

DIN EN ISO 21676:2022-01 (E)

Water quality - Determination of the dissolved fraction of selected active pharmaceutical ingredients, transformation products and other organic substances in water and treated waste water - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS or -HRMS) after direct injection (ISO 21676:2018)

Contents	Page
European foreword	3
Foreword	4
Introduction	5
1 Scope	6
2 Normative references	9
3 Terms and definitions	9
4 Principle	9
5 Interferences	9
5.1 During sample preparation	9
5.2 During high performance liquid chromatography and mass spectrometry	9
6 Reagents	10
6.1 General	10
6.2 Preparation of solutions	10
7 Apparatus	12
8 Sampling	13
9 Procedure	13
9.1 General	13
9.2 Sample preparation	13
9.3 High performance liquid chromatography (HPLC)	14
9.4 Detection	14
9.4.1 General	14
9.4.2 Tandem mass spectrometry (MS/MS)	15
9.4.3 High-resolution mass spectrometry (HRMS)	15
9.5 Blank value measurements	15
10 Calibration	15
10.1 General	15
10.2 Calibration with external standard	17
10.3 Calibration with internal standard	17
11 Calculation of recovery	18
11.1 General	18
11.2 Calculation of analyte recovery using samples	18
11.3 Recovery of internal standards	19
12 Evaluation	19
12.1 Verification of individual substances	19
12.2 Calculation of the individual results using calibration with an external standard	20
12.3 Calculation of the individual results using calibration with an internal standard	20
13 Expression of results	21
14 Test report	21

Annex A (informative) Performance data	22
Annex B (informative) Examples of recovery	27
Annex C (informative) Examples of HPLC columns and chromatograms	29
Annex D (informative) Examples of detection	35
Annex E (informative) Examples of extension of the method	38
Bibliography	39