

amounted to \$504 million in 2000 with candles from the Far East accounting for almost half of the imports. U.S. exports of candles amounted to about \$60.5 million in 2001. The apparent U.S. consumption of candles in 2000 (domestic shipments plus imports, minus exports) was about \$2.0 billion.

Retail prices of candles range from about 10 cents for a small tealight candle up to \$75.00 for large columnar candles.

There are limited data available concerning use of candles in homes. According to the NCA, candles are used in 70 percent of U.S. households. They are burned one to three times a week by the majority of candle consumers. Half of the consumers burn one or two candles at a time.

### 3. Candlewick Information

There are three general types of candlewicks. Flat braided wicks, used in taper candles, make up about 50 percent of U.S. wick production. Square wicks, representing less than 10 percent of U.S. production, are used in production of beeswax candles and candles that develop small wax pools when burning. Cored wicks, which account for about 40 percent of wicks used in candles, are rigid and have a central core made of cotton, paper, hemp, metal, or polypropylene, surrounded by wicking material made of paper or fiber. The cores provide rigidity to wicks in candles that produce deep pools of molten wax, and are frequently used in votives, pillars, tealights, and other container candles.

CPSC staff identified three domestic producers of candlewicks. The leading producer accounts for the majority of wicks used by the U.S. candle industry. In addition, there may be several small specialty producers of wicks.

Candlewick manufacturers sell their wicks to wholesalers (candle material suppliers) or large candle manufacturers. Some wholesale wick suppliers repackage wicks supplied by large producers. The CPSC staff has identified 55 wholesale suppliers of candle making materials. Small candle producers usually purchase wick material from wholesale firms.

Small quantities of candlewicks may be purchased by consumers at craft stores. They may be purchased in large quantities from wholesale firms or direct from manufacturers. Wicks are available on reels or pre-cut to desired lengths. Prices vary depending upon how the wick is supplied and the quantities ordered. For example, based on one manufacturer's list prices, pre-waxed wicks on reels were 12 cents per yard and pre-waxed, pre-cut, two-inch

wicks were 37 cents per yard. For this manufacturer, price did not depend on wick type.

No specific information is available for domestic shipments or sales of candlewicks. However, based on information provided by the leading domestic candlewick manufacturer in its comments on the NPR, the CPSC staff estimates that total domestic sales of candlewicks could be about four to five million dollars annually. Data on international trade in wicks do not distinguish candlewicks from other types of wicks (e.g., wicks for stoves, lighters, and lamps). Still, imports of all types of wicks, including candlewicks, were about \$4.1 million in 2001.

Prior to the granting of the petition, candlewicks with some levels of detectable lead were found in the marketplace. In a non-statistical survey of candles for sale in the Washington, DC area in 1999, the petitioners found that about 30 percent of candles for sale had metal-cored wicks, and about 10 percent of these (or three percent of all candles sampled) had detectable levels (i.e., at least trace levels) of lead in the wick.

According to the NCA, use of lead cored wicks among U.S. manufacturers is negligible. Practically all metal-cored wicks currently produced in the U.S. are made of zinc. According to the NCA, zinc-cored wicks account for about 15 to 20 percent of U.S. production. Zinc-cored wicks have trace amounts of lead, about 0.01 percent, substantially less than the lead limit in the standard finalized today.

### D. The Risk of Illness

As a lead-cored wick candle burns, some of the lead may vaporize and be released into the air. This airborne lead may be inhaled. Some of this lead may deposit onto floors, furniture, and other surfaces in the room where children may be exposed to it. One cannot tell by looking at the wick core if it is made of lead, and there is no simple way for a consumer to determine its lead content. The presence of lead in a wick can be determined only by laboratory analysis.

Similarly, one cannot tell if lead is being released from a burning candle by observing smoke or soot; nor can one tell that lead is not being released by the lack of visible emissions. Determination of lead in room air or on surfaces must be done by professionals.

The toxic effects of lead and the risk to consumers, especially children, from exposure to lead emitted from lead-cored wick candles, including neurological damage, delayed mental and physical development, attention and learning deficiencies, and hearing

problems, were detailed in the CPSC staff briefing packages on Petition No. HP 00-3. CPSC staff concluded that, under reasonable assumptions, exposure of children to indoor air lead levels from candles emitting 430 micrograms of lead per hour or more could result in elevated blood levels (greater than 10 micrograms of lead per deciliter of blood). Laboratory investigations by CPSC staff and others indicate that lead-cored wick candles can emit more than 3,000 µg of lead per hour during candle burning. Thus, the Commission finds that, under certain expected use conditions, the lead emitted from burning candles with lead-cored wicks presents a risk to consumers of substantial illness from exposure through inhalation of airborne lead. Children may also be exposed to lead that deposits onto surfaces in the room.

### E. International Activities

Several countries have acted on this issue. Officials in Canada issued an advisory in January 2001, warning consumers that some candles sold in Canada contained lead-cored wicks, and offering advice on making informed purchasing decisions.<sup>3</sup> Officials in Australia and New Zealand instituted provisional bans on candles with wicks containing any amount of lead as early as 1999.<sup>4</sup> Australia recently announced a permanent ban on sales of candles with wicks containing more than 0.06 percent lead.<sup>5</sup>

Denmark issued a comprehensive order in December 2000 banning a number of products containing lead.<sup>6</sup> Chafing dish candles and other candles are specifically included in the ban. The order defines a lead-containing product as one in which lead represents more than 100 mg/kg (0.01 percent) of the homogeneous components.

### F. Statutory Requirements

This proceeding is conducted under provisions of the FHSA. 15 U.S.C. 1261-1278. It involves two actions. First, pursuant to section 3(a) of the FHSA, the Commission is declaring that metal-cored candlewicks containing more than 0.06 percent lead by weight of the metal

<sup>3</sup> Health Canada Advisory 2001-02, January 2001.

<sup>4</sup> Commonwealth of Australia Consumer Protection Notice No. 11 of 1999 under the Trade Practices Act of 1974, September 1999; New Zealand Ministry of Consumer Affairs Unsafe Goods Notice under the Fair Trading Act 1986, June 2000.

<sup>5</sup> Press Release No. 057, Senator Ian Campbell, Parliamentary Secretary to the Treasury, Commonwealth of Australia, November 1, 2002.

<sup>6</sup> Statutory Order No. 1012 of November 13, 2000, on Prohibition of Import and Marketing of Products Containing Lead, Ministry of Environment and Energy, Danish Environmental Protection Agency.