NSAI Standards

Irish Standard Recommendation
S.R. CWA 17031:2016

Sustainable integrated water use & treatment in process industries - a practical guidance (SustainWATER)

S.R. CWA 17031:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

S.R. CWA 17031:2016 is the adopted Irish version of the European Document CWA 17031:2016, Sustainable integrated water use & treatment in process industries - a practical guidance (SustainWATER)

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CEN WORKSHOP AGREEMENT

CWA 17031

May 2016

ICS 13.060.25; 13.060.30; 71.020

English version

Sustainable integrated water use & treatment in process industries - a practical guidance (SustainWATER)

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

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Content

Page

European foreword

The present Workshop has been proposed by the E4Water consortium, which is conducting a Collaborative Project on Economically and Ecologically Efficient Water Management in the European Chemical Industry (E4Water; www.e4water.eu) [1]. E4Water is supported under the 7th Framework Programme of the EU, Theme NMP.2011.3.4-1, Eco-efficient management of industrial water.

CWA SustainWATER was developed in accordance with CEN-CENELEC Guide 29 "CEN/CENELEC Workshop Agreements – The way to rapid agreement" [2] and with the relevant provisions of CEN/CENELEC Internal Regulations - Part 2. It was agreed on 2016-03-23 in an online meeting by representatives of interested parties, approved and supported by CEN following a public call for participation made on 2016-01-22. It does not necessarily reflect the views of all stakeholders that might have an interest in its subject matter.

CWA 79 SustainWATER is a technical agreement, developed and approved by an open, independent Workshop structure within the framework of the CEN-CENELEC system.

CWA SustainWATER reflects the agreement only of the registered participants responsible for its content, and was developed in accordance with the CEN-CENELEC rules and practices for the development and approval of CEN/CENELEC Workshop Agreements.

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The final text of CWA SustainWATER was submitted to CEN for publication on 2016-04-05. It was developed and approved by:

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Introduction

This CWA aims to provide guidance primarily for company stakeholders to support implementation of sustainable integrated water use and treatment. While the whole procedure might be relevant for some stakeholders, only parts might be for others. Such sustainable integrated water system is essential for an efficient water use and treatment in any plant, including chemical and process industries. In its most advanced form it can also be described as an integrated industrial water management or even as an integrated water management when urban and industrial waters are managed together. This industrial approach has various dimensions starting from measures directly linked to single production processes up to measures and cooperation that go far beyond one industrial unit or even site. With an increasing range of scale to be considered in the industrial water management, the number of actors to be involved is growing (e.g. neighbourhood industrial sites, municipal wastewater treatment units, water resources management institutions up to catchment scale) and technology options are getting manifold. So there is a clear need to consider them in an integrated way.

To improve the management of water resources, water uses and final effluent disposal, for the companies in the chemical sector, multiple drivers exist. In many cases more than a single driver applies for each company, and frequently inter correlation between different drivers exists.

Companies located in water stressed areas (as assessed by various neat tools developed over the past years) will definitely identify the risk from various sides to reduce their water footprint by reducing the fresh water intake. Minimizing discharge to sensitive water bodies, not already regulated by local legislation implementation of the Water Framework Directive is also an important driver since it will require measures to ensure "good ecological quality" in each river water basin throughout Europe by 2027 latest.

Where competition with other users exists, typical governance foresees prioritization in water distribution where the industrial activities will come after, respectively, citizens and agriculture. The industry can look for alternative, although usually more expensive, water sources or it can reduce its dependency on fresh water. The latter can reduce in a sustainable way the risk of disruption in production. Moreover, the likelihood to see a pricing increase in such areas is a high risk, enhancing the pay back of water reuse.

Anticipating these developments many companies, ranging from SME's to multinationals, have included sound water management in their corporate and business strategies. Many have already defined clear objectives in setting targets for managing their water resources and some have applied tools to assess their sustainable water use in the expectation that taking voluntary action at an early stage provides the operating flexibility to achieve these goals when new and strict legislation is issued.

The overall process to move towards a sustainable integrated industrial water use and treatment can be described in the following way:

1. Clear definition of the conditions for implementation:

    a. Intention, drivers, issues to be addressed.

    b. Identification and description of the detailed non-technical framework to be considered, like financing, regulations, etc.

    c. 1st screening for the solution framework, to determine the scale that needs to be considered as boundary conditions and to analyse the surrounding environment

2. Developing a 1st set of technical options/solutions in combination with non-technical measures (where appropriate)

3. Assessment of applicability, efficiency and prove of compliance with technical and non-technical requirements (e.g. societal, administrative, regulative). Internal pre-assessment of sustainable water use.

4. Refinement and optimization of the selected? solution(s)
   Note: there might be several iteration steps between point 2 to 4

5. Final decision for a solution and implementation

1 Scope

The objective of the CEN workshop is to describe a framework for a practical approach on measures to achieve "a sustainable water use and treatment in chemical industry (and related process industry sectors)" considering technological and non-technological issues.

In the CEN Workshop Agreement "SustainWATER" the results and experiences on how to come to an efficient and sustainable water use and treatment are brought together out of the E4Water case studies to provide a guidance document on this approach The main objective of the E4Water project is to develop, test and validate new integrated approaches, methodologies and process technologies for a more efficient and sustainable use and treatment of water in chemical industry with transfer potential to other sectors.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DIN EN 1085:2007: Wastewater treatment – Vocabulary; Trilingual version

ISO/TS 21929-2:2015(en): Sustainability in building construction - Sustainability indicators - Part 2: Framework for the development of indicators for civil engineering works

ISO 14044:2006: Environmental management – Life cycle assessment – Requirements and guidelines

ISO 14040:2006(en): Environmental management - Life cycle assessment - Principles and framework

ISO 14046:2014(en): Environmental management, Water footprint, Principles, requirements and guidelines

ISO 15663-3:2001(en): Petroleum and natural gas industries - Life-cycle costing - Part 3: Implementation guidelines

ISO 16075-1:2015(en): Guidelines for treated wastewater use for irrigation projects, Part 1: The basis of a reuse project for irrigation

ISO 18311:2016(en): Soil quality - Method for testing effects of soil contaminants on the feeding activity of soil dwelling organisms - Bait-lamina test

3 Terms and definitions

For the purposes of this document the terms and definitions apply.

3.1
BREF documents
Best Available Techniques (BAT) reference documents

[SOURCE: http://eippcb.jrc.ec.europa.eu/reference/]

3.2
capital expenditures (CAPEX)
money used to purchase, install and commission a capital asset

[SOURCE: ISO 15663-3:2001(en), 2.1.3]