

# Keymark, CE-marking and energy labelling: Acceptance and perspectives

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## Introduction

The purpose of this paper is to give an overview of existing and upcoming marking and labelling of solar thermal products in Europe. In short the situation is:

- ☞ The voluntary Solar Keymark quality label is already in place since 2003, and is now working very well as the general accepted “passport” for national subsidy schemes and regulations. So far Solar Keymark is available for collectors and “factory made systems”<sup>1</sup>. Solar Keymark is also under consideration for solar tanks and “custom built systems”<sup>2</sup>.
- ☞ The upcoming obligatory Energy Labelling of water heaters will also include solar water heaters. Existing standards shall be revised into harmonised standards taking into account the specific requirements for Energy Labelling given by the Commission. Work on harmonised standards will start this year and this labelling can then be in force in about 3-4 years.
- ☞ Obligatory CE-marking for solar thermal products is underway (most probably only collectors shall be CE-marked). This process is still in a very initial phase, and some years will pass before the CE-marking is in force.

## Solar Keymark



The initiative to develop a common European quality label for solar thermal products was taken by the European Solar Thermal Industry Federation, ESTIF in 1999. The new CEN Keymark certification scheme was chosen as “template”. Logo of the CEN Keymark is seen to the left.

The CEN Keymark for solar thermal products *Solar Keymark* is a voluntary 3<sup>rd</sup> party certification mark stating conformity with the European Standards:

- ☞ EN12975 (collectors)
- ☞ EN12976 (“factory made systems”)

The main elements in the Solar Keymark are:

- ☞ Type testing of randomly taken test sample by accredited test lab
- ☞ Annual inspection of factory production control
- ☞ Bi-annual detailed inspection of product

The Keymark certification can be done only by certification bodies empowered by the CEN Certification Board.

Solar Keymark is now accepted/recognised in all<sup>3</sup> national European certification schemes, subsidy schemes and regulations – however still some minor add-on requirements exists in a few member states:

- ☞ Spain requires also ISO 9001 certification of the factory production control (collectors)
- ☞ Germany requires (for collectors) a declaration that the product fulfil requirements in “Blue Engel” and a special calculation showing a collector performance > 525 kWh/year.

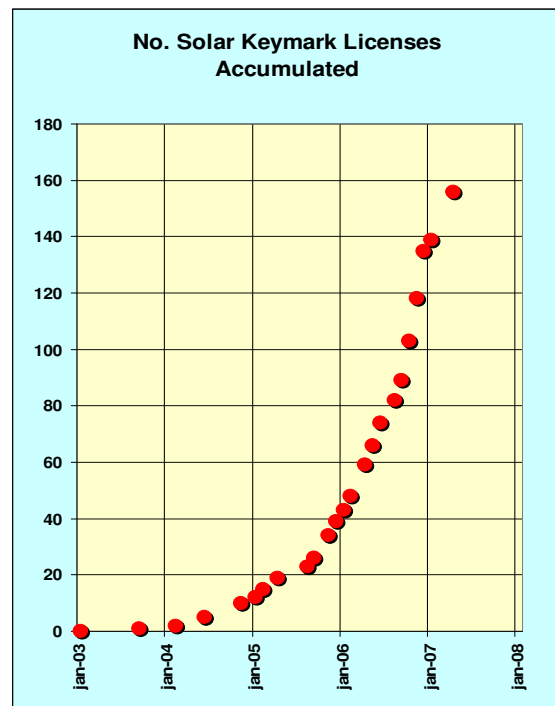
The number of Solar Keymark licenses issued has exploded in the last few years – see the figure to the right.

It is now estimated that more than half of the collectors sold in Europe show the mark.

As Solar Keymark is now specifically required for obtaining national subsidy in Germany<sup>4</sup> (the largest market in EU) it is expected that this “explosion” will continue the next couple of years.

So all in all Solar Keymark is indeed a success story.

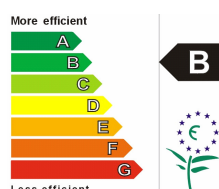
More information about the Solar Keymark is available at the: [www.solarkeymark.org](http://www.solarkeymark.org).



It is right now considered whether also a Solar Keymark for solar tanks should be established. The EN12977-3 “Performance testing of solar storages” is being prepared right now, and the first draft scheme rules have been drafted. If the Keymark for tanks is wanted/needed, it can be available within a year.

Germany and France have also expressed a need for a Keymark valid for custom built systems. A Keymark for custom built systems requires European standards, EN's (or a dispensation from CEN Certification Board, which was not given so far), so it is now considered to establish EN's for these kind of systems.

## Energy Labelling



In the near future also water heaters must show an energy label like the one refrigerators, washing machines and other energy consuming households appliances – shown her to the left. This marking relates to the Council Directive 92/75/EEC which lays

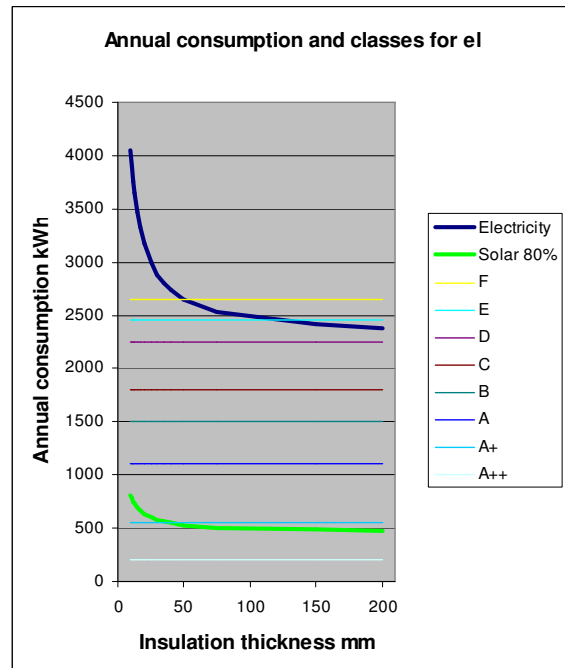
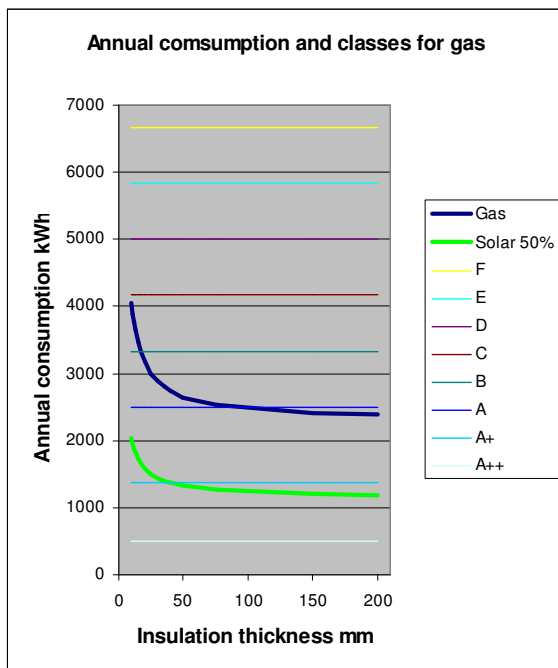
down the legal basis for a compulsory system of energy labelling and information for certain energy using household appliances.

Three implementing directives are being prepared by the Commission for the three different types:

- ☞ gas and oil water heaters and water storage devices
- ☞ electrical water heaters
- ☞ solar water heaters and water storage devices

These implementing directives gives the specific requirements for labelling information to be given and refers to – so far non existing - EN standards which give the test methods to be used to provide the information.

The implementing directives are so far only available in draft versions, but these draft versions give some interesting perspectives. Interesting perspectives especially for solar thermal, because the labelling is actually quite strict and in order to have an “A mark” it is necessary to have a renewable energy (read solar thermal / heat pump) input.



In the figures above the classes are illustrated – different classes for gas/oil water heaters on one side and for electrical water heaters on the other.

The thin straight lines indicate the classification levels – note that the classes are much more strict for the electrical water heaters than for the gas/oil heaters (2.5 times)

The fat curves in the figures show the annual consumption of a water heater with an average daily draw-off of 100 litres (heated from 10°C to 60°C) as functions of the (ideal) insulation thickness of the tank. The upper fat curve in the left “gas/oil diagram” gives the consumption of a water heater heated with gas/oil. It should be noted that an (ideal) insulation of approx. 100 mm is needed to obtain an “A-mark”. In the same diagram the lower fat curve gives the annual consumption of a gas/oil

assisted solar water heater with an annual solar fraction of 50%; this system will be marked “A+” if the insulation is more than 50 mm.

Same principle for the curves in the right diagram for electrical water heaters; but here the lower fat curve illustrates the consumption of electrical assisted solar water heater with a solar fraction of 80%.

To distinguish between high and low performing solar systems, the classes A+ and A++ are defined in the draft implementation directive for solar water heaters.

Interesting perspectives arise if you can convince your national authorities that only A-marked water heaters should be allowed! Or maybe give incentives to make people choose A-marked water heaters. Because then you have – indirectly – an obligation/incentive to install a solar thermal system (or maybe alternatively a heat pump).

To implement the energy labelling, related harmonised EN standards are necessary. In the near future work will start; the existing (pre-) standards EN12976 and ENV12977 will be revised into harmonised standards fulfilling the requirements in the implementing directives for energy labelling of hot water heaters.

Expected time frame: In about 4 years the Energy Labelling of solar water heaters will be available - and obligatory - in all EU member states.

The level for stating conformity with the energy labelling will be manufacturer declaration. National authorities shall perform spot checks of the validity of the energy labels.

## CE-marking



CE-marking of solar thermal products is also in the pipeline. Due to complaints concerning barriers to trade, the Commission has decided that existing standards shall be adjusted in order to be “upgraded” into harmonised standards related to the Council Directive 89/106/EEC for construction products. When these harmonised standards are established, solar thermal products shall be CE-marked.

Status of the process is right now that ESTIF together with the CEN Technical Committee for solar thermal systems and components TC312 has responded on the mandate proposed by the Commission. This response included among other things:

- ☞ Only collectors need CE-mark
- ☞ CE-mark shall be compatible with the existing Keymark (if you already have a Keymark it should be possible to declare the CE-mark)

The main differences between the CE-mark and the Keymark are:

- ☞ Conformity attestation
  - CE-mark:
    - Manufacturers declaration + plus type test
  - Keymark:
    - 3<sup>rd</sup> party certification

☞ Inspection:

- CE-mark:
  - No requirements
- Keymark:
  - Annual inspection of production line
  - Bi-annual detailed inspection of product

Testing costs are the same for the two marks, but CE-marking will be somewhat cheaper than the Keymark, as costs for 3<sup>rd</sup> party certification and inspection are saved.

Keymark is a “stronger” quality mark due to the 3<sup>rd</sup> party involvement.

The time frame for the CE-mark is rather uncertain – it could be 5-7 years.

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<sup>1</sup> “Factory made systems” are defined and treated in EN12976-1: “ Factory Made solar heating systems are batch products with one trade name, sold as complete and ready to install kits, with fixed configuration. ...”

<sup>2</sup> “Custom built systems” are defined and treated in EN12977-1: “Custom Built solar heating systems are either uniquely built, or assembled by choosing from an assortment of components. Systems of this type is regarded as a set of components. The components are separately tested and test results are integrated to an assessment of the whole system ...”

<sup>3</sup> At the moment of writing the new certification scheme in UK has not been released, but we hope and expect that Solar Keymark will be accepted in this scheme too.

<sup>4</sup> From first of January 2007 collectors in Germany not already approved for subsidy must have Solar Keymark must have Solar Keymark to enter the “approval list”. From first of January 2008 all collectors must have the Solar Keymark