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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 4774-2013

Replacing GB/T 4774-2004

Terminology of filtration and separation

过滤与分离 名词术语

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Foreword

GB/T 4774-2013 was issued on 17 December 2013 by the General Administration of Quality Supervision, Inspection and Quarantine and the Standardization Administration of the People's Republic of China, and has been in force since 1 October 2014. The /T marks it as a recommended national standard.

The document carries an official English translation published by openstd. SAC/TC 92 is in charge of that translation, and the Chinese original is authoritative in case of any doubt about the English. It is drafted to the rules of GB/T 1.1-2009.

The standard replaces GB/T 4774-2004, Terminology of separation machinery, in whole. Beyond editorial changes, the foreword lists the technical deviations from the 2004 edition, and they show the direction the revision took: the title itself was changed, and a series of provisions were deleted - certain entries on filter media, on filter equipment such as filter presses, leaf filters and rotary drum filters, on cartridge and bag filters, on hydrocyclones and on membrane filtration.

Against those deletions the revision added new material across the process side of the vocabulary: further provisions on separation processes and principles, on material

properties, on pretreatment technology, and on enhanced filtration technology. The net effect is a document that leans less on cataloguing individual machines and more on defining the processes and the material behaviour behind them.

1 Scope

The Chinese national vocabulary for solid-liquid separation: a full technical dictionary, running to roughly a hundred pages of defined terms plus a bibliography and an alphabetical index, covering both the processes and the machines. It exists because filtration and separation is a field where the same piece of equipment is called three different things in three different industries, and where words like cake filtration, dynamic filtration, clarification and dewatering carry precise engineering meanings that ordinary usage blurs. Once a term is fixed here, every other Chinese standard, equipment specification, tender document and contract in the field can lean on it, which is what makes a terminology standard worth more than its page count suggests. The document is organised in thirteen clauses that move from principle to hardware - separation processes and principles, the properties of solid-liquid suspending systems, pretreatment technology including concentration, clarification, sedimentation, air flotation, coagulation and flocculation, enhanced filtration technology, filter media, post-treatment technology such as washing and dewatering, then centrifuges, centrifugal extractors, filters, hydrocyclones and membrane separation. It covers the design and manufacture of the equipment, machinery, spare parts and the related process control and mechanical structures, and can be used in research and teaching as well as in industry. Its limits are set explicitly: the continuous phase must be liquid, and laboratory centrifuges and gas filters are outside it. It replaces GB/T 4774-2004, which was titled Terminology of separation machinery.

Clause 1 states that the standard specifies the fundamentals and the construction and performance terminology of filtration and separation processes and equipment in which the continuous phase is liquid - a single qualification that draws the boundary of the whole document.

The field of application is then set out at length. On the process side it covers solid-liquid separation principles and processes, the properties of solid-liquid suspending systems, pretreatment technology including concentration, clarification, sedimentation, air flotation, coagulation and flocculation, enhanced filtration technology, filter media, post-treatment technology including washing and dewatering, and membrane filtration. On the equipment side it applies to the design and manufacture of equipment, machinery and spare parts, and to the related process control and mechanical structures, of centrifuges, separators, centrifugal extractors, filtration and expression equipment, filters, membrane filters, air flotation devices and hydrocyclones. It can also be used in research and education on filtration and separation processes and equipment.

Two exclusions are stated: the standard does not cover laboratory centrifuges, and it does

not cover gas filters.

2 Process and principle

The first and one of the largest of the vocabulary clauses, running from page 1 to page 7 of the standard and defining the separation processes themselves.

It begins with filtration in general - the separation of solid particles from liquid under an external driving force, the liquid passing through the filter medium while the particles are retained - and then works through the process variants that engineering practice distinguishes. Several are classified by the driving force applied: vacuum filtration, pressure filtration, centrifugal filtration and gravity filtration are each defined by what pushes the filtrate through. Others are classified by how the solids build up: cake filtration, also called surface filtration, where the retained particles form a cake on the surface of the medium, is set against dynamic or cross-flow filtration, where the slurry flows parallel to the filtering surface to prevent a cake forming, and against dead-end filtration, where the suspension flows perpendicular to the medium.

The clause then extends into the field-assisted processes, defining terms such as electric field filtration, where a DC field is used to migrate charged particles away from the medium so that a cake does not form and performance does not degrade, and high gradient magnetic filtration. Each entry gives the term, any admitted synonym, and the definition; the terms carry the clause numbering, so an entry cited elsewhere as 2.7 is a specific defined process.