ISO 21939-1:2019 (E)

A method to calculate and express energy consumption of industrial wastewater treatment for the purpose of water reuse — Part 1: Biological processes

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions, symbols and abbreviated terms

3.1 Terms and definitions
3.2 Symbols and abbreviated terms

4 Expression and normalization of energy consumption

4.1 Energy consumption indicator
4.2 Calculation

5 Components contribution to the energy consumption

5.1 General
5.1.1 Steady state conditions
5.1.2 Consideration of flow rate
5.1.3 Calculation of variable consumptions
5.1.4 Accounting for addition of oxidizing chemicals
5.1.5 Physico-chemical separation pre-treatment processes
5.2 List of system components
5.2.1 General
5.2.2 Aeration and combined mixing and aeration equipment
5.2.3 Mixing
5.2.4 Solid-liquid separation
5.2.5 Internal circulation pumping
5.2.6 Circulation of settled sludge
5.2.7 Other pumping
5.2.8 Air driven pumping and/or mixing

6 Factoring of different process conditions

6.1 General
6.2 Temperature adjustments
6.3 Barometric pressure adjustment
6.4 Type of wastewater

Annex A (informative) References to formulae and calculations

Annex B (informative) Example calculations

Page count: 12