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Fine bubble technology — Cleaning applications —

Part 3: Test method for cleaning hard flooring surfaces

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 281, *Fine bubble technology.*

A list of all parts in the ISO 21256 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Fine bubble technology has a number of applications across industries such as cleaning, transport, maintenance, agriculture, aquaculture, food and drink, cosmetics as well as biomedical. This list is expected to expand as fine bubble technology matures and becomes even more commonplace.

This document fills a gap in standards development in not only addressing a fine bubble cleaning application but also providing an international hard flooring surfaces cleaning test method standard, which also does not presently exist. Hard flooring surfaces cleaning and its standardization is important to society as there is a public understanding that clean interior spaces, including flooring, also signifies a safer and healthier environment, which provides peace of mind.

This document provides a detailed method, equipment specifics, an applicable soil formulation, analysis of the results, and applicability.

United Nations Sustainable Development Goals – ISO Standards Contributions, Fine Bubble Technology, Cleaning

Fine bubble technology (FBT) contributes positively toward the United Nations Sustainable Development Goals (SDGs) to achieve a better and more sustainable future for all. Depending on the application, FBT can directly support one or more of the SDGs, including Goal 6: Clean Water and Sanitation, Goal 12: Responsible Production and Consumption, and Goal 13: Climate Action.

FBT solutions can be a substitute for chemical cleaning. The reduction in cleaning chemical use may be directly measured and totalled in support of Goal 6: Clean Water and Sanitation. Eliminating the use of cleaning chemicals reduces waste generation and also provides for the sound management of chemicals and waste during their life cycle, which supports Goal 12: Responsible Consumption and Production. Goal 13: Climate Action is supported through the reduced energy needs of FBT as compared to chemical cleaners. The reduction in carbon dioxide emissions is primarily associated with the elimination of recurring manufacturing and distribution of these chemical cleaners.

Fine bubble technology — Cleaning applications —

Part 3:
Test method for cleaning hard flooring surfaces

1 Scope

This document specifies a test method for the cleaning of hard flooring surfaces. It can be used to demonstrate the comparative cleaning performance of a fine bubble solution to an alternate cleaning solution to remove contaminant from a soiled surface. This alternate cleaning solution can be another fine bubble solution, municipal tap water or a commercially available cleaning solution blended to the manufacturer's specifications.

This method is not suitable for differentiating between cleaning solutions when the contaminant is excessively applied on the surface as the mechanism of cleaning changes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 20480-1, *Fine bubble technology — General principles for usage and measurement of fine bubbles — Part 1: Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20480-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
contaminant
foreign matter, undesired substances of organic and inorganic origin, undesired matter

3.2
test soil
hard flooring *contaminant* (3.1) standardized for testing purposes

3.3
test piece
hard flooring surface standardized for testing purposes

4 Principle

The principle is to evaluate the performance of contaminant removal by each cleaning solution by measuring the mass of residual contaminate after exposure to the cleaning solutions.