



**NATIONAL STANDARD OF THE
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Guidelines for the characterization of dispersion stability

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Table of Contents

foreword

Introduction

1 Scope

2 Normative references

3 Terms and Definitions

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.

The translation method used in this document is equivalent to ISO /T R13097.2013 "Guidelines for Characterization of Stability of Dispersed Systems".

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

Introduction

Stability is the ability of a dispersion system to maintain its pre-specified stability standard when stored and used over a certain period of time.

The stability of dispersion system depends on many related physical, physicochemical and chemical parameters, so its properties are complex. This document gives scattered

Terms and definitions of systems, guiding principles for methods of measuring changes in state, for industrial production of dispersions, quality control in applications, industrial

Design and other work to provide technical basis.

In the literature and in practice, many techniques are used in order to describe different dispersion stability phenomena or the viewpoints of different users.

terms such as dispersion, suspension or emulsion stability, layering or separation stability, sedimentation or emulsification stability, physical stability, colloidal stability

and dynamic stability.

This document focuses on instability due to thermodynamics, excluding those caused by radioactive, chemical or enzymatic reactions or with biological organisms such as

bacterial growth/metabolism). These phenomena are often described as photostability, UV or radiation stability, thermal and chemical stability

properties, enzymatic or microbial stability, etc.

This document contains routine stability testing methods, accelerated methods, and data processing methods, but should be used in consideration of the manufacturer's recommendations.

conferences, scientific literature and messages from users and regulators.

Guidelines for Characterization of Dispersion Stability

1 Scope

This document provides guidelines for the application of stability characterization of liquid dispersions such as suspensions, emulsions, foams and mixtures thereof.

Including. the principle of stability, the characterization of the state change of the dispersion system and the prediction of the shelf life of the dispersion system.

This document applies to the selection of methods for the sorting, identification and quantification of liquid dispersion instability.

This document can be applied to new product design, optimization of existing products, and quality control during product production and use. Dispersions in this document

System stability is defined by the change in one or more physical properties over time. Stability can be observed and measured in real time, or by

Stability-related changes in physical quantities are predicted. For particularly stable dispersions, reasonably accelerated physical changes or accelerated aging can be used.

method to shorten the measurement time. To estimate the shelf life of a product, it is necessary to observe the rate of change of the physical properties of the product and consider the user's perception of the product.

Require.

2 Normative references

There are no normative references in this document.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

reunion agglomeration

In the dispersion system, the particles gather together under the interaction of weak physical forces to form a loose cohesive structure.

Note 1. Agglomeration is a reversible process.

Note 2. Similar to the meaning of coagulation and flocculation.

[Source. ISO 14887.2000, 3.1, with modifications --- Changes in English terminology; IUPAC GoldBook, with modifications]

3.2

Aggregation

The particles aggregate into a solid structure.

Note 1. Polymerization is an irreversible process.

Note 2. Aggregation forces that form polymers are strong, such as covalent bonds or forces formed by sintering or physical entanglement of polymers.

Note 3. "Aggregation" and "agglomeration" are often used interchangeably.

[Source. ISO 14887.2000, 3.2, with modifications --- Changes in English terminology; ISO 26824]

3.3

coalescence

The disappearance of a boundary (usually a droplet or bubble) when two particles come into contact, or a particle merges into the particle group and changes shape resulting in a total

area reduction.

NOTE. Agglomeration leads to the flocculation of emulsions, that is, the formation of aggregates.

[Source. IUPACGoldBook[2]]