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

GB/T 41914.2-2022

**Fine bubble technology - General principles for usage and
measurement of fine bubbles - Part 2: Categorization of the
attributes of fine bubbles**

微细气泡技术 微细气泡使用和测量通则 第2部分：微细气泡属性分类

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Foreword

This document was issued on 30 December 2022 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 July 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 07.030, Chinese classification A20.

Introduction

In recent years, with the development of bubble measurement technology, the characterization of microbubbles and ultrafine bubbles has become possible. Using these techniques, it was found that the

Fine bubbles remain near steady state for several months.

Micro-bubble technology is a new technology, which has been applied in many fields so far. Therefore, for such a diverse technical field

Establishing proper terminology is critical to commercial trade and product acceptance by a wide range of microbubble users.

To facilitate better communication between users of fine bubbles, this document introduces media (e.g. water) quality standards, as well as particle size indices and number concentration indices.

number. This document also provides an explanation for the classification of fine bubbles by size characteristics and ascent velocity.

It should be pointed out that the motion behavior of bubbles in the medium can be caused by buoyancy or the random Brownian motion caused by the thermal drive/fluctuation process.

Make a decision. Therefore, larger bubbles exhibit buoyancy behavior (float up), while smaller bubbles remain in the liquid medium for random motion.

GB/T 41914 "General Rules for the Use and Measurement of Micro-bubble Technology" aims to apply to the general application of micro-bubble technology.

The principles and requirements for standardization are proposed to be composed of five parts.

--- Part 1.Terminology. The purpose is to define terms and definitions in the field of microbubble technology.

--- Part 2.Classification of fine bubble properties. The purpose is to establish the quality of the liquid medium and the generality of the size and concentration of fine bubbles.

rules and expressions.

--- Part 3.Micro-bubble generation method. The purpose is to describe the microbubble generation method.

--- Part 4.Microbubble bed terms. The purpose is to define the bubble bed of dissolved air flotation (DAF) and its role in the dissolved air flotation process.

Terms related to properties.

--- Part 5.Shelled fine bubbles. The purpose is to establish the concept system of shelled fine bubbles.

Microbubble Technology Microbubble Use and Measurement General Rules

Part 2.Classification of Microbubble Properties

1 Scope

GB/T 41914.2-2022 covers how the properties of fine bubbles in a liquid are named, expressed and sorted - the quality of the liquid medium in which any measurement is made,

the use of a size index and a number concentration index, the classification of bubbles by size, and a second classification by the speed at which they rise. Fine bubble technology has spread quickly across a diverse range of fields, and the same suspension can be described in two incompatible ways by two suppliers, so a claim about bubble size or concentration cannot be set against another one unless the terms behind both, and the state of the liquid they were measured in, have been fixed first. Rising velocity earns its own classification because it separates bubbles that reach the surface and are gone from ultrafine bubbles that stay in suspension, which is the property the technology is bought for; an informative annex records observations of how the number of ultrafine bubbles in a liquid holds up over time. The clauses also set out the tiered structure of the fine bubble standards themselves, so that later documents on measurement and application rest on one vocabulary. Part 2 of the GB/T 41914 series, for those drafting fine bubble standards, for equipment makers and for the laboratories measuring bubble suspensions.

This document establishes general rules and expressions for the quality of liquid media, the size and concentration of fine bubbles, and the

Classification.

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.

GB/T 41914.1 Micro-bubble technology General rules for the use and measurement of micro-bubbles Part 1.Terminology (GB/T 41914.1-

2022, ISO 20480-1.2017, IDT)

3 Terms and Definitions

The following terms and definitions defined in GB/T 41914.1 apply to this document.

The glossaries used for standardization work maintained by ISO and IEC are as follows.

3.1

Ascent speed risevelocity

The speed at which a tiny air bubble moves upward in a liquid.

3.2

terminal rise velocity

The velocity at which the buoyancy and viscous forces on the fine bubbles are balanced.

4 Basic principle of micro-bubble usage and measurement

4.1 Micro-bubble technology standard system

The purpose of this document is to provide an overall framework and guidelines for those who develop microbubble technical standards, and to facilitate communication among microbubble users.

flow. In order to formulate consistent standards, the following three-level standard system has been established.

a) The first level (Basic Standards) contains general terms, basic concepts and principles that can be used for the measurement and use of micro-bubble technology. This article

Components are an integral part of these base standards and are the basis for the next two levels.

b) The second layer (measurement standards) contains various measurement methods used to characterize e.g. bubble diameter, number concentration index, as well as sampling and sample

Preparation of general methods, etc.