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**Surface chemical analysis - Total reflection X-ray fluorescence
analysis of water**

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents"

drafting:

This document is equivalent to ISO 20289:2018 "Total reflection X-ray fluorescence spectroscopic analysis of water for surface chemical analysis":

Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents:

This document was proposed and managed by the National Microbeam Analysis Standardization Technical Committee (SAC/TC38):

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Introduction

Total reflection X-ray fluorescence spectroscopy (TXRF) is a surface-sensitive technique that can be used to obtain composition information of different kinds of samples:

ISO /T S18507 provides guidelines for characterizing biological and environmental samples using TXRF:

Calibrated by internal standard[1,2], TXRF is suitable for elemental determination of thin films formed by liquid samples deposited on the surface of clean and well-polished reflectors:

quantitative analysis:

This document provides guidelines and requirements for the quantitative analysis of

elements in water by TXRF:

Surface Chemical Analysis

Total reflection X-ray fluorescence spectroscopic analysis of water

1 Scope

This document describes the chemistry used by analysts to perform measurements on water samples using total reflection X-ray fluorescence (TXRF) instruments: good basis

According to the operating practice, the method has a certain accuracy and precision: This document is suitable for carrying out routine analysis of a large number of samples and according to ISO /

IEC 170251) operating laboratory:

1) GB/T 27025-2019 General requirements for the competence of testing and calibration laboratories (ISO /IEC 17025:2017, IDT):

This document describes methods for the determination of dissolved element content in water (eg, drinking water, surface water, groundwater): Taking into account specific and

According to this method, the elements in waste water and eluent can also be determined according to the interference occurring outside: This document does not cover sampling, dilution and preconcentration methods:

The elements that can be determined by this method will change with the change of the X-ray source of the instrument: This document does not address health, safety and commercial

factor:

The measuring range depends on the sample matrix and interferences encountered: Limits of quantification for most elements in drinking water and relatively unpolluted water

Between 0:001mg/L~0:01mg/L: The measurement range is usually between the concentration range of 0:001mg/L~10mg/L, depending on the measurement unit

elements and pre-set requirements:

Appendix B gives an example of complete method validation for TXRF analysis of water samples when the molybdenum target X-ray source and Ga are used as the calibration internal standard:

Limits of quantitation for most elements can be affected by blank contamination and are largely dependent on the laboratory air handling equipment used and the

The purity of reagents and the cleanliness of laboratory equipment:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document:

and test methods)

Note: GB/T 6682-2008 Analytical Laboratory Water Specifications and Test Methods (ISO 3696:1987, MOD)

ISO 5667-1 Water quality sampling Part 1: Guidelines for the design of sampling schemes and sampling techniques (Waterquality-Sampling-

Note: GB/T 12997-1991 Water Quality Sampling Scheme Design Technical Regulations (ISO 5667-1:1980, IDT)

ISO 5667-3 Water quality sampling Part 3: Guidelines for preservation and handling of water samples (Waterquality-Sampling-Part 3:

Note: GB/T 12999-1991 Technical regulations for storage and management of water quality sampling samples (ISO 5667-3:1985, NEQ)

ISO 5725-1 Accuracy (trueness and precision) of measurement methods and results - Part 1: General principles and definitions [Accuracy actions]

Note: GB/T 6379:1-2004 Accuracy of measurement methods and results (trueness and precision) Part 1: General principles and definitions (ISO 5725-1: 1994, IDT)

ISO 5725-2 Accuracy (trueness and precision) of measurement methods and results - Part 2: Determining the repeatability of standard measurement methods