Bld. Brand Whitlock 114 / B-1200 Brussels
T: +32 2 738 78 10

MAtteo Rambaldi
matteo.rambaldi@applia-europe.eu

Comments to Spanish "Draft Royal Decree 2021/664/E laying down health requirements for prevention and control of legionellosis".

Home Appliance Europe, representing European water heater manufacturers, supports this initiative to adopt sanitary measures for protecting the health of the population through the prevention and control of legionellosis in those installations that use water in which legionella is able to proliferate and spread through aerosols. We would also support any similar initiative taken at European level to guarantee a common understanding and approach to the problem.

General considerations

With reference to the notification, it looks to introduce some specific requirements applicable in Spain. We notice that some of these requirements are not in line with the approach introduced with European Technical Report CEN/TR 16355:2012 "Recommendations for prevention of Legionella growth in installations inside buildings conveying water for human consumption" that come into force on 05.09.2012. This report provides the conditions for the limitation of Legionella growth in drinking water installations up to draw-off points in accordance with EN 806 series and gives recommendations for preventing the growth of Legionella in these installations. In addition, we consider that to duly cover the matter also the WHO (World Health Organization) Guidelines "Legionella and the prevention of legionellosis" should be taken into account as they provide a guidance on assessment and management of risks associated with potentially hazardous environments, such as cooling towers, pools and spa baths to identify necessary measures to prevent, or adequately control, the risk of exposure to Legionella bacteria for each particular environment.

Last but not least, these measures should be evaluated taking also into due consideration the current European Regulatory framework, dealing with CE-marking of relevant products; in particular, as far as environmental and energy performances standards (EN 50440 for domestic electrical storage water heaters, EN 16147 for heat pumps with electrically driven compressors, EN 13203 for gas fired domestic appliances producing hot water, ..) and the eventual contradictions between the two types of phenomena as far as the impact of water temperature and energy efficiency class.

Finally, we propose that thermal disinfection of a water heater should be defined taking into account: different types of hot water heater capacities and installations, real working conditions (seasonal or not), energy saving and a proper risk assessment scheme to evaluate if legionella proliferation might happen, or not.

Detailed comments & Proposed Improvements

Page 3/69 – corrosion material
Requirement: The presence of water contaminated with the bacteria in poorly designed and installed installations with insufficient or no maintenance leads to the stagnation of water and the accumulation of nutrient products for the bacteria, such as sludge, organic matter, corrosion materials and amoebas, forming a biolayer.

Comments: Due to different metallic materials in contact directly with drinking water, a water heater should be designed to work together with a specific sacrificial (e.g. Mg- or Al- materials) and/or impressed anodes (e.g. Titanium material) to limit the materials corrosion effect.

Proposal: adding. For Water Heaters, the manufacturer shall design a water heater, when it is intended to come into contact with drinking water, for working with metallic materials and sacrificial (e.g. Mg- or Al- materials) and/or impressed anodes (e.g. Titanium material) having proper dimensions to limit the corrosion of them.

Page 5/69 – water quality is assessed
Requirement: Water quality is assessed on the basis of microbiological parameters (aerobics and Legionella spp) and physical-chemical parameters that must be analysed preferably in situ (pH, conductivity, temp, etc.) at the time of sampling and others which, depending on their analytical complexity or importance in the adoption of corrective measures, should be determined in the laboratory.

Comments: The manufacturer shall design a water heater to take into account also the requirements of Drinking Water Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption and on the new recast (EU) 2020/2184.

Proposal: adding. Any device in contact with drinking water shall be designed and tested to comply with Drinking Water Directive 98/83/EC and (EU) 2020/2184.

Page 27&28/69 – In hot water installations (hereinafter ACS)
Requirement:
a) Manholes: Water accumulation areas of 750 litres or more must be easily accessible, with a minimum diameter of 400 mm, allowing inspection, cleaning, maintenance disinfection and corrosion protection. Tanks of less than 750 litres and double tank inter-accumulators (with water accumulation volumes of less than 750 litres) shall be provided with appropriate access for inspection, cleaning, emptying and sampling appropriate to their design characteristics as defined in UNE-EN 12897+ A1. Specifications for indirect heating storage water heaters without ventilation (closed).

b) The accumulators shall be equipped with a temperature measuring system representative of the indoor water and equipped with an accessible purge key in the lower area of the tank, which allows full emptying and sampling and which shall also be lower than the water outlet.

c) Temperature in accumulators: It shall be ensured that, in all the water stored in the final hot water accumulators, i.e. immediately prior to consumption, there is a homogeneous and minimum temperature of 60 °C. The return water must not return directly to the distribution circuit without going through prior thermal disinfection. In the case of double tank inter-accumulators, the water temperature must be at least 70 °C.

d) When using a thermal use system with accumulation of water for human use, in which a temperature above 60 °C (solar energy, geothermal, etc.) is not continuously ensured, it should be ensured that a temperature of 60 °C is subsequently reached in a final accumulator before distribution to use.

f) Temperatures: Water temperature in the hot water circuit shall be maintained above 50 °C at all outlets of the circuit and in the return pipe, if available, using a temperature balance. The installation shall allow the water to reach a temperature of 70 °C if a heat disinfection treatment is required.

g) Systems without accumulation: Heating systems without accumulation with or without return shall ensure that the water at the outlet of the heating system has a minimum temperature of 60 °C.

Comments:

a) Manholes: we propose to use the same range of actual capacities and cleaning opening mentioned in Table C.2 of EN 12897.

Proposal: changing.
Manholes: Water accumulation areas of water heaters with a capacity of 500 litres or more must be easily accessible and designed according UNE-EN 12897 in terms of their design characteristics, allowing inspection, cleaning, maintenance disinfection and corrosion protection, with the following requirements:

Vessel				Openings for cleaning and inspection should be arranged in a way that enables the cleaning for the whole vessel. The opening for expandable heating elements may be also used for cleaning and inspection.
Actual volume in l		Diameter in mm		
Over	Up or equal to	Over	Up or equal to	
500	-	-	1200	One cleaning opening with a diameter of at least 250 mm, or two cleaning circular openings with diameters of at least 100 mm each or oval with dimensions of at least 100 mm × 150 mm. When the length of the cylindrical portion exceeds 2000 mm, the cleaning circular opening shall have a diameter of at least 400 mm or oval at least 300 mm × 400 mm.
500	-	1200	-	One cleaning opening with a diameter of at least 400 mm or oval with dimensions of at least 300 mm × 400 mm.

Comments:

a) About the temperature measuring, we support to use an analogic or a digital thermometer for having a water temperature representative of the indoor water.
   About an accessible purge key in the lower area of the tank, a manufacturer could work on different options; it means a tap on the flange or a tap on safety valve which allows emptying and sampling and which shall also be lower than the water outlet.

Proposal:

The accumulators shall be equipped with an analogic or a digital thermometer representative of the indoor water or a thermostat able to reach 55°C and equipped with a tap on the flange or a tap on safety valve in the lower area of the tank, which allows emptying and sampling and which shall also be lower than the water.
Tank water emptying systems can be used as alternatives.

Comments:

a) In terms of energy labelling scheme for EU market, the European Commission defined a range of tapping profiles from 3XS to 4XL to label the products with their related energy performances. This requirement is a part of CE-marking of a water heater. In particular, a water heater works in accordance to EN 50440, EN 16147 and EN 13203 standards where the maximum temperature is set at 55°C in each tapping profile. In addition, water heaters work as a device that automatically adapts the water heating process to individual usage conditions with the aim of reducing energy consumption (smart control) but fulfilling the needs. Due to this fact, the water temperature in the tank could be higher than 55°C and lower than 55°C during the whole profile and in the same day. If for legionella reasons water temperature should be set at 60°C for whole day, the technology that has been developed to meet the EU requirements on Energy Efficiency would be impacted dramatically and products in compliance with EU Regulation will not be suitable for Spain market.

Furthermore, we support a risk assessment approach on legionella too. In fact, it is commonly recognized that it is more difficult to have stagnant water in a tank when its capacity is up to 500 litres. As consequence in these kind of products, the risk of legionella can be supposed to be lower than in a water heater with an higher capacity and this topic should be evaluated.

In addition, a water heater with a capacity up to 500 litres is often fully and frequently emptied when it is used and as consequence the risks of legionella bacteria can be considered significantly lower than the one existing for a seasonal tank with a capacity of more than 500 litres.
In addition, it should be considered that CEN/TR 16355:2012 gives different options in terms of water temperatures to prevent the legionella growth and these options should be duly considered.
Last but not least, also the potential safety risks caused to the user, in particular children or elderly shall be considered, by hot water temperature shall be considered.
(ex. Time of exposure for children at 70°C →<1s; at 60°C→3s; at 50°C →120s)
(ex. Time of exposure for adults at 70°C →1s; at 60°C→7s; at 50°C →510s)

Proposal: Thermal disinfection scheme (no-circulation of hot water)

Capacity/Storage WH above 500 l	**Conditions**
Thermal cycle frequency	Every 20 days: (and each time the product is switched-off more than 20 days) 55°C the whole day or 60°C at least 1h

No-Storage WH	**Conditions**
Water Temperature	min 55°C

Comment:

b) We propose the same temperatures mentioned above at point c).
f) We propose the same temperatures in according to point c).
g) We propose the same temperatures in according to point c).

APPLiA - Home Appliance Europe represents home appliance manufacturers from across Europe. By promoting innovative, sustainable policies and solutions for EU homes, APPLiA has helped build the sector into an economic powerhouse, with an annual turnover of EUR 53 billion, investing over EUR 1.6 billion in R&D activities and creating nearly 1 million jobs.