
**Treated wastewater reuse for
irrigation — Guidelines for the
adaptation of irrigation systems and
practices to treated wastewater**

*Réutilisation des eaux usées traitées en irrigation — Lignes
directrices pour l'adaptation des systèmes et pratiques d'irrigation
aux eaux usées traitées*

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Foreword

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This document was prepared by Technical Committee ISO/TC 282, *Water reuse*, Subcommittee SC 1, *Treated wastewater reuse for irrigation*.

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Introduction

Irrigation is gaining importance all over the world, and the lack of water available from surface or groundwater is driving the introduction of treated wastewater for this purpose. Accordingly, some adaptation is needed to the equipment included in the irrigation system to ensure its proper functioning.

The composition of treated wastewater (TWW) is different from that of freshwater. TWW contains more nutritional elements and microbial populations. It is also characterized by a higher salt concentration, anions and cations with a high precipitation potential of sediments of low solubility salts. These characteristics can severely disrupt the operation of the TWW irrigation systems, which can result in poor performance of the system, and potentially harmful to the environment.

Changes in water quality of reservoirs or secondary water resources can affect the water systems' efficiency, as all parts of the irrigation system, such as filters, pipes and emitters, can be adversely affected by low quality water.

The transport efficiency of irrigation equipment is dependent on the quality of the treated wastewater used, due to several factors such as:

- formation of biofilm on interior pipe walls,
- scale precipitation, organic material and fertilizers, and
- excess build-up of sediment.

Irrigation systems clogging types can be classified into three categories:

- organic and inorganic particles (minerals) sedimentation,
- chemical precipitation of low solubility salts, and
- biofouling -attachment/detachment of microorganism colonies on the irrigation system interior surface, which results in biofilm development.

This document provides guidelines on how to use TWW in or with irrigation systems and to protect them from clogging.