



SLOVENSKI STANDARD

SIST ISO 4198:1995

01-avgust-1995

Dcj fý]bg_c`U_hjj bY'gbcj]!'8 Yhff[Ybh]'nUfc bc`dca]j Ub^Y'dcgcXY!'JcX]'c`nU
df]a Yf^Ubc`dfYg_i ýUb^Y'i]b_U

Surface active agents -- Detergents for hand dishwashing -- Guide for comparative testing of performance

iTeh STANDARD PREVIEW

Agents de surface -- Détergents pour le lavage de la vaisselle à la main -- Principes directeurs pour des essais comparatifs d'évaluation de performance

[SIST ISO 4198:1995](https://standards.iteh.ai/catalog/standards/sist/a044c863-d522-46c5-bdbc-0cab-4171fa92/sist-iso-4198-1995)

Ta slovenski standard je istoveten z: **ISO 4198:1984**

ICS:

71.100.40 Površinsko aktivna sredstva Surface active agents

SIST ISO 4198:1995

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 4198:1995](#)

<https://standards.iteh.ai/catalog/standards/sist/a044c863-d522-46c5-bdbc-6cab4f71fa92/sist-iso-4198-1995>

International Standard 4198

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Surface active agents — Detergents for hand dishwashing — Guide for comparative testing of performance

Agents de surface — Détergents pour le lavage de la vaisselle à la main — Principes directeurs pour des essais comparatifs d'évaluation de performance

First edition — 1984-08-15

standards.iteh.ai

[SIST ISO 4198:1995](https://standards.iteh.ai/catalog/standards/sist/a044c863-d522-46c5-bdbc-6cab4f71fa92/sist-iso-4198-1995)

<https://standards.iteh.ai/catalog/standards/sist/a044c863-d522-46c5-bdbc-6cab4f71fa92/sist-iso-4198-1995>

UDC 661.185 : 620.16

Ref. No. ISO 4198-1984 (E)

Descriptors : surfactants, detergents, kitchen utensils, tests, comparative tests, washing tests, determination, characteristics.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4198 was developed by Technical Committee ISO/TC 91, *Surface active agents*, and was circulated to the member bodies in February 1983.

It has been approved by the member bodies of the following countries:

Australia	Germany, F.R.	Spain
Austria	Iran	Switzerland
Belgium	Italy	United Kingdom
China	Nigeria	USA
Egypt, Arab Rep. of	Poland	USSR
France	Portugal	

The member bodies of the following countries expressed disapproval of the document on technical grounds:

Hungary
Japan
South Africa, Rep. of

Contents

	Page
0 Introduction	1
1 Scope	1
2 Field of application	1
3 References	1
4 Definition	1
5 General	1
6 Performance characteristics relevant to successive stage of washing	2
7 Load of soiled articles	3
8 Washing process	4
9 Method of assessment of performance characteristics	6
10 Report of the results and their interpretation	7

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ISO 4198:1995
<https://standards.iteh.ai/catalog/standards/sist/a044c863-d522-46c5-bdbc-cab1f71692/sist-iso-4198-1995>

iTeh STANDARD PREVIEW
This page intentionally left blank
(standards.iteh.ai)

SIST ISO 4198:1995

<https://standards.iteh.ai/catalog/standards/sist/a044c863-d522-46c5-bdbc-6cab4f71fa92/sist-iso-4198-1995>

Surface active agents — Detergents for hand dishwashing — Guide for comparative testing of performance

0 Introduction

To test the comparative performance of detergents for domestic hand dishwashing, it is necessary to consider several related and also several apparently unrelated variables. The particular variables and their importance vary between regions and countries depending on:

- the variety of soil, consequent on varied dietary habits;
- the materials used in making kitchen utensils, tableware and cutlery;
- the water quality and hand dishwashing habits.

In hand dishwashing, the manual effort, the temperature and volume of water and the dosage of detergent are controlled and varied by the operator.

Recognizing the importance and value to users of comparative test information derived from manual or mechanical test methods, this International Standard lays down the criteria to be considered in designing tests and assessing results. The primary criterion that affects all consumers is the effective removal of a wide variety of soils from all kinds of domestic utensils soiled by foods and drinks.

Although it is recognized that odour, mildness, appearance and feel may influence choice, these factors are not taken into account in this International Standard nor are toxicological or ecological properties, although it is recognized that they are of extreme importance. It is assumed, from the conditions of use, that detergents used for hand dishwashing will not damage kitchen utensils, tableware and cutlery.

This International Standard shows how to devise satisfactory comparative test methods despite the complexities of different habits of populations; yet no single test or series of tests carried out in the laboratory can define completely the limits of performance for the numerous hand dishwashing products on the market today.

1 Scope

This International Standard establishes guidelines for carrying out comparative tests for determining the principal performance characteristics of detergents, solid or liquid, for domestic hand dishwashing which are of interest to the consumer. It lists and defines the performance characteristics considered; it gives details of the variables to be considered, indicates their significance and provides a basis for designing adequate comparative test methods.

2 Field of application

This International Standard applies to detergents sold for use in domestic hand dishwashing. This type of dishwashing is understood to include hand washing of all domestic utensils used for food storage, preparation, cooking, eating and drinking. It does not apply to washing products designed for machine dishwashing.

3 References

- ISO 607, *Surface active agents and detergents — Methods of sample division.*
- ISO 862, *Surface active agents — Vocabulary.*

4 Definition

detergent for hand dishwashing; Detergent¹⁾ in powder or liquid form manufactured for use in domestic dishwashing by hand.

5 General

Performance testing shall be carried out on products available (or being introduced) in the country concerned. The test dishwashing process, together with the selection of utensils and other variables, shall be influenced by current consumer practice in that country.

Sampling of solid and liquid products shall be carried out following the procedures specified in ISO 607.

1) See definition in ISO 862.

ISO 4198-1984 (E)

This International Standard covers the principal considerations for assessing products for hand dishwashing, namely:

- a) the performance characteristics relevant to the successive stages of washing (see clause 6);
- b) the soiled articles required for assessing these characteristics (see clause 7);
- c) the washing processes to be employed (see clause 8).

In dealing with the load of soiled articles and the washing processes, a number of primary and secondary variables is listed.

Methods of assessment of performance characteristics and the way in which results of tests shall be reported and interpreted are also covered.

6 Performance characteristics relevant to successive stages of washing

6.1 General

To assess the performance of products intended for hand dishwashing it is necessary to select the washing process to be used.

6.2 Stages of the dishwashing process

The operations to be carried out should be chosen according to consumer habits as each step has an influence on the end result.

The complete process may include the following stages:

- a) scraping off gross soil loads;
- b) soaking baked or dried soils;
- c) pre-rinsing;
- d) scouring (before, during or after washing);
- e) washing (with additional detergent);
- f) rinsing;
- g) draining and air drying;
- h) wiping dry (if designed).

6.3 Classification of performance characteristics during the washing process

As the consumer is involved in each operation, the performance of the product as observed in the end result is influenced by the actions of the consumer at each stage of the process. The following factors may play a role in this assessment.

- a) Dosage and ease of dissolution of the detergent

When designing tests, the dosage has to be considered. The speed and completeness of dissolution is particularly important where solids are used.

- b) Cleaning performance by comparing physical effort with effect, taking into account:

- 1) soil and grease removal during washing;
- 2) degree of dispersion of soil and grease in the washing solution;
- 3) the extent of redeposition of soil (if any) on dishes, plastics items, cutlery or glasses,
- 4) the extent of deposition (if any) of soil on the washing basin or the dishwashing aid or of stains on the drying towel (if used).

- c) Sudsing characteristics including:

- 1) initial volume of suds, type of suds and speed of sudsing;
- 2) stability of suds during washing;
- 3) ease of removal of excess suds during the rinse.

- d) Speed of drainage.

- e) Final appearance of articles, cleanliness, absence of streaks, spots or smears.

- f) Amount of product necessary to obtain the performance level consistent with the object of the test.

This should be expressed by volume for liquids and by mass for solids.

The relative mass and volume are of importance to consumer economics, although both liquids and solid are measured, in practice, by volume.

NOTE — Characteristics such as the odour and feel of the washing solution, although of importance in the comparative choice of product, have no place in the appraisal of their technical performance, apart from requiring subjective evaluation.

Similarly, the effect on hands resulting from frequency of exposure is extremely important in the choice of product. However, the evaluation of these effects, as also of toxicological and ecological properties, is outside the scope of this International Standard, requiring a separate testing programme by appropriate experts.

7 Load of soiled articles

7.1 General

In tests it is preferable to use normally soiled articles provided by families or canteens. Owing to the variety of articles and soils, replicate tests are required to obtain statistically mean-

ingful results. While short time storage of dirty articles should be considered normal, it should not be longer than part of a day. Moreover, the nature of soiling will be a major variable.

Soiling by normal use can be simulated in the laboratory by controlled application to dishware of the foods which are common in the country. If artificial soils are used, the conditions under which the soil is applied to the articles and the interaction between the soil and the articles have an effect on the test

results and therefore should be standardized. Particular difficulty may be encountered in simulating "burn on" during cooking.

7.2 lists the variables which should be controlled when preparing and using soiled articles. This table may also be used as a guide for the preparation of comparable loads of artificially soiled articles when naturally soiled articles are not available.

7.2 Load of soiled articles — Variables

Main variables	Secondary variables	Essential conditions for the test	Comments
Soils	Type and composition	Food ingredients and food preparation used for soiling shall represent those commonly used in the country or area in which the products are to be used, e.g. fats and oils, proteins, carbohydrates, solid food residues and tannins from tea, coffee and wine; lipstick, fruit stains and burnt or baked on foods, etc. Several types of soil are needed to assess correctly the performance of dishwashing products.	Several individual soils may be applied separately to the same substrate, but they must be applied in separate areas.
	Physical state	Use solid, liquid and pasty soils. For reproducibility of the comparison it is recommended that the soil components be identical and characterized by their physical and chemical properties, if possible.	Ideally, soils should be stable or should be uniformly applied and aged prior to washing to give a valid comparison.
Substrate (tableware, cutlery and kitchen utensils)	Type of article and material of construction	Include a variety of different substrates. Use the commonest types of kitchen utensils, tableware and cutlery in the country, made of the most commonly used construction materials, e.g. porcelain, glass, ceramic, metal, plastics, PTFE etc. but soft and/or porous materials (wood, stoneware) should not be part of the evaluation.	It is essential that the surface of the article used shall not be modified during the successive washings in a series of tests. In particular, scratching and other physico-chemical modifications of the surface should be avoided.
	Nature of surface	Dish loads for comparative testing should be comparable as far as the nature of the surface is concerned e.g. porous (stoneware), non-porous (porcelain, earthenware), hydrophilic (wood), hydrophobic (plastics).	For this reason, porous plates are not to be used for this type of test. Use of wood substrates is not recommended.
Preparation of the soiled articles	Amount of soil	The amount of soil applied on each article should realistically represent naturally soiled articles, and should be carefully measured.	If soiled articles have to be stored for a certain time before use, the duration of storage should be controlled and the storage conditions (for example: temperature and relative humidity) kept constant.
	Application of the soil to the substrate	Apply soils evenly and reproducibly to clean articles. When soils are applied in the molten state (for example certain cooking fats), the temperature at which the soil is applied to the articles and the temperature at which the soil solidifies shall be controlled.	In practice, this is a major variable.