



BSI Standards Publication

# Safety of toys — Children's mouthing behaviour in contact with toys

**National foreword**

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## Safety of toys - Children's mouthing behaviour in contact with toys

Sécurité des jouets - Analyse de la mise à la bouche des jouets par les enfants

Sicherheit von Spielzeug - Mundkontaktverhalten von Kindern

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## European foreword

This document (CEN/TR 16918:2015) has been prepared by Technical Committee CEN/TC 52 “Safety of toys”, the secretariat of which is held by DS.

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## Introduction

This CEN Technical Report presents the results of a European Study on “Children's mouthing behaviour in contact with toys”. The objective of the study was the measurement and quantification of the duration and frequency that children under 36 months introduce toys into their mouths spontaneously.

It presents information about the literature review focused on children's mouthing behaviour, including commonly used methodologies in addition to a review of significant results from previous research. It also includes the design of the research; methodology; data on the children and toy sample; complete results obtained in the frequency and duration that children mouthed toys and estimated data on the time children under 36 months spend mouthing toys each day.

Up to now, the study was the one with the largest sample (245 children and a total number of 1600 observations) and the only one to be carried out in three different European countries (Germany, France and Spain). It was also the study with the highest representation of specific toys (54 different products) for children up to 36 months.

In addition to the results on the mouthing behaviour with regard to toys, Annex B contains information concerning children's mouthing behaviour in contact with childcare articles. This informative annex is, however, just a first approach, and of limited value.

Clause 7 of this CEN Technical Report contains a more detailed summary of the results of the European Study on “Children's mouthing behaviour in contact with toys”.

## 1 Scope

This Technical Report presents the results of a European Study on “Children's mouthing behaviour in contact with toys”. It provides statistical data on the duration and frequency that children under 36 months introduce toys into their mouths and estimated data on the time children under 36 months spend mouthing toys each day.

Furthermore, it provides information on:

- the literature focused on children's mouthing behaviour, including commonly used methodologies and significant results;
- the design and methodology of the study;
- the data on the children and toy sample;
- the forms used in data collection.

## 2 Literature review

### 2.1 General

Mouthing is an important component in childhood development. In early development, sucking provides essential nutrients in the form of breast or bottle-feeding, as well as a feeling of well-being and a sense of security (Juberg et al., 2001 [1]). If infants are not allowed unrestricted breast-feeding, they will suck on a dummy, thumb (or other fingers), blanket or toy (Groot et al., 1998 [2]). As children develop, mouthing behaviour, in combination with looking and touching, allows children to explore and investigate their environment. Mouthing behaviour develops into an exploratory behaviour in which objects are placed into the mouth for a few seconds for purposes of discovery. During this stage of development, children will put their hands, and any object that they come in contact with, into their mouths (Ruff, 1984 [3]; Ruff and Dubiner, 1982 [4]; Davis et al., 1995 [5]; Groot et al., 1998 [2]; Tulve et al., 2002 [6]).

In the field of psychology, Freud named the stage between birth and 2 years of age the 'oral stage'. This first stage of development is characterized by the physical aspects of sucking, encompassed by the mouth, tongue and lips. During the oral stage, it is common for children to have a persistent tendency to put whatever falls into their hands into their mouths. It is the means by which they express their need to experience the world through their mouths. The pleasurable activity of sucking, biting and chewing, means the child starts to recognize objects and distinguish them as separate from himself. When a baby puts something in his mouth, he bites it with his gums, sucks it and moves it with his tongue. It is the first form of learning that children experience, as they begin to recognize textures, temperatures and forms through mouthing. Furthermore, it benefits verbalization processes, chewing and teething.

Teething is another reason that children will mouth fingers and objects. At this stage of development, mouthing alleviates the pain and discomfort associated with teething (Groot et al., 1998 [2]). Teething usually begins at 6 months to 8 months, but may start several months earlier or later. Teething continues in babies until approximately the age of 3.

The first teeth to appear are usually the two bottom front teeth, also known as the lower front incisors. Between 4 weeks to 8 weeks later, they are followed by the four upper front teeth. About a month later, the lower lateral incisors appear. Next come the first molars, and then finally the canines. Most children have their 20 milk teeth (which are the first teeth to appear) when they reach three years of age. The commencement of teething is the most important stage in babies' mouthing.

Young children's urge to suck and mouth is a natural developmental phase. Sucking may be divided into two distinct behavioural types: nutritive and non-nutritive sucking (Turgeon-O'Brien et al., 1995 [7]).