



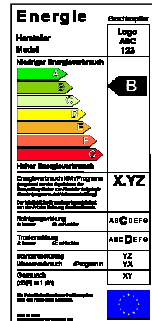
Dishwasher Round Robin Test 2009*

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Dipl. oec. troph. A. Brückner, Prof. Dr. Rainer Stamminger

Background

The European Energy Label indicates the effectiveness of electrical household appliances to consumers. In case of dishwashers their cleaning and drying performance are shown as well as the resources used. The declaration is based on the European Norm "EN 50242: Electric dishwashers for household use: methods for measuring the performance", which gives detailed instruction for the testing of the cleaning, drying, noise emission and resource consumption



The European Energy Label.

Aims

The Round Robin Test (RRT) not just aims to determine the reproducibility of the norm, but also tries to facilitate expert knowledge within the involved laboratories. Though the standard gives detailed information on the proceeding, the outcome depends on various extrinsic factors. Even within the same lab test results may vary and show a certain day-to-day performance. Gathering experiences made during the tests will help to reveal different interpretations of details and maybe point out missing parts of the standard.

Material & Methods

19 laboratories (11 producers, 8 test laboratories) from Germany, Sweden, Italy, Great Britain, France, Spain, Poland and Turkey took part in the Round Robin Test.



Locations of the participating labs



Machines and transport boxes

All participating laboratories were asked to perform standard-conform tests, i.e. dishwasher cleaning and drying tests and to follow the instructions exactly. To get an overview on the different laboratory conditions and working practices, a questionnaire was sent to the participants and they were visited by an independent 'observer'.

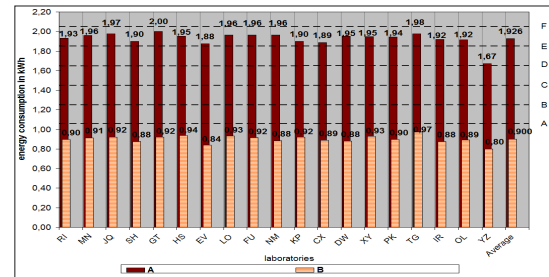


12 place settings soiled according EN 50242

The standard tests were carried out with two dishwasher models. To depict a wider spread of performance levels the machines were tested in different programmes.

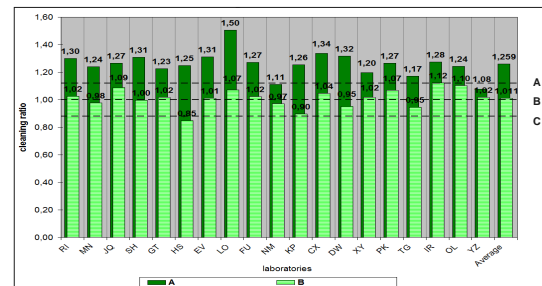
Results

The energy consumption values of machine A and B rated according to the energy label classes.



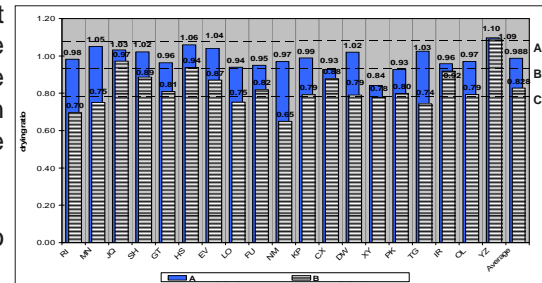
Energy consumption and energy classes. (The dashed lines show the limits of classes in the energy label scale.)

The cleaning performance ratios of the two test machines in the 19 labs reveal differences up to three classes.



Cleaning ratio total of the two test machines. (The dashed lines show the limits of classes in the energy label scale.)

A variation of at least three classes can be observed when assessing the drying performance ratios of the two test machines.



Drying ratio total of the two test machines. (The dashed lines show the limits of classes in the energy label scale.)

Discussion

Through the Round Robin Test it was possible to gain a deeper insight into the laboratory praxis of manufactures and test laboratories. The examination revealed several difficulties in applying the standard but also showed improvements in comparison to the last RRT 2003.

Summary of important findings

- The cleaning ratios differ up to three classes
- The drying ratios differ up to three classes
- Measurement of energy consumption seems possible in the range of one energy label class
- Improvement and alignment to EN 50242 of the laboratory practice sometimes is necessary
- A need to clarify the importance of certain points in the standard has been identified
- Regular ring-testing is necessary to exchange experience and align and verify laboratory practice