that is 'XXXX/XXX' [PO- please insert the number of this Regulation in this point and in the right bottom corner of the label].

(EL Annex III, Art. 1)

Illustrative energy label (based on the Household Dishwasher EL) – updated for the SH meeting

Measurement methods and calculations

ENERGY EFFICIENCY INDEX (EL Annex IV, Art. 1)

The EEI is calculated as follows and rounded to one decimal place:

$$EEI = \frac{SPEC}{REC} \cdot 100$$

Where:

- **SPEC** is the **standard programme energy consumption** of the commercial dishwasher, measured in kWh/plate and rounded to three decimal places;
- **REC** is the **reference energy consumption** of the commercial dishwasher in kWh/plate specified as follows:

(1) for under-counter one-tank dishwashers: REC = [0.0130* kWh/plate]

(2) for hood-type dishwashers: REC = [0.0167* kWh/plate]

* corrected value compared to documents shared to the stakeholders (all models considered)

Measurement methods and calculations

DAILY ENERGY CONSUMPTION (EL Annex IV, Art. 2)

The **daily energy consumption of dishwashers (DEC)** is calculated as follows and rounded to one decimal place:

$$DEC = E_S \cdot 2 + SPEC \cdot n_P \cdot n_R + P_U \cdot 9h$$

Where:

- E_S is the energy consumption for initial fill in kWh;
- SPEC is the standard programme energy consumption in kWh/plate;
- n_P is the number of plates per rack;
- n_R is the number of racks per day, with*:
 - (1) 55 racks per day for under-counter one-tank dishwashers;
 - (2) 110 racks per day for hood-type dishwashers;
- P_U is the power of the ready-to-use mode in kW.

* based on the usage reported in the Preparatory Study

Measurement methods and calculations

Further aspects

- The **standard programme energy consumption (SPEC)** is calculated as follows and rounded to three decimal places (EL Annex IV, Art. 3):

$$SPEC = \frac{E_C}{p_R}$$

- The **standard programme water consumption (SPWC)** is calculated as follows and rounded to three decimal places (EL Annex IV, Art. 4) :

$$SPWC = \frac{V_C}{p_R}$$

- The **programme duration for the standard programme** (T_{SPR}) (EL Annex IV, Art. 5) is measured from the initiation of the programme (excluding any user-programmed delay) until an end of programme indicator is showing the end of the programme. T_{SPR} is expressed in seconds.

Product information sheet

(EL Annex V Table 3)

To be entered into the product database

| | | | |
|---|----------|--|----------|
| Supplier's name or trade mark: | | | |
| Supplier's address^b: | | | |
| Model identifier: | | | |
| Type of commercial dishwasher: | | | |
| Parameter | Value | Parameter | Value |
| Under-counter one-tank dishwasher | [Yes/No] | Hood-type dishwasher | [Yes/No] |
| Design options implemented: | | | |
| Parameter | Value | Parameter | Value |
| Exhaust heat recovery (regenerator) | [Yes/No] | Exhaust air heat pump | [Yes/No] |
| Automatic programme for load and soil recognition | [Yes/No] | Improved thermal insulation (double-walled design) | [Yes/No] |
| Further substitution of metals by polymers | [Yes/No] | Modular design and reuse of electronics | [Yes/No] |
| Energy recovery from drain water | [Yes/No] | Other (please specify): | [Yes/No] |
| General parameters: | | | |
| Parameter | Value | Parameter | Value |
| Rated capacity ^a (number of plates) | X | Rack size (plates / rack) | X |

| Performance of the standard programme: | | | |
|---|-------|---|------------------------------|
| Parameter | Value | Parameter | Value |
| EEI ^a | X.X | Energy efficiency class ^a | [A/B/C/D/E/F/G] ^c |
| Daily energy consumption in kWh | X.X | Power of ready-to-use mode in kW | X.X |
| Energy consumption for initial fill in kWh | X.X | Water consumption for initial fill in l | X.X |
| Cleaning performance (x _{clean}) in % | X | Resoiling performance (x _{res}) | X.X |
| Number of bioindicators with a minimum reduction of 5-log level (in the cutlery tray) | X | Number of bioindicators with a minimum reduction of 4-log level (in the cutlery tray) | X |
| Share of bioindicators with a minimum reduction of 5-log level (on test plates) | X | Number of bioindicators with a minimum reduction of 4-log level (on test plates) | X |
| Number of bioindicators with a minimum reduction of 5-log level (in the test rack) | X | | |
| Energy consumption in kWh [per cycle], based on the standard programme. Actual energy consumption will depend on how the appliance is used. | X.XXX | Water consumption in litres [per cycle], based on the standard programme. Actual water consumption will depend on how the appliance is used and on the hardness of the water. | X.X |
| Standard programme energy consumption per plate (SPEC) in kWh | X.XXX | Standard programme water consumption per plate (SPWC) in l | X.XXX |
| Programme time ^a (T _{SPR}) in s | X | | |

Technical documentation

(EL Annex VI Table 4)

The content of the technical documentation is entered into the product database

| PARAMETER | UNIT | VALUE |
|--|-----------|-------|
| Standard programme energy consumption (SPEC) rounded to three decimal places | kWh/plate | X,XXX |
| Energy Efficiency Index (EEI) | - | X,X |
| Daily energy consumption of the standard programme rounded to one decimal place | kWh | X,X |
| Standard programme water consumption (SPWC) rounded to three decimal places | l/plate | X,XXX |
| Duration of the standard programme (T_{SPR}) | s | X |

Verification tolerances

| Parameter | Verification tolerances |
|--|--|
| Energy consumption for initial fill | The determined value* shall not exceed the declared value by more than 10 % . |
| Water consumption for initial fill | The determined value* shall not exceed the declared value by more than 10 % . |
| Power of ready-to-use mode | The determined value* shall not exceed the declared value by more than 10 % . |
| Rated capacity (number of plates) | The determined value* shall not exceed the declared value by more than 10% . |
| <i>Cleaning performance (x_{clean})</i> | <i>The determined value* shall not be less than the declared value of x_{clean} by more than 10 %.</i> |
| Energy consumption per cycle | The determined value* shall not exceed the declared value by more than 10 % . |
| Water consumption per cycle | The determined value* shall not exceed the declared value by more than 10 % . |
| Standard programme energy consumption per plate (SPEC) | The determined value* shall not exceed the declared value of SPEC by more than 10 % . |
| Standard programme water consumption per plate (SPWC) | The determined value* shall not exceed the declared value of SPWC by more than 10 % . |
| Programme duration (T_{SPR}) | The determined value* shall not exceed the declared value of T_{SPR} by more than 5 % or 6 seconds , whichever is the longer. |

*In the case of three additional units tested as prescribed in point 4 of EL Annex IX, the determined value means the arithmetical mean of the values determined for these three additional units.

(EL Annex IX, Table 5)

Questions

- Info on the energy label useful?
- Calibration of the energy classes appropriate?
- XLS Template to collect additional model:

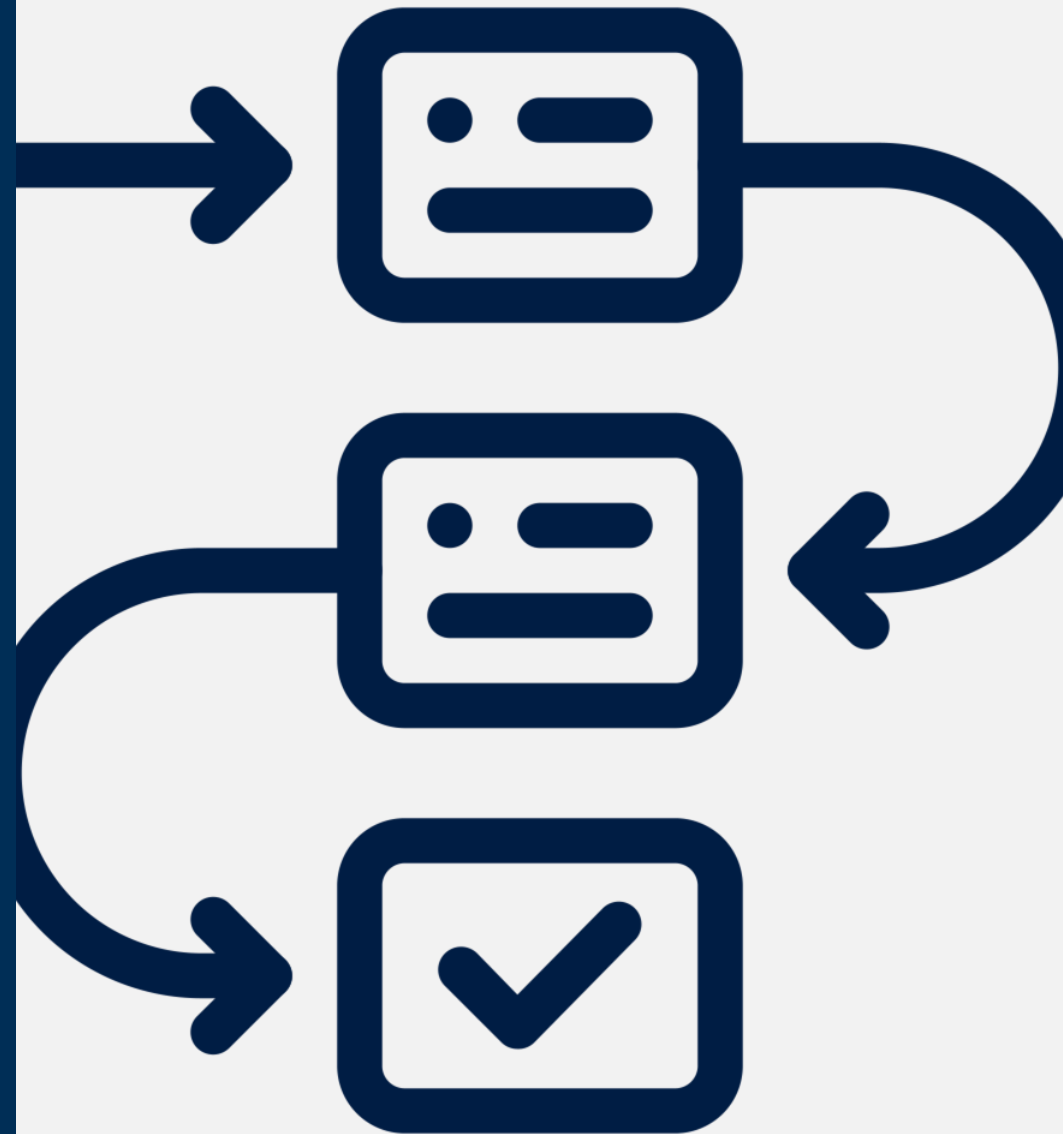
| https://ecodesign-commdishwashers.eu/ | | Contact: - Antoine Durand (Fraunhofer ISI): antoine.durand@isi.fraunhofer.de - and Martin Möller (Oeko Institut): m.moeller@oeko.de | | | | | | | | | | | | | | |
|---|-------|--|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| Data to provide according to EN IEC 63136:2019 | | | | | | | | | | | | | | | | |
| Priority 1 | | Tested in a program fulfilling following requirements | | | | | | | | | | | | | | |
| Priority 2 | | - Xc ≥ 0.9 according to EN IEC 63136:2019 | | | | | | | | | | | | | | |
| Optional | | - Hygiene requirements according to EN 17735 | | | | | | | | | | | | | | |
| Data | Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Type of dishwasher / BaseCase | | | | | | | | | | | | | | | | |
| EN 17735 passed with the same programme | | | | | | | | | | | | | | | | |
| Manufacturer/provider: | | | | | | | | | | | | | | | | |
| Model name: | | | | | | | | | | | | | | | | |
| Serial number: | | | | | | | | | | | | | | | | |
| Programme used: | | | | | | | | | | | | | | | | |
| Manufacturer's setting of tank temperature | | | | | | | | | | | | | | | | |
| Manufacturer's setting of boiler temperature | | | | | | | | | | | | | | | | |
| Features | | | | | | | | | | | | | | | | |
| Detergent solution concentration | [g/l] | | | | | | | | | | | | | | | |
| Rinse aid solution concentration | [g/l] | | | | | | | | | | | | | | | |
| Energy consumption for initial fill (ES) | kWh | | | | | | | | | | | | | | | |
| Water consumption for initial fill (VS) | l | | | | | | | | | | | | | | | |
| Start-up time (TS) | s | | | | | | | | | | | | | | | |
| Number of plates per rack | | | | | | | | | | | | | | | | |
| Cleaning performance (xclean) | % | | | | | | | | | | | | | | | |
| Resoiling performance (xres) | | | | | | | | | | | | | | | | |
| Energy consumption per cycle (EC) | kWh | | | | | | | | | | | | | | | |
| Water consumption per cycle (VC) | l | | | | | | | | | | | | | | | |
| Energy consumption per plate (EP) | kWh | | | | | | | | | | | | | | | |
| Water consumption per plate (VP) | l | | | | | | | | | | | | | | | |
| Average programme time (TPR) | s | | | | | | | | | | | | | | | |
| Average cycle time (TC) | s | | | | | | | | | | | | | | | |
| Power ready-to-use mode (PU) | kW | | | | | | | | | | | | | | | |

Questions & Answers



Outlook: Next steps

Kathrin Graulich – Öko-Institut
Kathrin Kutlescha – DG ENV



Background documents & next steps

- Final MEERP Preparatory study Task 1-7 report and draft documents for Ecodesign and Energy Label requirements available for download under <https://ecodesign-commdishwashers.eu/en/documents>
- **Stakeholder feedback to Draft Ecodesign and Energy Label requirements the latest by 13 September 2026:** Please send the **feedback template** (available on project website) back to ecodesign-commdishwashers@oeko.de.
- EU Ecodesign Forum meeting envisaged for 21 October 2026 (date tbc)
- **Stakeholder registration** still possible, please inform your network: <https://ecodesign-commdishwashers.eu/en/register>

**Thank you
very much for
your contribution!**