

ISO 12370:2025-01 (E)

Guidelines for treatment and reuse of fermentation-based pharmaceutical wastewater

Contents

Page

Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms, definitions and abbreviated terms.....	1
3.1 Terms and definitions.....	1
3.2 Abbreviated terms.....	2
4 Pollution loading.....	2
4.1 Classification of wastewater.....	2
4.2 Wastewater volume.....	3
4.3 Quality of produced wastewater.....	4
5 General principles.....	4
6 Wastewater treatment processes.....	5
6.1 Pretreatment process.....	5
6.2 Biological treatment process.....	6
6.2.1 General.....	6
6.2.2 Hydrolysis acidification reactor.....	6
6.2.3 UASB reactor.....	7
6.2.4 Activated sludge process.....	7
6.2.5 IFAS process.....	7
7 Reclamation treatment processes.....	8
7.1 General.....	8
7.2 Denitrification.....	8
7.3 Activated carbon adsorption.....	8
7.4 Coagulation precipitation.....	8
7.5 Membrane separation.....	9
7.6 High-efficiency sedimentation tank.....	9
7.7 Ion exchange.....	9
7.8 MBR.....	10
7.9 Fenton oxidation.....	10
7.10 Ozone catalytic oxidation.....	10
7.11 Ultraviolet disinfection.....	10
8 Example processes for wastewater treatment and reclamation.....	10
Annex A (informative) Pharmaceutical wastewater quality.....	11
Annex B (informative) Influent quality for membrane separation.....	13
Annex C (informative) Examples of treatment and reclamation processes for fermentation-based pharmaceutical wastewater.....	14
Bibliography.....	17