Roberd Boer

Roberd Boer is currently working at *Tauw Group* a European consultancy and engineering agency, focused on environment and sustainable development. He is involved in testing wastewater before issuing permits for discharge into the sewer system.

Water sampling

It seems that taking representative water samples would be easy, but experience shows something else. Therefore, *Tauw Group* uses the NEN 6600-1 method for taking water samples. This is a strict protocol, designed to make sure that the water will be sampled correctly. When the protocol is not followed correctly, the risk of measuring a false positive will increase significantly. For instance, when samples are only taken from the drainage leaving the water treatment plant, the potential accumulation in the plant will be left out.

Pharmaceutical waste detection at its source

The contaminants that will be detected depend on the company/location of the measurements, since every factory releases different waste products. Pharmaceutical factories, for instance, would not release medicines in their sewer system, but raw materials and by-products used and produced during the production of the medicines, such as metals. Medicine and medical residues could be detected in the sewers of hospitals, especially hospitals with a laboratory. Medication and excipients prepared at these, for instance Borium (a contrast fluid, for CT scans and MRIs) is prepared in abundance to prevent a sudden shortage. Unfortunately, this results in an increase in the medicines and residues in the sewer system. The drainage of such hospitals could contain among other things: solvents, Iodide, Bromide, volatile aromatic hydrocarbons and heavy metals. The difference in waste products is one of the reasons why hospitals with a laboratory require different licenses than hospitals without laboratories.

Currently, most assays are based using mass spectrometry, with specific ionisation methods based on the contaminant. The assays for contaminants are relatively advanced, results are available within 24 hours.