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## Dentistry — Stiffness of the tufted area of tooth-brushes

*Art dentaire — Dureté de la surface garnie des brosses à dents*

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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.

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 8627 was prepared by Technical Committee ISO/TC 106, *Dentistry*.

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.

# Dentistry — Stiffness of tufted area of tooth-brushes

## 0 Introduction

The stiffness of tooth-brushes, determined in accordance with a compromise method based on the BSI method and the French/Norwegian methods, was originally classified into five categories. However as a result of collaborative testing between laboratories it was subsequently decided to reduce the number of categories to three.

This International Standard specifies a method for determining the stiffness of the tufted area of tooth-brushes and a means of assigning the stiffness so measured into categories of stiffness, i.e.

- soft;
- medium;
- hard.

Classification enables the consumer to choose a brush with the appropriate stiffness for his or her needs. It is therefore desirable that all manufacturers use the same test methods and categories in order that the user can select according to the category and obtain the required stiffness irrespective of brand or country of origin of the brush. At present there can be considerable differences between identical stiffness gradings as claimed by different manufacturers. This has been recognized and has been accommodated in the elaboration of this International Standard by allowing for an overlap of stiffness categories for a limited period, the intention being to revise this International Standard in 5 years' time and replace the existing categories by those shown in the note to clause 6.

## 1 Scope and field of application

This International Standard specifies a test method and grading scheme for the stiffness of the tufted area of conventional manual tooth-brushes, together with relevant information concerning definitions and information concerning testing machines.

## 2 Definitions

For the purposes of this International Standard, the following definitions apply.

**2.1 filament** : A single element of a tuft fixed into a brush.

**2.2 tufted area,  $A$**  : The total area of the tuft holes, i.e. the area of one tuft hole multiplied by the number of tuft holes.

**2.3 stiffness grade,  $G$**  : The stiffness as measured and calculated according to this International Standard.

**2.4 stiffness category** : The category, e.g. soft, medium or hard, as defined by the range into which the stiffness grade falls.

**2.5 stiffness index** : A number relating to the stiffness category.

**2.6 filament length,  $X$**  : The length measured at right angles to the stock from the tip of the free end of the filament to the point at which it enters the tuft hole.

**2.7 deflection force** : The reaction force caused by the deflection of the filaments from their normal position by one-third of the weighted mean filament length (see 5.3.3).

**2.8 brush stiffness** : The reaction force exerted per unit area of the brush during deflection.

## 3 Sampling

The tooth-brushes used for testing shall be standard model tooth-brushes. They shall not be altered or adjusted in any way that makes them different from the standard model manufactured.

A minimum of five brushes of each category shall be tested.

NOTE — The sampling method and the means of procurement are not covered by this International Standard and should be subject to agreement between the interested parties.

## 4 Testing conditions

The tests shall be carried out under the following conditions :

- dry :  $23 \pm 2$  °C and  $(50 \pm 5)$  % relative humidity;
- wet : immerse the brushes in water at  $23 \pm 4$  °C for 90 s; remove from the water and commence the test  $3 \text{ min} \pm 15 \text{ s}$  after removal.