New World-class Standards for Water Treatment Chemicals

The adoption of close to 50 new standards for drinking water treatment chemicals is a positive step towards the improved regulation of the sector in South Africa. Lani van Vuuren reports.

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The Water Research Commission (WRC), together with Umgeni Water initiated a project to investigate and propose possible standards for the South African drinking water treatment chemical industry after it was found that the very chemicals added to treat water were not subject to any form of regulation or control.

Every day more innovative chemical blends are found to disinfect drinking water. Chemicals are used throughout the treatment process, from coagulation and flocculation to fluoridation, algae control, pH adjustment and final disinfection and polishing. With the right blend of quality chemicals, correctly dosed, even the smallest treatment plant can produce good potable water from almost any source.

However, processes used to manufacture these chemicals may result in the presence of impurities which can be a potential contaminant in drinking water. In small dosages the health effects of these impurities might not be evident immediately, but can manifest later if exposure continues over the long term.

While there is a statutory requirement that treated drinking water complies with the South African National Standard (SANS 241) the chemicals commonly used to purify water are not subject to any control. The WRC investigation found existing standards for water treatment chemicals to be extremely outdated, with several standards issued more than 20 years ago. In addition, there were many treatment chemicals for which no national standards existed, in spite of the fact that some of these are used extensively in the water and wastewater treatment industries. These include ferric sulphate, ferric chloride, bentonite and activated silica.

With no regulatory process, it has been left largely to manufacturers to police themselves regarding the contaminant levels in their products. Some South African manufacturers have applied for international accreditation while others rely on rigorous on-site quality and safety testing.

The lack of regulatory control has left especially smaller water service authorities in a vulnerable position. Unlike larger municipalities and water boards small towns are in no position to conduct sophisticated review and analyses of products and do not have resources for such evaluations. This has resulted in numerous reports of sub-standard products being supplied to these towns over the years.

Through the WRC project, undertaken in consultation with stakeholders such as the South African Bureau of Standards (SABS) and the Department of Water & Environmental Affairs, 46 new standards covering the majority of drinking water treatment chemicals used in South Africa have been adopted for use.

It will be up to individual manufacturers to make sure their products comply with the new standards. The standards are similar to those used in Britain and Australia, two countries which are considered to have among the most highly developed regulatory and approval systems in the world.

WRC Research Manager Dr Jo Burgess explains that the new standards will assist the water treatment sector greatly in selecting the best quality products. "Water service authorities will be able to insist on good quality imported and locally produced chemicals simply by using only SABS-approved chemicals. It will prevent technical water people from arguing with accountants who might be attracted to cheaper, lower-quality chemicals."

If all municipalities and water boards use only SABS-approved products unscrupulous manufacturers will be driven to either clean up their products or exit the South African market. "The standards will enable water boards and municipalities to feel secure that the chemicals they use are fit for human consumption, thus eliminating one source of possible contamination of drinking water," concludes Dr Burgess.

To order the report, National Standards for Drinking Water Treatment Chemicals (WRC **Report No: 1600/1/09**) contact Publications at Tel: (012) 330-0340 or E-mail: orders@wrc.org.za

DRINKING WATER TREATMENT CHEMICAL CONTROL IN OTHER COUNTRIES

The World Health Organisation recommends the use of legislation as the best means to control the quality of drinking water treatment chemicals.

Australia does not have national processes for the regulation, control and use of drinking water treatment chemicals. The closest proactive management is at the point of retail, where there may be contractual agreements in place with chemical suppliers regarding minimum technical requirements. Similarly, Canada does not have any system in place. Although attempts were made to introduce the Drinking Water Materials Safety Act, the intent of the Act being to incorporate the relevant American National Standards Institute/National Sanitation Foundation standards to regulate drinking water treatment chemicals at the point of retail, it was not passed by parliament.

New Zealand currently has five standards that are similar in structure to that of the European and American Water Works Association standards. The standards provide manufacturers, purchasers and suppliers with guidance on the minimum technical requirements and methods for physical and chemical testing.

In the UK, drinking water treatment chemicals are heavily regulated using a unique approval system under the control of the Drinking Water Inspectorate. Product compliance is monitored at the water supplier rather than the product supplier. Furthermore, minimum technical requirements are specified in legislation rather than in national standards.