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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Fine bubble technology - General principles for usage and measurement of fine bubbles - Part 1: Terminology

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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 of Standardization Documents"

drafted.

This document is the first part of GB/T 41914 "Micro-bubble technology general rules for the use and measurement of micro-bubbles". GB/T 41914 has

The following sections have been published.

--- Part 1.Terminology;

--- Part 2.Classification of microbubble properties.

This document is equivalent to ISO 20480-1.2017 "Micro-bubble technology General rules for the use and measurement of micro-bubbles - Part 1.Technology

language".

The following minimal editorial changes have been made to this document.

--- Added index.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Micro-bubble technology is widely used in cleaning, environmental improvement, food and beverage industry, aeration systems, pharmaceutical fields, water and sewage treatment, chemical

Industrial and mining industries as well as agriculture and aquaculture. Therefore, setting the right term for this technology is important for trade transactions and product acceptance by consumers.

Very necessary.

Microbubbles can exist in both liquids and solids. The fine bubbles can be air or other gases. fine bubbles

Surface tension exists or is wrapped by a coating material (such as a lipid substance). The size, filling gas and

And there are many kinds of bubble coating materials and various preparation methods.

It should be pointed out that the motion behavior of bubbles in the medium can be caused by random Brownian motion caused by buoyancy or thermal fluctuations/thermally driven processes.

Decide. Therefore, larger bubbles exhibit a buoyant behavior (floating up), while smaller bubbles remain in the liquid medium for random motion.

GB/T 41914 "Micro-bubble technology general rules for the use and measurement of micro-bubble"

The principles and requirements used are standardized, and it is 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 microbubble properties. The purpose is to establish the quality of the liquid medium and the general knowledge of the size and concentration of the fine bubbles.

rules and expressions.

--- Part 3.Methods of generating fine air bubbles. The purpose is to describe a method for generating fine bubbles.

--- Part 4.Microbubble bed terminology. The purpose is to define the bubble bed with dissolved air flotation (DAF) and its application in the dissolved air flotation process.

Feature-related terminology.

--- Part 5.Shelled microbubbles. The purpose is to establish a conceptual system of microbubbles with shells.

Micro-bubble technology Micro-bubble use

and General Principles of Measurement Part 1.Terminology

1 Scope

This document defines terms and definitions in the field of microbubble technology.

The terminology in this document covers the basic principles, measurement methods and various applications of microbubble technology.

2 Normative references

There are no normative references in this document.

3 Terms and Definitions

The following terms and definitions apply to this document.

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

3.1

bubble bubble

A gas in a medium surrounded by an interface.

3.2

finebubble

Bubbles (3.1) whose volume equivalent diameter (3.8) is less than 100 μm.

Note 1.100μm is also expressed as (1x10-4)m.

Note 2.Appendix A gives further information on the use of the term "fine bubbles" or "ultrafine bubbles" (3.3) instead of "nanobubbles".

3.3

ultrafinebubble

Fine air bubbles (3.2) whose volume equivalent diameter (3.8) is less than 1 μm.

Note. In the field of practical application, most of the ultrafine bubbles in water measured by particle characterization are in the range of 100nm~200nm. test results

In addition to the ultrafine air bubbles, contaminants may also be included.

3.4

microbubble

Fine air bubbles (3.2) with a volume equivalent diameter (3.8) greater than or equal to 1 μm and less than 100 μm.

Note. The size range of air bubbles (3.1), fine air bubbles (3.2), ultra-fine air bubbles (3.3) and micro air bubbles is shown in Figure 1.