contain high percentages of ethanol, an extremely toxic substance, in a package large enough to cause children serious injury or death; (2) these mouthwashes are accessible to children because they are generally considered innocuous and do not have CRP; (3) they are attractive to children because of their appealing taste, color, and smell; and (4) data show that children have been seriously injured or died from accidental ingestion of ethanol-containing mouthwashes.

By a letter dated June 3, 1993, the Nonprescription Drug Manufacturers Association ("NDMA") and the Cosmetic, Toiletry, and Fragrance Association ("CTFA") advised Commission staff of the associations' plans to implement a voluntary program to place mouthwashes with more than 5% ethanol in CR containers. [1, Tab C.] 1 On November 17, 1993, the Commission granted the petition. Subsequently, in April 1994, the NDMA and CTFA notified the Commission that the products subject to their voluntary program had been changed from mouthwashes with more than 5% ethanol to mouthwashes with 3 grams or more in a single container.

## 3. The Proposed Regulation

The mouthwash petition requested that the Commission require CRP for mouthwash that contains more than 5% ethanol. However, after analyzing the information before it, the Commission decided to propose that mouthwash products with 3 grams (g) or more of absolute ethanol per package or retailsale unit should be subject to the regulation. [10] This level is obtained by dividing the lethal dose of ethanol (3 g/ kg of body weight) for a 10-kg child (30 g) by a safety factor of 10. This safety factor is needed because less than the "lethal" dose can produce serious toxic effects, or even death from hypoglycemia or other secondary effects.

Three grams of absolute ethanol are present in a small amount (approximately 2.6 ounces) of mouthwash with 5% ethanol. The Commission is concerned that regulating only products with more than 5% ethanol, as requested in the petition, might not sufficiently protect children because the quantity of ethanol available to be consumed is more relevant to the safety issue than is the concentration of ethanol in a mouthwash. Accordingly, the Commission proposed a regulatory

threshold of 3 g total ethanol in the package rather than the concentration of 5% or more of ethanol in the product.

The proposed rule was published for public comment on May 11, 1994. 59 FR 24386.

## **B.** Toxicity

[2, unless noted otherwise.] The Commission's toxicity review indicates that mouthwashes with ethanol can present a serious ingestion hazard to children. Most of the popular adult mouthwashes contain between 14% and 27% ethanol. By comparison, beer contains between 5% and 7% ethanol and wine can contain 12% to 14% ethanol.

Ethanol depresses the central nervous system. Symptoms of acute ethanol poisoning in children include irritability, lethargy, and unconsciousness which can lead to coma and death at high doses. Lethal blood levels of ethanol in children are reported to range between 250 and 500 mg/dl, and the lethal dose of ethanol is 3 g/kg. Deaths or serious injury may occur at lower doses due to other ethanol-induced effects. Ethanol poisoning in children can produce certain metabolic complications, such as hypoglycemia, metabolic acidosis, and hypokalemia.

A review of the relevant literature shows that three deaths of children under 5 years of age have been reported. The most recent death reported occurred in 1992 and involved a 3-year-old girl who ingested an unknown amount of mouthwash that contained 18% ethanol. Several other cases of ethanol-induced hypoglycemia or toxicity following mouthwash ingestion are reported in the literature.

The National Electronic Injury Surveillance System ("NEISS") reported 40 mouthwash cases involving children under age 5 from January 1987 through July 1994. [14] Based on these ingestions, it was estimated that a total of 1,840 mouthwash poisoning cases were treated in hospital emergency rooms in the United States during that time, or an average of about 240 per year. [14]

In addition to these sources, the American Association of Poison Control Centers' National Data Collection System ("AAPCC") includes cases reported by participating poison control centers. The AAPCC reported 1,966 ingestions of mouthwash with ethanol by children under 5 years old in 1992. [14] Of these ingestions, 182 were referred to a health care facility by the poison control center. Another 64 cases either were already in a health care

facility or were on the way to one when the poison control center was contacted.

## C. Comments on the Proposal

The Commission received nine comments in response to the proposed rule. [13] The New York State Consumer Protection Board, the American Dental Association, and several students from Florida International University expressed strong support for the rule. The university students also submitted the results of an informal survey of mouthwash use.

The NDMA/CTFA Joint Oral Care Task Group and several industry members also favor the proposed rule. However, these and other commenters disagreed with the proposed effective date, and questions were raised about the application of the rule. The issues raised by the comments are discussed below.

Exemption for Certain Pump Dispensers

The manufacturer of one product that otherwise would have been subject to the proposed rule requested an exemption. [15] This product is an oral rinse concentrate marketed in a 2-oz (59 ml) glass bottle containing 24% ethanol by weight, for a total of 14.16 g of ethanol per package. This product utilizes a screw-on metered pump to dispense the product, and has a protective overcap. The use instructions call for five actuations of the pump (for a total of 0.6 ml, or less than 0.025 oz) into a small cup supplied with the product. This amount is then diluted with up to 1 oz of water for use. The Commission is unaware of any other manufacturer of a product subject to the rule that uses this type of package.

In 1987, one ingestion of a mouthwash made by this manufacturer was reported in the NEISS database. The child involved in that incident was treated and released. However, it cannot be determined from the report whether this incident involved the concentrated spray product or another, nonconcentrated mouthwash that may have been available from that manufacturer at that time.

Human experience data submitted by the manufacturer show that from January 1990 to September 1994 there were 117 known cases of accidental ingestion of this product by children under 5 years old. [15] All cases resulted in either no effects or only minor ones. All but one of these cases were treated at home. In that one case, the child was taken to a health care facility at the insistence of the parents. These cases all involve product packaged in the current screw-on pump dispenser.

<sup>&</sup>lt;sup>1</sup> Numbers in brackets refer to the number of a document as listed in App. 1 at the end of this notice