BS EN 14701-2:2013

BSI Standards Publication

Characterisation of sludges — Filtration properties

Part 2: Determination of the specific resistance to filtration

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National foreword

This British Standard is the UK implementation of EN 14701-2:2013. It supersedes BS EN 14701-2:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EH/5, Sludge characterization.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Characterisation of sludges - Filtration properties - Part 2: Determination of the specific resistance to filtration

Caractérisation des boues - Propriétés de filtration - Partie 2: Détermination de la résistance spécifique à la filtration

Charakterisierung von Schlämmen - Filtrationseigenschaften - Teil 2: Bestimmung des spezifischen Filtrationswiderstands

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Foreword

This document (EN 14701-2:2013) has been prepared by Technical Committee CEN/TC 308 “Characterization of sludges”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14701-2:2006.

Other parts of EN 14701 are:

— *Part 1: Capillary suction time (CST)*;

— *Part 3: Determination of the compressibility*;

— *Part 4: Determination of the drainability of flocculated sludges*.

Most significant changes made since the latest edition:

— “Part 4 …” added to Foreword;

— Introduction modified;

— CEN/TR 14742 added to Normative References;

— Clause “Principle” modified and better specified;

— List Entry 5.1.3 modified and better specified;

— List Entry 5.8 added;

— Clause 6 better specified;

— In Formula (1), “m” instead of “C_o”;

— Table 1 simplified;

— text added in Clause 7;

— List Entry c) added in Clause 9;

— former Annex A deleted;

— bibliographical references added.

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Introduction

The specific resistance to filtration is a parameter which indicates the suitability of sludge to be filtered. The value of the specific resistance to filtration has great importance in filtration processes as it can be useful for estimating the performance of full-scale filtering devices, mainly pressure filters, and comparing filterability characteristics of sludges produced in different plants. Specific resistance measurements can also give indications on both the optimal type and dosage of conditioner to be used (CEN/TR 14742).

This revised version only includes editorial changes that do not influence the original, validated method.

1 Scope

This European Standard specifies a method for determining the specific resistance to filtration of conditioned and non-conditioned sludges, provided that no sedimentation occurs during filtration (i.e. single phase suspension with particles in suspension).

This European Standard is applicable to sludges and sludge suspensions from:

— storm water handling;

— urban wastewater collecting systems;

— urban wastewater treatment plants;

— industrial wastewater that has been treated similarly to urban wastewater (as defined in Directive 91/271/EEC);

— water supply treatment plants.

This method is also applicable to sludge and sludge suspensions of other origins.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12832:1999, *Characterization of sludges — Utilization and disposal of sludges — Vocabulary*

EN 12880, *Characterization of sludges — Determination of dry residue and water content*

CEN/TR 14742, *Characterization of sludges — Laboratory chemical conditioning procedure*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12832:1999 and the following apply.

3.1
specific resistance to filtration
property representing the resistance to filtration of a layer of particles having a unit mass of dry solids deposited on a unit filtering area

4 Principle

This method is based on the flow of a liquid through a porous medium in accordance with Darcy's law (see Annex A). The specific resistance to filtration is determined by pouring a suitable volume of sludge into a filtering device, allowing the liquid to be filtered under constant vacuum or pressure, whilst recording the amount of filtrate over time.

Considering that for sludges this parameter is affected by pressure value, this standard has been validated for the determination of specific resistance to filtration at pressure values (50 ± 5) kPa, (150 ± 10) kPa and (300 ± 15) kPa, as specifically indicated in Clause 6.

If necessary, as in the case of tests intended to size or optimise industrial filters, tests may be carried out at different pressures, provided results have been validated in advance.