DIN EN ISO 19040-1:2023-12 (E)

Water quality - Determination of the estrogenic potential of water and waste water - Part 1: Yeast estrogen screen (Saccharomyces cerevisiae) (ISO 19040-1:2018)

Contents

Page

European foreword ... **4**

Foreword ... **5**

1 Scope ... **6**

2 Normative references ... **6**

3 Terms and definitions ... **7**

4 Principle ... **9**

5 Interferences ... **9**

6 Apparatus and materials ... **10**

7 Reagents, media and test strain ... **11**

8 Sampling and samples ... **15**
8.1 General ... 15
8.2 Bottles and material for sampling ... 15
8.3 Bottles and material pre-cleaning ... 15
8.4 Sampling procedure ... 15
8.5 Transport of samples ... 16
8.6 Pretreatment of samples ... 16
8.7 Storage of samples ... 16

9 Procedure ... **17**
9.1 Preparation of cryo-cultures for long-term storage ... 17
9.2 Overnight culture ... 17
9.3 Test set up for aqueous samples ... 17
9.3.1 Preparation ... 17
9.3.2 Preparation of the reference dilution series ... 17
9.3.3 Negative control ... 18
9.3.4 Blank replicate ... 19
9.3.5 Sample dilution ... 19
9.3.6 Field blank ... 19
9.3.7 Plate setup ... 19
9.3.8 Inoculation of the test plate ... 19
9.4 Measurement ... 20
9.4.1 Measurement of the cell density ... 20
9.4.2 Measurement of the reporter gene activity ... 21
9.5 Calculation of the corrected absorbance and the reporter gene induction ... 21
9.6 Calculation of the relative growth ... 22
9.7 Estimation of the EC_{50} of the reference compound by linear interpolation ... 22

10 Validity criteria ... **22**

11 Assessment criteria ... **23**

12 Test report ... **23**

Annex A (normative) **Strain selection** ... **24**

Annex B (informative) **Plate set up** ... **25**

Annex C (informative) **Scheme of test principle** ... **26**

Annex D (informative) **Test set up for chemicals and extracts** ... **27**

Annex E (informative) **Preparation of dilution series** ... **31**

Annex F (informative) **Performance data** ... **32**

Annex G (informative) **Use of other yeast strains based on *Saccharomyces cerevisiae*** **45**
Annex H (informative) **Statistical assessment** **48**
Annex I (informative) **Calculation of 17β-estradiol equivalents** **50**
Annex J (informative) **Measurement of the lowest ineffective dilution (LID) of a waste water — A simplified evaluation for testing of waste water** **53**
Bibliography **55**