International Standard 8291

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

Vitreous and porcelain enamels — Method of test of self-cleaning properties

Émaux vitrifiés — Méthode d'essai des propriétés autonettoyantes

First edition — 1986-08-15

UDC 666.293 : 620.198 **Ref. No. ISO 8291-1986 (E)**

Descriptors : coatings, non metallic coatings, vitreous enamels, porcelain enamels, tests, determination, properties, cleaning.

Price based on 2 pages

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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8291 was prepared by Technical Committee ISO/TC 107, *Metallic and other non-organic coatings.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Printed in Switzerland

Vitreous and porcelain enamels — Method of test of self-cleaning properties

0 Introduction

0.1 The combustion of oil or fat coming into contact with the enamelled walls of self-cleaning roasting and baking devices is an oxidation process. The porosity of the wall, resulting in a larger total surface area of the coating, enables the oil or fat to spread out into a thin film and facilitates the action of oxygen.

As combustion at 250 °C cannot be complete, non-oxidizable combustion residues build up in the pores during operation, resulting in the formation of a visible glossy coating. The test method specified in this International Standard is more severe than this process as a testing oil is applied directly to the cold coating and the quantity of the oil on the surface is greater than that seen in practical use.

0.2 Household refined soya oil serves as the testing oil. The composition of commercial grades of this oil is well defined. The freshly prepared soya oil may be supplied by the producer.

0.3 The test method specified in this International Standard can serve only as a comparative method, for the following reasons:

a) the combustion process is dependent on the draught conditions in the oven — these vary from oven to oven;

b) soya oil which is old or of different composition may give different results;

c) the assessment of the gloss is subjective — the surface roughness of self-cleaning vitreous and porcelain enamels and the patchiness of the gloss do not allow objective measurement.

0.4 It is recommended that specifications should contain the following statement:

> **To evaluate the self-cleaning properties of the test specimen, the number of cleaning cycles carried out shall be compared to the number of cycles carried out on the reference specimen. If the difference is not more than 1 cycle, the test specimen and the reference specimen shall be considered to have the same self-cleaning properties.**

1 Scope and field of application

This International Standard specifies a method of test for the determination of the self-cleaning properties of vitreous and porcelain enamelled walls of roasting devices, grills and baking devices; self-cleaning consists in the capacity first to absorb oil or fat in droplet form, and then to volatilize the greater part of the fat or oil by the sequential processes of distillation, decomposition, and combustion (referred to collectively as "combustion" in the following text).

This International Standard is not applicable to pyrolytically cleaning vitreous and porcelain enamels.

2 References

ISO 648, *Laboratory glassware — One-mark pipettes.*

ISO 2723, *Vitreous and porcelain enamels for sheet steel — Production of specimens for testing.*

3 Definition

For the purpose of this International Standard, the following definition applies.

continuously self-cleaning enamel finish: Porous enamel finish which absorbs splashes of fat given off during roasting or baking, and simultaneously allows the fat to burn without subsequent increase in temperature.

4 Principle

Dropping of defined amounts of soya oil on to specified areas on vitreous and porcelain enamelled test specimens, and combustion by heating at 250 ± 10 °C for 1 h, followed by cooling to ambient temperature. Repetition of this cycle until a visible gloss appears as a result of the accumulation of non-combustible residues. Comparison, as a means of assessment, of the number of cycles carried out on the test specimen with the number of cycles carried out on a reference specimen until the gloss appears.