

Framework for testing performance for hand dishwashing detergents

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0. Background

This framework serves as a proof to show compliance with the criterion "Fitness for use" of the Commission Decision (EU) 2017/1214 establishing EU Ecolabel criteria for "Hand Dishwashing Detergents".

The test is for products that fall under the scope of the product group "Hand Dishwashing Detergents". This means any detergent falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council on detergents which is marketed and designed to be used to wash by hand items such as glassware, crockery and kitchen utensils including cutlery, pots, pans and ovenware.

The product group shall comprise products for both private and professional use. The products shall be a mixture of chemical substances and shall not contain micro-organisms that have been deliberately added by the manufacturer. In addition to the performance test, it is the responsibility of the applicant to ensure that the hand dishwashing detergent is safe to use on the intended surface(s).

The intention is that the product shows a comparable washing performance to that of a reference product.

1. Laboratory requirements to conduct the testing

The manufacturer's test laboratory or an external test laboratory can be approved to conduct testing to document effectiveness of hand dishwashing detergents if the following requirements are met:

- it must be possible for competent bodies to monitor the performance of the testing (e.g. on-site visits to the laboratory),
- the testing should be performed preferentially by laboratories that meet the general requirements of EN ISO 17025 or equivalent,
- the EU Ecolabel Competent Body must have access to all data on the product (e.g. technical data sheets),
- whenever possible the samples must be made anonymous for the test laboratory (e.g. product A and product B).

- performance of the effectiveness test must be described in the quality control system¹.

Competent bodies shall preferentially recognise attestations which are issued by bodies accredited in accordance with the relevant harmonised standard for testing and calibration laboratories and verifications by bodies that are accredited in accordance with the relevant harmonised standard for bodies certifying products, processes and services. Accreditation shall be carried out in accordance with Regulation (EC) No 765/2008 of the European Parliament and of the Council.

2. Testing

The purpose is to compare the washing performance of the product to that of a reference product. A wide range of test procedures are allowed as long as the requirements below are a part of the test procedure. In the test, washing-up may be done by hand or, alternatively, a machine may be responsible for the mechanical work. The test may either be a test involving the washing up of crockery, e.g. dishes or plates, or a test that does not involve crockery.

2.1 Number of repetitions

At least 5 repetitions must be performed in which the test and reference products are compared with one another.

2.2 Water parameters

- The same volume of water shall be used in all repetitions. The volume shall be determined in litres to one decimal point.
- The water hardness shall be $2,5 \pm 0,5$ mmol CaCO₃/l.
- The water temperature shall be the same for all repetitions. At the start of the test the soak temperature in the basin shall be $45 \pm 1^\circ\text{C}$ and kept constant throughout the test. However, a decrease of the water temperature during the test is acceptable, if it is not more than 10 °C and the same temperature decrease is documented for all repetitions.

2.3 Test and reference product parameters

The reference generic formulation shall be the one listed in Table 1.

Table 1. Reference generic formulation for testing hand dishwashing detergents

Ingredient	% data as active content
Sec sodium alkane sulfonate (ex 60%)	10,80
Sodium lauryl ether sulfate 2EO (ex 70%)	2,80
Cocamidopropyl betaine (ex 30%)	1,20
Kathon DG (as received)	0,08
Water	Added to 100%

¹ As verification of sufficient quality in the test of the hand dishwashing detergent's fitness for use, the testing laboratory or manufacturer laboratory shall document the following mean values from 5 dishwashing tests in the results section of the test report that were carried out with the IKW reference hand dishwashing detergent (dosage 4ml/5l of dishwashing water) using the reference number of plates for soil 1 and 2 as required in the IKW "Recommendation for the quality assessment of the cleaning performance of hand dishwashing detergents" (SOFW Journal, 128, 5-2002, page 15)

Indicative value for soil 1: 11-15 plates (tolerance $\pm 10\%$)

Indicative value for soil 2: 15-20 plates (tolerance $\pm 10\%$)

- The dosage for the reference detergent for the performance test shall be of 4 ml per 5 litres of water. The detergent must be mixed and completely dissolved in the water.
- The test product shall be dosed according to the dosage recommended by the manufacturer for one litre of washing water for cleaning normally soiled dishes (indicated in g/l washing water or ml/l washing water). The detergent must be mixed and completely dissolved in the water.

2.4 Soil parameters

- At least one type of soil must be used,
- The same soil must be used for all repetitions,
- The origin or chemical composition of the soil shall be in accordance with the test soils described in the IKW performance test:

“Recommendation for the quality assessment of the cleaning performance of hand dishwashing detergents” available at www.ikw.org/fileadmin/content/downloads/Haushaltspflege/HP_EQ-Handgeschirre.pdf

- The soil must be prepared as described in the IKW performance test and be homogenous and of even consistency. Enough soil for the entire test must be prepared in one batch,
- The quantity of soil applied to a substrate, e.g. plates or dishes, or to the washing water, must be the same in all repetitions and must be weighed in grams to one decimal point.

2.5 Test procedure

- The test and reference products must be made anonymous to the person(s) performing the test.
- The elements and stages included in each repetition must be decided in advance and must be identical for each repetition.
- The temperature and relative humidity of the room must be measured and kept constant in all repetitions.
- A fixed procedure for the preparation of the plates and the application of soil (allowing sufficient time for drying), dishwashing process (manual dishwashing or removal of soil by machinery) and end point or point of saturation must be determined in advance and in line with the IKW performance test.
- At least 5 repetitions must be performed with each product: the test product and reference product.

2.6 Assessment of cleaning/washing capacity

The test must be capable of generating results that provide a measure of cleaning capacity. The cleaning capacity must be expressed in grams of soil removed per 5 litres of water before reaching the above predefined point of saturation².

A positive result of a test round is obtained when the cleaning capacity is equal to or better than that of the reference product.

² Point of saturation can be defined as when the cleaning effect is no longer observed, when soil is floating at the surface water, when foam layer is not completely covering the surface or when there is no visible foam.

To consider that the test product has fulfilled the performance requirements its results must be positive in 100 % of the repetitions. If the result is less than 100% positive, 5 new repetitions must be performed. Of these 10 repetitions, 80% must be positive. As an alternative, the applicant may use statistical methods and demonstrate with a one-sided 95 % confidence range that the test product fulfils the performance requirements.

3. Documentation

All tests must be reported in accordance with the following points (to be part of the test reports):

- Description of how the test and reference products were made anonymous to the person(s) performing the test.
- Temperature and humidity in the test room in all repetitions and details describing how the test person(s) ensured that these conditions were kept in all repetitions.
- Description of the composition of the soil and the procedure used to ensure that the soil was of a homogenous and even consistency.
- Hardness of the water and specification of the calcium/magnesium ratio, and how it was achieved.
- Quantity of water used in the repetitions and how the water temperature requirement was fulfilled.
- Results of the weighing of the hand dishwashing detergent in each repetition and description of the procedure for dissolving the product in the water.
- Description of the procedure for adding the soil to either a substrate (e.g. plates or dishes) or to the washing water.
- Results of the weighting of soil in each repetition.
- Description of the other elements and stages in each individual repetition.
- Description of how cleaning capacity was measured and raw data from all repetitions stated in terms of cleaning capacity.
- Final results and, if applicable, a statistical evaluation of the data.

Annex 1: Example of reporting template

A template for reporting the description of the procedures and the results of the tests are available [here](http://ec.europa.eu/environment/ecolabel/documents/HDD.xlsx) (http://ec.europa.eu/environment/ecolabel/documents/HDD.xlsx). This template is not mandatory to show compliance with Criterion 6, "Fitness for use".