The new European Unified Label for water and energy efficiency of products

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1 Introduction

Hydric stress and security of water supply are important concerns across the world.

Climate change and the increasing need for environmental protection, natural resources preservation and efficient use, have made fresh water availability and the existence of sustainable standards in water consumption a concern for all.

1 Introduction

In Europe, water stress is beginning to significantly affect a number of countries, especially in the Mediterranean basin, but the European Commission drivers for water efficiency in buildings, that includes Eco design approaches, Ecolabel and Green Public Procurement, are focused on the energy efficiency of taps and showers and have had limited acceptance by consumers.

1 Introduction

As a result of the lack of a strong policy by the European Commission to objectively promote water efficiency in buildings, a number of efficiency labels for water using products (WuP) have appeared in Europe in recent years, usually for voluntary use, on the initiative of industry or civil society associations.

The importance of these labels has been emphasized not only in relation to water efficiency, but also in relation to energy efficiency.

1 Introduction

A study carried out in a Portuguese municipality showed that reducing water consumption by only 1 m^3 through water efficiency measures in buildings may result in a reduction about 7.2 kWh in energy consumption.

The study took into account the energy consumed to produce sanitary hot water and the reduction of energy consumed by mains water supply and drainage networks and by treatment plants (by decreasing flows abstracted, treated and pumped).

1 Introduction

According to the European Commission, encouraging the replacement of all standard household appliances (taps, toilets, showers, washing machines, dishwashers, products for external use, etc.) with efficient water products will result in an overall reduction of annual domestic water consumption up to 35% for taps, 11% for showers and associated energy up to 30% by 2030.

1 Introduction

In the European Union (EU), total water abstraction for use in taps and shower systems has been estimated to be about 25000 Mm^3 in 2010 and the total primary energy requirement in the EU associated with the use of taps and shower systems has been estimated to be about 3000 PJ^3/year.

Total emissions of CO_2eq related to the EU annual demand of primary energy in taps and showers has been estimated to be about 160 Mton in 2010.

1 Introduction

The European Commission had only in its forecasts the creation of a mandatory energy label for taps and showers, since these products are included in the Energy Efficiency Directive.

However, the European Commission (EC) has shown willingness to accept alternatively a proposal from industry representatives for a new water efficiency label within the scope of a Voluntary Agreement (VA).

1 Introduction

The Voluntary Agreement is a tool that results from the Ecodesign Directive, meaning that manufacturers agree to self-regulate their products under the supervision of the EC.

For taps and showers, a VA could include a mandatory requirement for the provision of information about the performance of taps and showers, for example via a label sufficiently different from the Energy Label.

The information provided could focus on the water flow rates under nominal conditions of use, and the associated energy consumption.

1 Introduction

However, rating approaches based on the measurement of water flows do not take product functionality into full account.

A mere reduction of flow rates could in fact have an impact on users and lead to increased time of use, potential dissatisfactions and lower savings than expected (e.g. more time to shower).

This means that complementary requirements are needed in case of Voluntary Agreement, as described for the mandatory label, to avoid that a good rating (i.e. a low flow rate) comes at the expense of a poor performance or the comfort of users.

1 Introduction

So, a Voluntary Agreement was considered as a possible alternative to a mandatory label if the following conditions are met, according to the Commission Recommendation :

- The market coverage is significant (i.e. above 80%);
- Similar effects can be achieved;
- The performance of products and the comfort of users are not compromised.

1 Introduction

The advantages of that particular agreement would be that:

- Labelling schemes focusing on water flow rates or volumes are already popular in Europe and can be used as a basis for the development of a unified label following the same approaches;
- It would be simpler to enforce and easy-to-understand;
- It would be more flexible for modifications and adaptations, if needed.

2 The journey

Many initiatives have been developed in Europe over the past 10 to 15 years to address the efficiency of water-using products.

In the case of taps and showers, the main European schemes and labels include:

- The ANQIP label;
- The Swedish Energy Efficiency Labelling;
- The Swiss Energy Label for Sanitary Fittings;
- The WELL Label;
- The Water Label (EWL).

2 The journey

It is now widely understood that parallel schemes on the market may cause confusion to consumers and can make products that want to enter the market in different countries more expensive.

So, in the perspective of a Voluntary Agreement, main European label management entities have pushed to join forces on a new platform, the European Bathroom Forum (EBF), with headquarters in Brussels, aiming to develop a Unified Water Label (UWL) based on a "best of all" approach.

2 The journey

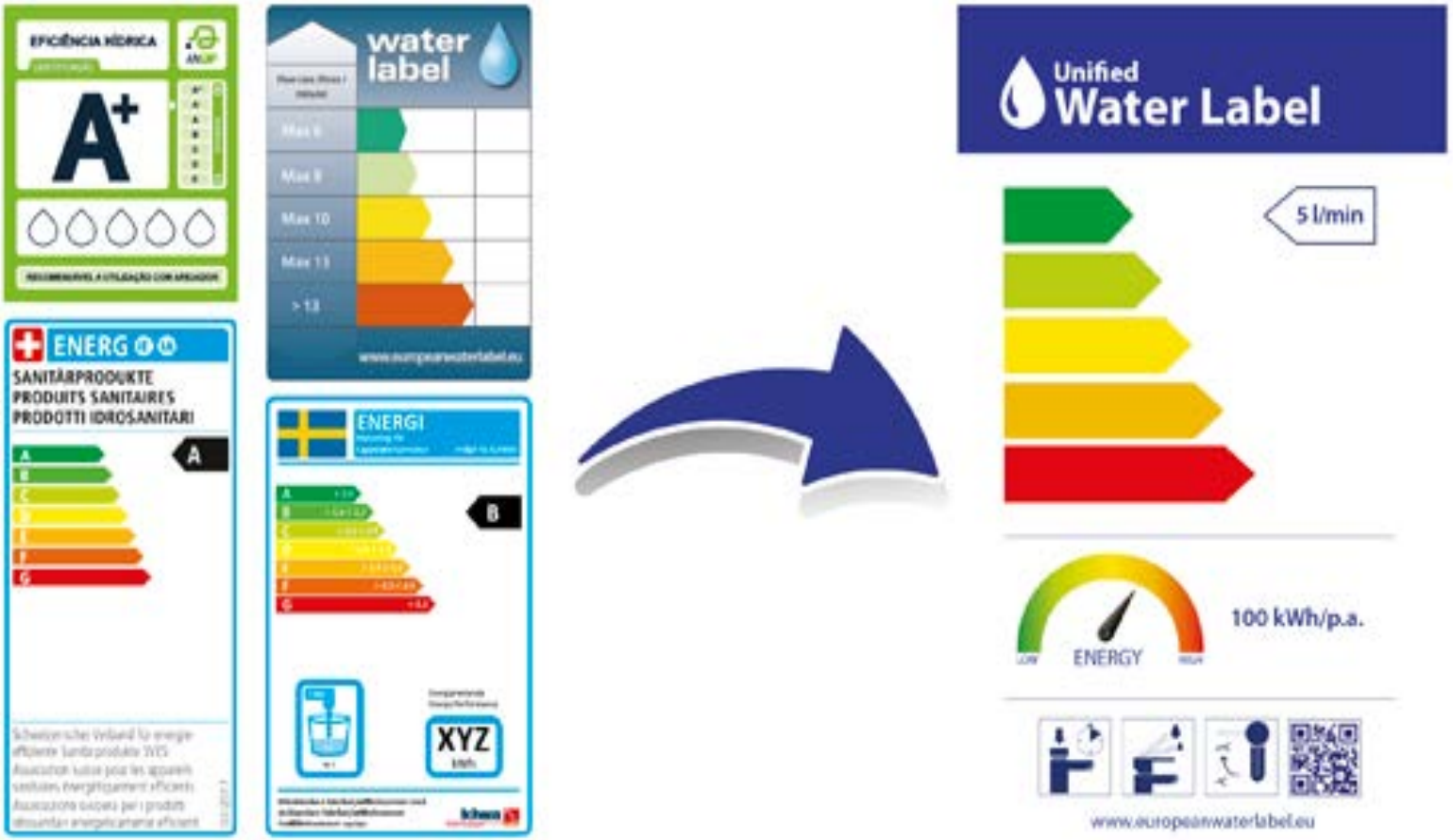
In March 2018, the EBF managed to reach an agreement with representatives from Water Label, ANQIP, Swedish Energy Efficiency Labelling, and Swiss Energy Label in order to work towards the development of a single label for all the water using products in buildings.

The WELL scheme did not participate in this early stage of label development.

2 The journey

The majority of industry stakeholders agree that a single label that covers water and energy aspects is the best option for the market.

So, the Scheme and label are concentrated on the water and associated energy savings and respect National legal requirements where the product is marketed, as well as the European and/or National standards when applied.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2 The journey

The UWL Scheme sets the main principles which all signatories commit to follow while supplying products and accessories on countries of the European Union (EU), European Free Trade Association (EFTA), European Economic Area (EEA) and bordering countries.

The manufacturers and signatories of this Scheme recognise that:

- Water is an essential natural resource which must be preserved;
- Water 'efficient' using products can help mitigate water and energy consumption while maintaining safety and comfort;
- Minimum harmonised products criteria should be set to guarantee fair and simple information of the user.

3 Description of the UWL Scheme

The label will present performance brands of different colours (green, sage, yellow, orange and red), corresponding to the possible range of flows or volumes for the product covered, as shown in Figure.

When a specific rating is to be shown, a blue panel can be added to the right side of the chart with the appropriate flow rate.

3 Description of the UWL Scheme

In some cases, it is possible to use special labels ("reduced size labels" when space is restricted, "one-line labels" when space in a document is restricted and "extra-small one-line labels" in printed catalogues/brochures).

In electric showers, urinal controllers, greywater systems and in replacement flushing devices a recommended "efficient" label can also be used.

There are also other special labels for shower handsets supplied with a flow regulator, a neck leaflet for shower handsets and taps, etc.

3 Description of the UWL Scheme

The Scheme applies to showers (mixer showers, shower outlets and electric showers), taps, water closets (WC suites, independent WC bowls, independent WC flushing cisterns and replacement WC flush mechanisms), urinals (urinal bowls, independent urinal flushing cisterns, urinal controllers), bath tubs and other miscellaneous products (supply line flow regulators, grey water recycling units and flush-free urinals).

3 Description of the UWL Scheme

For showers, the lowermost performance brand (green) corresponds to "≤ 6 L/min" and the uppermost (red) to "> 13 L/min".

For water closets (WCs), the correspondent values are "≤ 3.5 L" and "> 6.0 L"

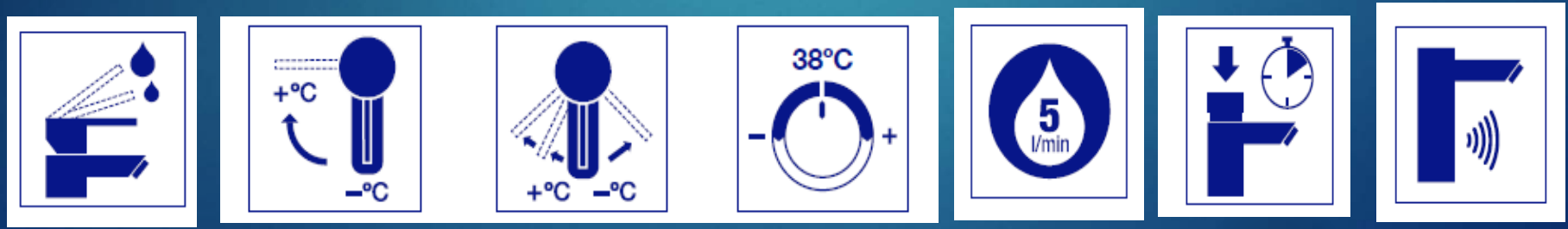
In the case of taps, the minimum and maximum performance brand corresponds to "≤ 1.0 L/min" and "> 4.0 L/min" respectively.

There are also specific categories for other products, such as baths.

3 Description of the UWL Scheme

To enhance the label and to highlight to consumers technical features present, manufacturers are able to add a maximum of three technical icons (in addition to the energy icon) to the label.

Next Figure shows some examples of technical icons for taps.



3 Description of the UWL Scheme

The energy use associated with water flow rates is not considered in EN standards, so the Scheme established a calculation based on basic principles of physics:

$$E = M \times C \times \Delta T$$

where:

- E = Energy (kWh)
- M = Mass (kg)
- C = Specific heat of water [kWh/(kg.K)] = 0.00116 kWh/(kg.K)
- ΔT = Temperature difference (K)

3 Description of the UWL Scheme

This basic calculation coupled with average use times can easily be used to calculate expected annual energy consumption. Average use times to be used for the following products are:

- Basin (and bidet) taps: 1 minute per event, 5 events per person per day;
- Kitchen taps: 1 minute per event, 5 events per person per day
- Showers (handsets and mixer controls): 7 minutes per event, 1 event per person per day

3 Description of the UWL Scheme

For basin (& bidet) taps and showers the average outlet temperature is always regarded as 38°C while for kitchen taps the average outlet temperature is 45°C.

In all cases the average seasonally adjusted inlet temperature is regarded as 15°C.

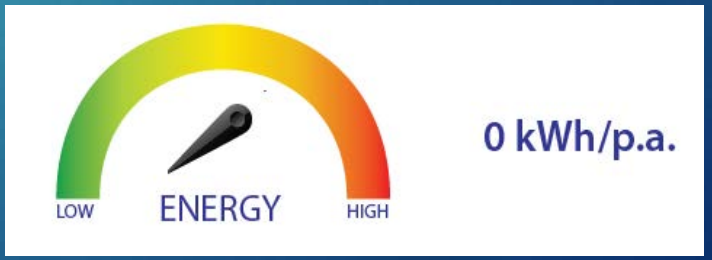
Core assumptions have been taken directly from the European Commission study into taps and showers (task 3 report).

For bathtubs, the same core calculation can be used to help users understand, in energy terms the cost of filling the bath tub for each bathing event.

3 Description of the UWL Scheme

The energy icon can be added to the base of the Unified Water Label to depict to the consumer the expected annual energy cost of using the product.

It is required that all basin taps, kitchen taps, showers (handsets and mixer controls) and bath tubs shall carry the energy icon.



3 Description of the UWL Scheme

It is a prerequisite of the Scheme that all products shall satisfy all National Regulatory requirements of the intended country of destination.

Products shall comply with all relevant European Norms, including, obviously, compliance with the tests provided for in these standards. Third party accreditation is not required in the Scheme.

The product, when verified, shall comply with the supplied Declaration of Conformity from the Manufacturer that accompanied the original product applications to the listing company.

3 Description of the UWL Scheme

According to JRC and European Commission, functional testing for showers is also required (as in the case of mandatory EU Energy Labels).

For this test, the UWL will adopt a procedure similar to that used in the spray coverage test of the WaterSense scheme of the U.S. Environmental Protection Agency (EPA).

It is possible that the European Committee for Standardization (CEN) will develop specific EN standards for the determination of flow rates or volumes in appliances or plumbing products in view of the rating of efficient products. If this happens, the UWL will naturally incorporate these procedures.

Given that an ISO Standard in this field (ISO/31600) is also in development, it will be desirable (and probable) that the future EN standards are in line with the ISO standard.

3 Description of the UWL Scheme

The Scheme is supported by an extensive website and audit process. The audits are coordinated by the Scheme and label administrator and are performed regularly by selected test houses on products selected randomly.

The label administrator will arrange for 5% of the products (and accompanying literature, point of sale material and advertisements in relationship to the listed products) on the Scheme database to undergo an audit for compliance with the Scheme's requirements on an annual basis.

3 Description of the UWL Scheme

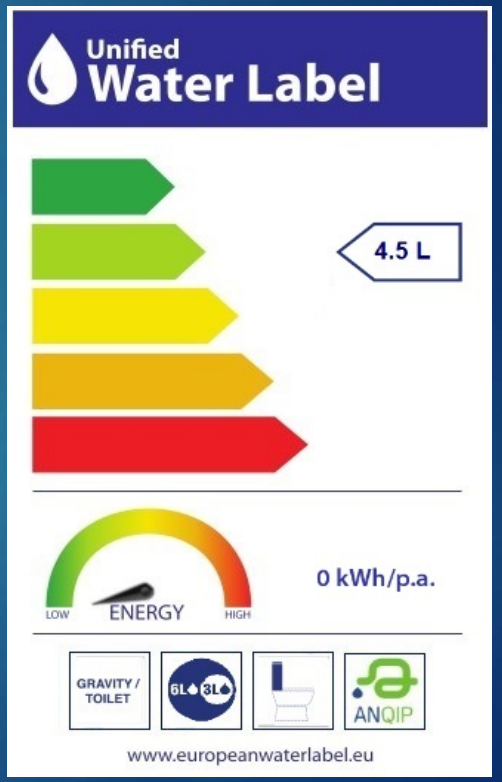
The Scheme was presented to the industry and public in March 2019 in the ISH (International Frankfurt Trade Fair).

Until 31st December 2020, there will be a transition period with cohabitation of existing schemes with UWL.

During this period transition labels may be used for the products integrated into one of the four schemes that have joined the UWL through a reference in the new label of the original scheme.

3 Description of the UWL Scheme

The Figure shows, as an example, the label of a flushing cistern originally labelled by ANQIP and which will integrate the new scheme.



4 Conclusions

Many initiatives have been developed in the past 10-15 years to address efficiency of water-using products at national and international levels. In the European Union, concerns on water efficiency of water-using products have recently been highlighted in the context of water scarcity and droughts and Eco design approaches.

Taking the view that, in general, the consumers today lacks consistent information on the performance and water consumption of these basic products, European Associations representing many hundreds of manufacturers and existing National Schemes for product efficiency, have developed a simple and harmonised water labelling Scheme – the Unified Water Label.

4 Conclusions

It is hoped that this new unified scheme will contribute to a more efficient use of resources and energy in buildings, not only in Europe, but in all countries that use these labelled products.

It is also intended to contribute to the desirable international harmonization at this level, which will allow consumers to become more aware of the importance of efficient resource management, while also offering them solutions without loss of comfort and to reduce production costs.

One last remark:

Possibly the European Bathroom Forum will adopt soon, for reasons of scheme management, the designation:

Unified Label Water Association (UWLA)

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Thank you very much for your attention

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