
Water reuse — Vocabulary

Réutilisation de l'eau — Vocabulaire

STANDARDSISO.COM : Click to view the full PDF of ISO 20670:2023



STANDARDSISO.COM : Click to view the full PDF of ISO 20670:2023



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword.....iv

Introduction.....v

1 Scope.....1

2 Normative references.....1

3 Terms and definitions.....1

Bibliography.....15

Index.....16

STANDARDSISO.COM : Click to view the full PDF of ISO 20670:2023

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 282, *Water reuse*.

This second edition cancels and replaces the first edition (ISO 20670:2018), which has been technically revised.

The main changes are as follows:

- certain definitions modified;
- addition of entries [3.1](#), [3.9](#), [3.16](#), [3.31](#), [3.34](#), [3.35](#), [3.51](#), [3.52](#), [3.54](#), [3.55](#), [3.56](#), [3.58](#), [3.61](#), [3.62](#), [3.65](#), [3.67](#), [3.70](#), [3.78](#), [3.82](#), [3.97](#), [3.99](#), [3.100](#), [3.101](#), [3.102](#) and [3.103](#).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Water reuse is the use of treated wastewater which, in turn, can have as its source surface water, groundwater, desalinated brackish water, desalinated seawater and reuse water, which can include treated wastewater, greywater, rainwater and stormwater.

With economic development, climate change, increases in population and rapid urbanization, water has become a strategic resource, especially in arid and semi-arid regions. Water shortages are considered as one of the most serious threats to sustainable development of society. Although conservation can reduce per capita demand, the remaining supplies can be insufficient to meet overall water demand needs. To address these shortages, reclaimed water is increasingly being considered for use to satisfy water demands that do not require potable water quality, and this strategy has proven useful in increasing the reliability of long-term water supplies in many water-scarce areas of the world.

Reclaimed water is used to satisfy a significant proportion of the water demands in rural and urban areas in many countries, such as agricultural irrigation, landscape irrigation, industrial reuse, groundwater recharge, toilet and urinal flushing, firefighting and fire suppression, ornamental water features and various other urban uses, including direct and indirect potable reuse.

There is a rapidly growing global market for water reuse, which inevitably demands International Standards. Today, many regions of the world face water shortages. The reality of water reuse and the lack of uniform and consistent water quality standards are raising concerns for human health and the environmental and societal implications of water reuse across the world. Consequently, there is a growing need for international standardization from suppliers, users, regulators and all stakeholders. A coherent approach to the description of water reuse activities and the use of water reuse terminology from this document will be of benefit to all users and stakeholders.

The objective of this document is to ensure a coherent approach to the description of water reuse activities and the use of water reuse terminology. Its purpose is to foster mutual understanding common to the different stakeholders.

An important new concept in water reuse is the “fit for purpose” approach, which entails the production of reclaimed water to a quality that meets the needs of the intended end uses.

This document presents terms and definitions in the following areas:

- water reuse of any kind and for any purpose;
- treated wastewater use for irrigation purposes;
- water reuse in urban areas;
- risk and performance evaluation of water reuse systems;
- water reuse for industrial purposes.

[STANDARDSISO.COM](https://standardsiso.com) : Click to view the full PDF of ISO 20670:2023

Water reuse — Vocabulary

1 Scope

This document defines terms and definitions commonly used in water reuse standards. It is applicable to all types and sizes of water reuse facilities and systems and to all types of stakeholders involved in water reuse.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

advanced oxidation process

AOP

process (3.70) that generates hydroxyl radicals in sufficient quantity to remove organics by oxidation

3.2

advanced treatment

treatment for the removal of total dissolved solids and/or trace *constituents* (3.17) as required for specific water reuse applications [e.g. activated carbon adsorption, reverse osmosis and *advanced oxidation processes* (3.1)]

3.3

agriculture

science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food or other products

3.4

aquifer

subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater

[SOURCE: Directive 2000/60/EC, Article 2, 11]

3.5

augmentation

process (3.70) of using *reclaimed water* (3.81) to increase the amount of water flowing through a surface body of water or *aquifer* (3.4) (i.e. reservoir, lake, river, stream, wetland and/or groundwater basin) for beneficial purposes

3.6

background water

freshwater (3.36) supplied for domestic, institutional, commercial and industrial use, from which *wastewater* (3.105) is generated

**3.7
barrier**
means that reduces or prevents health and environmental *risks* (3.83) by preventing contact with the treated *wastewater* (3.105) and/or by improving its quality

**3.8
beneficial use**
water use for overall advantages, which include environmental health and wellbeing to promote sustainability

EXAMPLE Municipal water supply, agricultural and urban irrigation, industrial applications, navigation, stream *augmentation* (3.5) for fish and wildlife habitat enhancement, toilet and urinal flushing, recreational water contact.

**3.9
biodosimetry**
procedure of measuring the UV reduction equivalent dose of a specific microorganism in a UV unit and comparing the results to the known UV dose-response curve of this microorganism determined by bioassay (typically collimated beam methods)

**3.10
biofilm**
surface slime caused by growth of surface-attached microorganisms within their extracellular polymeric substances

**3.11
biological stability**
maintaining microbial water quality from the point of water production up to the point of consumption

**3.12
blackwater**
wastewater (3.105) originating from sanitary sources (e.g. toilets, urinals and bidets), as well as drainage from food preparation and utensil-cleaning activities (e.g. kitchen sinks and dishwashers)

**3.13
brackish water**
water containing dissolved solids at a concentration higher than acceptable standards for intended use

Note 1 to entry: The concentration of total dissolved solids in brackish water can vary from 1 000 mg/l to 10 000 mg/l. Brackish water is less saline than sea water [1 000 to 10 000 mg/l of total dissolved solids for brackish vs up to 35 000 mg/l for sea water].

Note 2 to entry: The concentration of total dissolved solids of many brackish waters can vary considerably over space and/or time.

Note 3 to entry: See Reference [19].

[SOURCE: ISO 14046:2014, 3.1.2, modified — Definition and Note 1 to entry modified; Note 3 to entry added.]

**3.14
centralized water reuse system**
water reuse system typically applied on a large scale, such as municipal level, and including the entire *reclaimed water* (3.81) source, treatment, distribution, storage and monitoring components to produce a final treated effluent for its intended uses

3.15**chemical stability**

tendency of the treated water to possibly have reactions during the water distribution, storage or use processes, and the potential scaling, fouling and corrosion effects on pipes and equipment to which the water is exposed

Note 1 to entry: See Reference [18].

Note 2 to entry: Examples of reactions include deposition of calcium carbonate and the formation of *disinfection* (3.24) by-products.

3.16**concentrate**

stream exiting a membrane module containing the constituents rejected by the membrane

Note 1 to entry: Concentrate stream contains increased concentrations of *constituents* (3.17) over the feed stream due to the accumulation of rejected constituents by membranes in the feed stream.

3.17**constituents**

individual or group of physical, chemical or biological substances or matter present in water that are the target of removal, reduction or transformation in the *treatment process* (3.94)

3.18**contaminant**

physical, chemical, biological or radiological substance or matter in water

Note 1 to entry: The presence of contaminants does not necessarily indicate that the water poses a *health risk* (3.41).

3.19**critical control point****CCP**

point, step or procedure at which control can be applied and is essential to prevent or eliminate a *hazard* (3.38) or reduce it to an acceptable level

[SOURCE: ISO 5667-13:2011, 3.3, modified — Abbreviated term “CCP” added.]

3.20**cross-connection**

actual or potential connection between a potable water system and any source or system that can or does contain *non-potable water* (3.63) or other substances that pose a public *health risk* (3.41)

3.21**decentralized water reuse system**

water reuse system applied on a small scale

EXAMPLE Water reuse system which works offline from a centralized system, water reuse system at private level. In this context, decentralized water reuse systems refer to specialized reuse projects for individual residential homes, clusters of homes or commercial or institutional facilities.

3.22**desalination**

partial or near-complete removal of ionic species from seawater or *brackish water* (3.13) and treated wastewater, usually to make it drinkable or usable as processing water, cooling water or irrigation water

3.23**direct reuse**

production and supply of *reclaimed water* (3.81) to a *distribution system* (3.25) via pipelines, storage tanks and other infrastructure for reuse purposes

3.24

disinfection

process (3.70) that destroys, inactivates or removes microorganisms until an appropriate level is reached

3.25

distribution system

pipework network required to deliver water from a transmission pipeline to the points of connection to users' plumbing systems

Note 1 to entry: Pumping stations are included as part of the distribution system.

3.26

environment

surroundings in which an *organization* (3.64) operates, including air, water, land, other natural resources, flora, fauna, humans and their interrelationships

Note 1 to entry: Surroundings in this context range from the environment within an *organization* (3.64) to the global system in the particular geographical area that can be impacted by *water reuse* (3.109).

Note 2 to entry: Surroundings can be described in terms of biodiversity, ecosystems, climate or other characteristics.

[SOURCE: ISO 14001:2015, 3.2.1, modified — Note 1 to entry modified.]

3.27

environmental aspect

element or characteristic of an activity, product or service that interacts or can interact with the *environment* (3.26)

Note 1 to entry: Environmental aspects can cause *environmental impacts* (3.28). In the case of *water reuse* (3.109), they can have either beneficial impacts or adverse impacts.

[SOURCE: ISO 14001:2015, 3.2.2, modified — Definition and Note 1 to entry revised; Note 2 to entry deleted.]

3.28

environmental impact

change to the *environment* (3.26), whether adverse or beneficial, wholly or partially resulting from one or more *environmental aspects* (3.27)

Note 1 to entry: As a rule, *water reuse* (3.109) has beneficial environmental impacts, but potential adverse impacts can also occur depending on *reclaimed water* (3.81) quality and the sensitivity of the *environment* (3.26) of concern.

[SOURCE: ISO 14001:2015, 3.2.4, modified — Definition revised; Note 1 to entry added.]

3.29

exposure assessment

estimation (qualitative or quantitative) of the magnitude, frequency, duration, route and extent of exposure to one or more contaminated media

3.30

filtration

physical separation of solid particles from water by passing the water through a physical porous *barrier* (3.7) to trap and separate suspended solids from the water

Note 1 to entry: Examples of *barriers* (3.7) include media bed, surface or depth filter, screen and membrane.

3.31**flux**

membrane throughput, usually expressed in volumes of *permeate* (3.65) per unit membrane surface area per unit time, such as litres per square metre per hour (l/m²/h) at a given temperature or normalized temperature (often 20 °C)

Note 1 to entry: It can also be expressed in number of moles, volume or mass of a specified component per unit time per unit membrane surface area.

3.32**fodder crops**

crops for animal consumption

EXAMPLE Forage crops.

3.33**food crops**

crops for human consumption

Note 1 to entry: Food crops are often further classified according to whether the food crop is to be cooked, processed or consumed raw.

3.34**fouling**

processes (3.70) leading to deterioration of membrane flux due to surface or internal blockage of the membrane

3.35**functional requirement**

requirement related to the improvement of water quality by a *treatment technology* (3.96)

3.36**freshwater**

naturally occurring water on the Earth's surface (in ice, lakes, rivers and streams) and underground as groundwater in *aquifers* (3.4)

Note 1 to entry: Freshwater includes desalinated seawater and desalinated *brackish water* (3.13)

Note 2 to entry: Freshwater excludes seawater and *brackish water* (3.13).

3.37**greywater****graywater**

wastewater (3.105) from household baths and showers, hand basins and kitchen sinks

Note 1 to entry: Greywater includes used water from showers, bathtubs, bathrooms or toilet wash basins and water from clothes washing and laundry tubs.

Note 2 to entry: Greywater excludes used water from toilets and urinals or *wastewater* (3.105) from food waste (i.e. kitchen sinks and food waste grinders).

3.38**hazard**

source or situation with a potential for harm in terms of human injury or ill health (both short and long term), damage to property, the *environment* (3.26), soil and vegetation or a combination of these

[SOURCE: ISO 30000:2009, 3.4, modified — Definition revised.]

3.39

hazard analysis and critical control point

HACCP

systematic methodology that recognizes and reviews the *hazards* (3.38) throughout a *process* (3.70) and identifies *critical control points* (3.19) where preventative measures or set-points can be established and controlled to ensure product quality

Note 1 to entry: The main objective is to establish a monitoring programme that can effectively manage the *risks* (3.83) of each individual system in a *process* (3.70) and establish effective procedures to react to excursions of *critical control points* (3.19) to ensure end-product quality.

3.40

hazard identification

process (3.70) of recognizing the existence of *hazards* (3.38) and defining their characteristics

[SOURCE: ISO 21101:2014, 3.27]

3.41

health risk

combination of the likelihood of occurrence of harm to health and the severity of that harm

[SOURCE: ISO 10993-17:2002,¹⁾ 3.8]

3.42

health risk analysis

use of available information to identify health *hazards* (3.38) and to estimate *health risk* (3.41)

[SOURCE: ISO 10993-17:2002, 3.9]

3.43

indicator microorganism

indirect measure or indicator to infer whether a pathogenic (disease-causing) microorganism is present

3.44

indirect potable reuse

augmentation (3.5) of a drinking water source (surface or groundwater) with *reclaimed water* (3.81), followed by an environmental buffer that precedes drinking water treatment

3.45

indirect reuse

use of *reclaimed water* (3.81) after discharge in groundwater or surface water, where they can be mixed with water sources before *beneficial uses* (3.8)

Note 1 to entry: Indirect *water reuse* (3.109) does not include unplanned uses.

3.46

industrial reuse

reuse of *industrial wastewater* (3.47) or *municipal wastewater* (3.60) to satisfy industrial water requirements

EXAMPLE Cooling water from a power generation facility used for manufacturing purposes by a neighbouring industry.

Note 1 to entry: The reuse can occur within a particular industrial facility, as well as between industrial facilities of different natures.

3.47

industrial wastewater

wastewater (3.105) discharge resulting from any industrial activity

1) Cancelled and replaced by ISO 10993-17:2023.

3.48**irrigation project**

design, development, construction, selection of equipment, operation and monitoring of works to provide suitable water for irrigation

3.49**irrigation system**

assembly of pipes, components and devices installed in the field for the purpose of irrigating a specific area

3.50**landscape**

visible feature of an area of land, often considered in terms of its aesthetic appeal, such as public and private gardens, parks, road vegetation (including lawns) and turfed recreational areas

3.51**membrane bioreactor****MBR**

integrated wastewater *treatment process* (3.94) combining a suspended growth biological treatment and a *membrane filtration* (3.53) system [*microfiltration* (3.56) or *ultrafiltration* (3.97) membrane] replacing a conventional secondary clarifier

Note 1 to entry: The microfiltration or ultrafiltration membrane is submerged in a biological reactor (submerged MBR). Another configuration has pressurized membrane modules externally coupled to the bioreactor, with the biomass recirculated between the membrane modules and the bioreactor by pumping (side-stream MBR).

3.52**membrane cleaning**

operation to recover membrane performance using backwashing, flushing with or without chemical reagents

3.53**membrane filtration**

separation of the components of a fluid by semipermeable membranes with *pore size* (3.67) less than or equal to 10 µm and typically below 0,45 µm under pressure or vacuum

Note 1 to entry: Includes the *processes* (3.70) of *reverse osmosis* (3.82), *ultrafiltration* (3.97), *nanofiltration* (3.61) and *microfiltration* (3.56).

Note 2 to entry: There are two types of membrane filtration: pressure-driven filtration and vacuum-driven filtration.

Note 3 to entry: Membrane filtration can also be considered as *disinfection* (3.24), according to the log units of pathogen reduction that it achieves.

3.54**membrane integrity test**

non-destructive physical test that can be correlated to the membrane retention capability of the membrane system

3.55**membrane rejection rate**

relative measure of how much of the target *constituent* (3.17) that was initially in the feed water is separated from the liquid by the membrane

Note 1 to entry: Rejection rate is generally expressed by $1 - C_2/C_1$, where C_1 is feed concentration and C_2 is permeate concentration.

Note 2 to entry: To make the guideline simple, the word “membrane” is frequently omitted, depending on the context.

3.56
microfiltration
MF

pressure-driven membrane-based separation *process* (3.70) designed to remove particles and macromolecules in the approximate range of 0,05 µm to 2 µm

3.57
minimum treatment requirement

minimum treatment to be adopted to achieve the water quality requirements for protecting and maintaining safe, reliable and stable *reclaimed water* (3.81) use

3.58
molecular weight cut-off
MWCO

rating of a membrane based on the size of uncharged solutes that is 90 % retained by a membrane

Note 1 to entry: Molecular weight cut-off is also referred to as nominal molecular weight cut-off (NMWCO).

Note 2 to entry: Typically expressed in Daltons.

3.59
multiple barrier concept

provision of multiple safeguards to maintain finished water quality *reliability* (3.79) to the point of use

EXAMPLE Source control, redundant systems and *treatment processes* (3.94) arranged sequentially as well as monitoring.

3.60
municipal wastewater

water arising from any combination of domestic and commercial activities, surface runoff and any accidental sewer inflow or infiltration water

Note 1 to entry: Municipal wastewater includes collected *stormwater* (3.91) and water discharged to the *environment* (3.26) or sewer.

3.61
nanofiltration
NF

cross-flow *process* (3.70) with pore sizes designed to remove selected salts and most organics above about 300 molecular weight range

Note 1 to entry: Nanofiltration is sometimes referred to as loose *RO* (3.82).

Note 2 to entry: Nanofiltration is a pressure-driven separation *process* (3.70) in which particles and dissolved molecules smaller than about 2 nm are rejected.

3.62
non-functional requirement

requirement that specifies criteria or constraints on the design or implementation of a *treatment technology* (3.96)

3.63
non-potable water

water that is not of drinking water quality according to local jurisdiction

3.64**organization**

person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

Note 1 to entry: The concept of organization includes, but is not limited to, sole-trader, company, corporation, firm, enterprise, authority, partnership, association, charity or institution, or part or combination thereof, whether incorporated or not, public or private.

[SOURCE: ISO 9000: 2015, 3.2.1, modified — Note 2 to entry deleted.]

3.65**permeate**

portion of the feed stream which passes through a membrane

3.66**pollutant**

substance which either alone or in combination with other substances or through its products of degradation or emissions can have a harmful effect on human health or the *environment* ([3.26](#))

[SOURCE: ISO 16000-32:2014, 3.7, modified — Definition revised.]

3.67**pore size**

size of the openings in a porous membrane, expressed either in a nominal (average) or absolute (maximum) value, typically measured in μm

3.68**potable reuse**

use of high-quality *reclaimed water* ([3.81](#)) as a *raw water* ([3.75](#)) source for drinking water treatment and *distribution systems* ([3.25](#))

3.69**potable water**

water that meets applicable drinking water standards and is safe for drinking, washing and food preparation

3.70**process**

set of interrelated or interacting activities that use inputs to deliver an intended result

[SOURCE: ISO 9000:2015, 3.4.1, modified — Notes to entry deleted.]

3.71**public health aspect**

element of an organization's activities, projects or products that can interact with public health

3.72**public health impact**

change to public health, whether adverse or beneficial, wholly or partly resulting from an organization's activities, projects or products

3.73**public health parameter**

quantifiable attribute of a *public health aspect* ([3.71](#))

3.74**rainwater**

water arising from atmospheric precipitation which has not yet made contact with the surface

3.75

raw water

water that is supplied to a water *treatment process* (3.94) for the purpose of removing *constituents* (3.17) that would otherwise impair its intended *beneficial use* (3.8)

3.76

receptor

defined entity that is vulnerable to the adverse effect(s) of a hazardous substance or agent

EXAMPLE Human, animal, water, vegetation, building services.

[SOURCE: ISO 11074:2015, 3.3.29]

3.77

recycled water

water which has been previously used and is then subsequently used for beneficial purposes with or without treatment prior to the subsequent use

Note 1 to entry: The terms “recycled water” is often used as a synonym for “reclaimed water” (3.81) or “reuse water” (3.81); however, the latter two terms refer to water that has been treated, whereas “water recycling” refers to using water again for beneficial purposes with or without treatment.

3.78

reduction equivalent dose

dose of UV in a given device which is determined by *biodosimetry* (3.9)

Note 1 to entry: See “UV dose” (3.100).

Note 2 to entry: This UV dose is determined by measuring the inactivation of a challenge microorganism after exposure to UV light in a UV unit and comparing the results with the known UV dose response curve of the same challenge organism determined via Bench scale collimated beam testing.

3.79

reliability

<asset, process> probability that a device, system or *process* (3.70) will perform its prescribed function without failure for a given time when operated correctly in a specified *environment* (3.26)

[SOURCE: ISO 24512: 2007, 2.38]

3.80

restricted irrigation

irrigation of areas in which public access during irrigation with *reuse water* (3.81) can be controlled, such as some golf courses, cemeteries and highway medians

3.81

reuse water

reclaimed water

wastewater (3.105) that has been treated to meet a specific water quality level for intended *beneficial use* (3.8)

3.82

reverse osmosis

RO

separation *process* (3.70) where one component of a solution is removed from another component by flowing the feed stream under pressure across a semipermeable membrane that causes selective movement of solvent against its osmotic pressure difference

Note 1 to entry: Reverse osmosis removes ions based on electro chemical forces, colloids and organics down to 150 molecular weight. It is also called hyperfiltration.

3.83**risk**

effect of uncertainty on objectives, including the potential for adverse effects of exposure to *hazards* (3.38)

[SOURCE: ISO Guide 73:2009, 1.1, modified — Definition revised and notes to entry deleted.]

3.84**risk analysis**

process (3.70) to comprehend the nature of *risk* (3.83) and to determine the level of risk

[SOURCE: ISO Guide 73:2009, 3.6.1, modified — Notes to entry deleted.]

3.85**risk assessment**

overall *process* (3.70) comprising a *risk analysis* (3.84) and a *risk evaluation* (3.87)

[SOURCE: ISO/IEC Guide 51:2014, 3.11]

3.86**risk characterization**

evaluation and conclusion based on the *hazard* (3.38) identification and the exposure and effect assessment

[SOURCE: ISO 15800:2019, 3.19]

3.87**risk evaluation**

process (3.70) of comparing the results of *risk analysis* (3.84) with risk criteria to determine whether the *risk* (3.83) and/or its magnitude is acceptable or tolerable

[SOURCE: ISO Guide 73:2009, 3.7.1, modified — Note 1 to entry deleted.]

3.88**risk management**

coordinated activities to direct and control an *organization* (3.64) with regard to *risk* (3.83)

[SOURCE: ISO Guide 73:2009, 2.1]

3.89**source water**

wastewater (3.105) that is treated in order to generate or supply *reclaimed water* (3.81)

EXAMPLE Secondary treated wastewater, raw sanitary sewage.

3.90**stakeholder****interested party**

individuals, groups, *organizations* (3.64) or agencies with an interest in, involved in and/or affected by water reuse activities, developments and/or decisions

3.91**stormwater**

water resulting from *rainwater* (3.74), melted snow and ice draining from roofs, roads, footpaths and all other ground surfaces

Note 1 to entry: Stormwater can either be collected and stored for direct use or collected and discharged into a sewer system or *environment* (3.26) and/or infiltrate into the soil.

3.92

surrogate parameter

quantifiable change of a bulk parameter that can measure the performance of a *treatment technology* (3.96) in removing a health or environmental *hazard* (3.38)

3.93

thermo-tolerant coliform

faecal coliform

coliform organism that can ferment lactose to produce acid and gas, and has the same fermentative biochemical properties at 44 °C as they have at 37 °C

Note 1 to entry: In practice, some organisms with these characteristics cannot be of faecal origin and the term “thermotolerant coliform” is, therefore, more correct and is becoming more commonly used. Nevertheless, the presence of thermotolerant coliforms nearly always indicates faecal contamination.

Note 2 to entry: See ISO 6107 and ISO 9308-1.

3.94

treatment process

unit *process* (3.70) designed to improve the water quality by physical, biological and/or chemical means

3.95

treatment system

set of interrelated or interacting unit *treatment processes* (3.94)

3.96

treatment technology

wastewater (3.105) treatment unit process or group of integrated unit processes designed to improve the water quality by physical, biological and/or chemical means

3.97

ultrafiltration

UF

pressure-driven *process* (3.70) employing semipermeable membrane under hydraulic pressure gradient for the separation components in a solution

Note 1 to entry: The pores of the membrane are of a size smaller than 0,1 mm, which allows passage of the solvent(s) but retains non-ionic solutes based primarily on physical size, not chemical potential.

3.98

unrestricted irrigation

irrigation of areas where public access during irrigation is not restricted

Note 1 to entry: Unrestricted irrigation often requires higher water quality than *restricted irrigation* (3.80) to deal with the *health risks* (3.41) associated with the likelihood of public contact with the *reclaimed water* (3.81).

EXAMPLE Examples of such areas include gardens and playgrounds.

3.99

UV disinfection system

combination of UV *disinfection* (3.24) units with associated controls and instrumentation

3.100

UV dose

UV fluence

amount of UV energy given as the time integral of the fluence rate or irradiance (W/m^2)

Note 1 to entry: The value is given in units of mJ/cm^2 or J/m^2 .

3.101

UV intensity sensor

UV irradiance meter or radiometer instrument to measure *UV irradiance* (3.102)

3.102**UV irradiance****UV fluence rate****UV intensity**

UV output emitted from a given light source and entering a unit area of the irradiated surface

Note 1 to entry: The value is typically given in W/m² or mW/cm².

Note 2 to entry: The terms "UV irradiance", "fluence rate" and "intensity" are often used to mean the same thing.

Note 3 to entry: For details, see Reference [16].

3.103**UV transmittance**

fraction of photons in the UV spectrum transmitted through a material such as water or quartz

Note 1 to entry: It is preferable that an online ultraviolet transmittance (UVT) sensor be installed and used to verify UVT.

Note 2 to entry: The wavelength of the UVT (unit %) should be specified, often using a path length of 1 cm. The measurement is calibrated compared to ultra-pure water (ISO 3696 grade 1 or equivalent).

Note 3 to entry: UVT is related to the UV absorbance (*A*) by the following (for a 1-cm path length):
 $\% \text{ UVT} = 100 \times 10^{-A}$.

3.104**verification**

testing of a bench-scale, pilot or full-scale system to measure and compare to the design goals

3.105**wastewater**

water arising from any combination of domestic, industrial, commercial or institutional activities, surface runoff and any sewer inflow or infiltration water, and which can include collected *stormwater* (3.91)

Note 1 to entry: Runoff in the wastewater definition is from point source and non-point pollutant sources.

3.106**wastewater treatment plant****WWTP**

facility designed to treat *wastewater* (3.105) by a combination of physical, chemical and biological *processes* (3.70), for the purpose of reducing the organic, inorganic and some microbial *contaminants* (3.18) in the wastewater

Note 1 to entry: There are different levels of *wastewater* (3.105) treatment, according to the desired quality of treated wastewater and the level of contamination.

3.107**water reclamation**

process (3.70) of treating and processing *wastewater* (3.105) to make it suitable for *beneficial use* (3.8)

3.108**water recycling**

using water again for beneficial purposes, with or without treatment

3.109**water reuse**

use of treated *wastewater* (3.105) for *beneficial use* (3.8)