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

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**Fine bubble technology - Storage and transportation of ultrafine
bubble dispersion in water**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document has been modified to adopt ISO 21255.2018 "Storage and Transportation of Ultrafine Bubble Water Dispersion Systems with Micro Bubble Technology".

The technical differences and reasons between this document and ISO 21255.2018 are as follows.

---Replaced ISO 20480-1 (see Chapter 3) with normatively cited GB/T 41914.1 to adapt to my country's technical conditions and increase

Increase operability;

---Changed the required auxiliary verb "should" in two places to the recommended auxiliary verb "should" (see Chapter 5) to comply with technical applications and development

Expand and increase operability;

---Changed the description of the function of flexible materials (see Chapter 5) to increase operability.

The following editorial changes have been made to this document.

---Replaced ISO 3696 with the informative reference GB/T 6682 (see Chapter 4);

---Replaced ISO 3585 with the informative GB/T 34843 (see Chapter 5);

---Changed the corresponding position of "(see ISO 4796-1)" (see Chapter 5).

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

In recent years, microbubble technology has been developing steadily and has been used in industrial practice in many fields, including the agricultural field to accelerate plant growth.

Growth, used in the semiconductor manufacturing industry to separate and clean silicon wafers for solar cells, and is introduced into wastewater treatment as an advanced cleaning and purification technology

Among them, it can remove lubricating oil on the surface of mechanical parts and remove salt stains on the surface of transportation infrastructure.

At present, almost all of these applications require that the fine bubble water generation system be installed close to the application object and connected to the application system.

systems run simultaneously. Although the generation and application of fine bubbles have been realized in some emerging industrial fields, there is still a problem for fine bubble water [such as classic

There are no specific technical guidelines for the storage and transportation of ultrafine bubbles (UFB), which are considered to have high stability after generation. This document is intended to

The work in the application field of micro-bubble quality measurement extends from the time when bubbles are generated to the downstream supply chain such as bubble storage and transportation.

Micro bubble technology

Storage and transportation of ultrafine bubble water dispersions

1 Scope

This document describes the steps and equipment for storing and transporting ultrafine bubble water dispersion systems, and stipulates the maintenance of bubble size and number concentration, etc.

Related requirements required for feature stability.

This document applies to the storage and transportation of ultrafine bubble water dispersions.

2 Normative reference documents

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

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

GB/T 41914.1 Microbubble Technology General Principles for the Use and Measurement of Microbubbles Part 1.Terminology (GB/T 41914.1-

2022,ISO 20480-1.2017,IDT)

3 Terms and definitions

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

3.1

diluent waterdiluent

Used for dilution, homogeneous water without any negative effects and with a known number and concentration of ultra-fine bubbles.

Note 1.Dilution water is used to reduce the number and concentration of ultrafine bubbles in the dispersion system, and does not change the total number of ultrafine bubbles and the particle aggregation state, size or surface

academic nature.

Note 2.When evaluating ultrafine bubbles, dilution water with a concentration of zero ultrafine bubbles is called blank water.

3.2

A liquid containing ultrafine bubbles.

4 Storage and transportation

The liquid for storage and transportation should be aqueous UFBD whose inherent bubble number concentration remains stable during storage and transportation.

The water should not contain any chemically active substances that would damage the container under certain circumstances, nor should it contain anything that would alter the physical or

Chemical properties of bacteria. Recommended water use refers to the first-grade water, second-grade water and third-grade water specified in GB/T 6682-2018.

The gas shall not be any physically or chemically active substance that may damage the container under specified conditions.

5 Containers and cans

Rigid containers should be used for storage and transportation of UFBD.

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