

INTERNATIONAL European Standards and Regulations Update

By Tony Frost

European product standards for water treatment equipment have been undergoing preparation under the auspices of CEN (Comite Europeen de Normalisation) for over ten years now. Most, if not all, are at an advanced stage of development. Two have been completed and the rest could become formal European standards by the end of 2005.

However, these standards will be included within the scope of the EAS (European Acceptance Scheme)—a European scheme, currently being developed to harmonize procedures for assessing material suitability for drinking water purposes. This Scheme will impact on the manufacturers of water treatment equipment selling in Europe because, although it is a harmonization of existing Schemes, it will not be identical to any single existing Scheme; compliance will be mandatory and it contains factory production control requirements that could be onerous for some manufacturers.

Furthermore, the goal posts are moving in that the European Drinking Water Directive is subject to a five-yearly review—the first of which was initiated last October.

CEN

The standards organization based in Brussels, Belgium, prepares European standards through technical committees (of which there are about 300) and the work is subdivided by those committees to 'experts' in work groups. TC164 is responsible for 'Water Supply' and WG13 for 'Water Treatment Equipment inside Buildings.' WG13 has ten active or complete (ratified) Work Items (see Table 1).

When a draft standard has been prepared and agreed to by the work groups and the committees, it is submitted for a public inquiry stage. It is circulated to members of CEN, who are primarily the National Standards bodies of the 28

European member countries. They are given six months to respond with comments and an indication of acceptance or rejection of the standard. Comments are returned to the drafting group and the draft is amended before re-submission to the National Standards Bodies for final vote. This is a weighted vote (dependent upon country population) and must obtain 71 percent acceptance for the standard to be adopted. Each CEN member must then adopt the standard—or, at least, delete any conflicting standards.

WC13 product standards

These standards are for "water treatment equipment inside buildings" and, as such, are defined for applications where the water supply has already been treated to regulated standards, which means the national implementation of the Drinking Water Directive 98/83/EC. Their development has been the subject of considerable controversy—particularly in the case of the softener standard, which has tended to overshadow the progress of the others. But, following the intervention of CEN Management Centre (CMC) at the end of 2002, the softener standard is now close to entering its final vote stage. Consequently, nearly all of the other product standards that have been quietly worked on during that time are now emerging through to their final stages. Most, if not all, should be complete and ratified by the end of 2005.

The softener standard

The softener standard, one of the first five to be started, was delayed primarily due to pressure to embody requirements for control of microbial growth. The intervention of CMC effectively instructed the group

to identify in the standard that "national or local provisions" may require "additional features" such as blending, automatically initiated regeneration after a prescribed period or microbiological growth control—without further detail in the standard. The softener draft has been modified accordingly, circulated for the first "public enquiry" stage and subsequently revised and agreed by the drafting group. It now awaits approval by WG13 for submission for "final vote".

Mechanical filters—Part 1 was approved, as EN 13443-1, ratified at the end of 2002 and is now being adopted as a national standard by each member of CEN. This standard is for water filtration at POE with a particle rating of 80 to 150 microns. It is based on a German DIN standard and the application is mainly confined to Germany, Austria and Switzerland.

Mechanical filters—Part 2 covers POE and POU particulate filters with a particle rating between 1 and 80 microns. It includes requirements and test procedures for verifying the particle rating (at 99.8 percent efficiency), retention capacity, cartridge and housing integrity. It has been through public inquiry with subsequent amendments and it is expected to be submitted for final vote in July. If accepted, it could be an EN by March 2005.

Electrolytic dosing systems with aluminium anodes is a corrosion protection system that operates by imposing an electric current across a sacrificial aluminium anode—effectively dosing aluminium into the water. This standard was ratified in December 2003 (EN 14095).

The draft for membrane filters, which includes RO, NF, UF and MF, has also been circulated for the public inquiry stage and comments embodied into the draft. As with the softener standard it awaits confirmation from WG13 to be issued for final vote. It covers cross flow and dead-end modes of operation.

Table 1: WG13 Standards approved or under active development

Work item	Status
Mechanical filters—Part 1, 80 to 150 microns	Complete
Electrolytic dosing with aluminium anodes	Complete
Mechanical filters—Part 2, 1 to < 80 microns	To be issued for final vote in July
Softeners	Awaiting agreement for issue for final vote
Membrane filters	Awaiting agreement for issue for final vote
Chemical dosing	Being modified following first public enquiry
Ultraviolet radiators	Awaiting results of first public enquiry
Active media filters	Awaiting results of first public enquiry
Nitrate reduction devices	Being drafted
Maintenance standard	Being drafted

Chemical dosing (disinfection, corrosion and scale inhibitors) has been through the first public inquiry and is currently being amended with the intention of circulation for final vote later this year.

Active media includes activated carbon, ion exchange resins, zeolites etc. that are used individually or in composite form for removal of color, taste, odor or trace contaminants. It assesses reduction of chlorine, specific organics and inorganics (nitrate, lead, hardness etc.) as identified by the manufacturer, and it includes a surrogate taste test using a geosmin and 2,4,6 tricholophenol challenge. This document is currently out for its first public enquiry.

Ultraviolet radiators draft standard has been circulated for public enquiry. The principle is based on challenging the UV device with a calibrated biodosi-meter (organism) and verifying the conditions of flow rate and transmittance at which the minimum dose of 40 m/cm² is achieved. There is some concern and conjecture about the complexity and application (disinfection versus conditioning) of this standard, which may retard its progress.

Agreement to prepare a draft for a nitrate reduction standard was only reached at the WG13 meeting last March but, as it is essentially similar to the softener standard, work is well advanced and a draft could be agreed upon for first public enquiry by WG13 in October.

The maintenance standard has been in preparation for some time. It includes actions and responsibilities for proper installation, commissioning, operation, maintenance and servicing of water treatment equipment. Although it started by identifying requirements for each of the devices being standardized within VVG13, it has now been purged of specific references to become a generalized document intended as a "guide" or "code of good practice". The detailed references to specific equipment may be added to the respective product standard, published as separate documents or simply appended to the Maintenance standard as an "Informative Annex". Because of the differing regulatory requirements for plumber qualification in Europe, the responsibilities cannot be legally enforceable. But there is considerable support for this standard, because one of the most frequent criticisms of the POE/POU industry is inadequate provisions regarding the maintenance of the equipment.

Two work items, chemical dosing Part 2 (for variable dosing rates) and rehardening devices (for remineralizing with calcium and/or magnesium) are likely to be deleted due to a lack of industry support.

The European Acceptance Scheme

The European Acceptance Scheme (EAS) is intended to harmonize the various European Member State schemes for verifying suitability of materials for contact with drinking water. Those equipment manufacturers who have attempted to sell their POE or POU equipment into different European countries will have found a diverse range of Schemes and this harmonization is intended to remove trade barriers.

Enforcement for the new Scheme is expected by 2006/7. It uses the principle of materials review for compliance with a "positive list" and assessment against harmonized procedures for odor, flavor, color, chlorine demand, TOC, microbial growth, GC/MS and cytotoxicity. The specific materials requirements for each product standard to be harmonized will be embodied into the standard in the form of a special Annex Z-EAS.

WG13 products are now included within the scope of the EAS and they will therefore have to comply with its requirements. This includes a "Level 1+ Attestation of Conformity" which requires third-party verification and site auditing of the factory production control systems. This could be very onerous for some SMEs.

However, the European Commission is currently conducting a review of national regulations relating to WG13 products to determine whether other aspects of the Construction Products Directive should be included in the "harmonized" standards. This could introduce mandatory requirements for mechanical integrity, for example.

The EAS will also include metals migration assessment which is largely absent from current European schemes. This is already creating concerns for copper leaching and for nickel where components are chrome plated (which use a nickel substrate).

Review of drinking water directive

The European Drinking Water Directive 98/83/EC, which replaced the old Directive 80/778/EEC, defines the various parameters and parametric values to which water supplies must comply for drinking water suitability. The new Directive was adopted in December 1998 and, although European Member States were allowed five years to enforce the new parameters, it contains a requirement for a five-year review. A conference was held in Brussels last October, attended by regulators and other stakeholders, where preliminary consideration was given to revision.

One proposal raised was to reintroduce a minimum hardness requirement where water is demineralized or softened. The justification was claimed to be based on increased evidence of the association between drinking water hardness (particularly magnesium content) and cardiovascular disease. While there was some reservation expressed by various water regulators on the implicit obligation that this entails, it is understood that WHO is also conducting a review, having made a preliminary investigation that concluded that the evidence is convincing. The outcome of this could have a significant impact on the softener industry—internationally.

About the author

♦ *Tony Frost is a director of AQUA FOCUS, LTD., a consultant in water treatment design, supplies and services in Newport, Shropshire, England. He's a past president of Aqua Europa and Chairman of the Bsi Committee, which 'mirrors' the CEN/WG13 activities in the United Kingdom. He can be contacted at +44 1952 691219 or email: AquaFocus@aol.com*