addressed by market forces. However, in the 20-plus years the PPPA has been in effect, there has been only minimal market penetration by packages thought to meet the new protocol.

At the presentation of oral comments, a commenter argued that it would be different in the future now that seniorfriendly packaging that is highly childresistant has been introduced to the market. He explained that as soon as other companies developed such packaging, they would be forced by competitive forces to use it. The commenter presented no data or evidence to support this optimistic scenario.

There is no reason to believe that, in this case, large segments of the market will make needed safety changes unless such changes are mandatory. For the most part, industry has shown no willingness to spend money and time voluntarily to make significant improvements in the performance of CR packages. Consumers may not even realize that easy-to-use packaging can be produced. Also, consumers can purchase packaging without a CR feature, and consumers have "solved" the problem of difficult packaging by leaving caps off or loose or putting the contents in another container.

Many packaging manufacturers are apparently reluctant to make a substantial capital investment to produce easier to open packaging that will then have to compete with established lines. As a CR package manufacturer stated in commenting on the proposed rule:

[A]s long as we don't encourage manufacturers to produce good, effective child-resistant closures, they will never get around to doing it. And as long as we continue to allow these so-called child resistant products that require force or tools to be acceptable, no one can get on the market with a good child-resistant closure. It would be foolish for any individual or company to invest millions of dollars when that type of competition is present and allowed.

[Comment CP1-91-1]

Indeed, at the oral hearing, another commenter stated that interest in a new aerosol package he is developing decreased by 50% over the 2 months since the Commission had excluded aerosol packages from the rule. [273, p. 104]

In short, there is no basis in the record to conclude that market forces will ensure the adoption of senior-friendly CR packaging.

Education

One commenter stated that a carefully designed and executed education

program has the potential to reduce childhood poisonings far more than changing the test protocol for CRP. Other commenters concluded that the problem is one of adult responsibility; they contend that education of the senior population is as important as, or more important than, package changes.

The Commission agrees that education efforts will be a necessary concomitant to the revised standards to publicize the availability of easy-to-use packaging and to remind people about the importance of keeping hazardous products out of the reach of children. However, education is unlikely to solve this problem as effectively as changes in available packages. As noted above, in adopting the PPPA, Congress recognized that education alone could not solve the problem of accidental poisonings of children. S. Rep. No. 91-845 at 3. Certainly, education alone cannot address the issue of adult responsibility for the adults who cannot use some of the CRP currently on the market. Participation by the industry in this type of education campaign is welcomed by the Commission.

F. ISR Testing

The Institute for Standards Research ("ISR"), a subsidiary of the ASTM, sponsored tests to measure the interlaboratory variability expected when conducting CR package tests according to the proposed protocols. The ISR testing program involved testing two package types, ASTM Type IIA (lug) and Type VIIID (blister), by four different testing agencies. Four senior panels were run at each agency for each package.

Both the ISR and the ISR project manager commented on the results of the ISR testing and on the comparison of the ISR results with those obtained from CPSC-sponsored testing conducted by a single testing agency. [210, Refs. 17 and 35]

In the CPSC-sponsored testing of each of these two package types, a pass determination was made within the first three test panels, regardless of the order in which the panels were considered, indicating that the probability of these packages ever failing was very low. [187] The same results were obtained in the ISR-sponsored testing. Additionally, no package tested in either CPSCsponsored or ISR-sponsored testing had a calculated effectiveness below 90% for any test panel, indicating that no package was ever close to failing the senior adult test. [187, 230]

The ISR noted that there was a statistically significant difference in the senior-adult use effectiveness among agencies for the lug package. [210, Ref.

17] A high pass rate for the lug package at one testing agency was responsible for this conclusion. [230] The reason for this difference is unknown. It may be because the ISR study was not standardized sufficiently at the various testing agencies, so that the study was conducted differently at one testing agency from the way it was conducted at the other testing agencies. [230] Since CPSC staff did not observe the actual testing, there is no way for the Commission to determine if this was the case. In any event, however, the results of the ISR-sponsored testing verified the proposed CPSC test method.

G. Household Chemicals

Several commenters requested that household chemical products be regulated separately from pharmaceutical products. Commenters argued that household chemical products should be excluded from the proposed test method because the CPSC allegedly has not demonstrated a significant rate of serious personal injury or illness from poisoning incidents where CR closures were left off household products by the elderly. Commenters also claimed that the Commission inappropriately generalized NEISS data pertaining to injuries to children in the pharmaceutical category to all regulated household products within its jurisdiction, including chemical specialty products.

These commenters are referring to a study conducted from NEISS cases that investigated poisonings from only pharmaceutical products. [112] While the Commission has no comparable data on household chemicals, the Commission is aware of ingestions and deaths of children from PPPA-regulated household products. Household chemicals regulated under the PPPA include oven cleaners, furniture polish, turpentine, kindling and illumination preparations, ethylene glycol, solvents for paint or other similar surface-coating materials, glue removers containing acetonitrile, and permanent wave neutralizers containing sodium bromate or potassium bromate. The CPSC staff monitors ingestions and deaths from these products. (If cleaning products are registered pesticides, they are regulated by the Environmental Protection Agency and not the CPSC.)

Many specialty cleaning products are toxic following ingestion. One published article calculates hazard factors for household products through an analysis of data from the American Association of Poison Control Centers (AAPCC) pertaining to reported exposures of children under 6 years of