outlets may sell such products primarily to industrial or professional users. The manufacturer who markets an extremely flammable contact adhesive which would be subject to the ban if sold to consumers has the responsibility for determining the distribution and use patterns of its product and for taking all reasonable steps to ensure that the product is not made available for sale to consumers. The test of whether a contact adhesive is banned shall be whether the product, under any customary or reasonably foreseeable condition of distribution, or sale, is made available for purchase by consumers.

(c) Contact adhesives that are labeled as, marketed, and sold solely for industrial or professional use are not within the scope of this ban. However, merely labeling a contact adhesive for industrial or professional use only would not exclude such products from this ban. In addition, packaging a contact adhesive in a large size container would not in itself exclude the product from this ban.

(d) The Commission has found that the contact adhesives covered by this ban are being, or will be distributed in commerce; and present an unreasonable risk of injury; and that no feasible consumer product safety standard under the CPSA would adequately protect the public from the unreasonable risk of injury associated with these products.

§ 1302.2 Purpose.

The purpose of this rule is to ban extremely flammable contact adhesives which have been found to present an unreasonable risk of injury to consumers of burns resulting from explosive and flashback fire.

§ 1302.3 Definitions.

(a) The definitions in section 3 of the Consumer Product Safety Act (15 U.S.C. 2052) apply to this part 1302.

(b) The term *extremely flammable contact adhesive and similar liquid or semiliquid consumer products* means consumer products that have each of the following product characteristics:

(1) Show a flash point at or below 20 degrees Farenheit as determined by the Tagliabue open-cup test method prescribed by 16 CFR 1500.43; and

(2) Are intended to be applied to two surfaces to be bonded together and allowed to dry partially until there is little residual tack, and adhere to themselves instantaneously when the coated surfaces are joined under low or moderate pressure; and

(3) Are composed of a high percentage (70–90 percent by weight) of solvents and a low percentage of solids (10–30 percent by weight); and

(4) Are substances that are nonaerosols and are free-flowing, having a wet viscosity within the range of 300–6,000 centipoise at 70 degrees Fahrenheit when measured by an RVF Brookfield viscometer; and

(5) Are packaged in containers of more than one-half pint.

(c) The term *flash point* means the lowest temperature corrected to a pressure of 101.3 RPa (1013 millibars) of a substance at which application of an ignition source causes the vapor above the substance to ignite under specified conditions of test. A blue light (blue halo) or other colored light which sometimes surrounds the test flame should not be confused with the true ignition of the vapors (flash point).

(d) *Initial introduction into commerce* occurs when the manufacturer ships a product covered by this regulation from a facility of the manufacturer to a distributor, retailer, or consumer.

§ 1302.4 Banned hazardous products.

Any extremely flammable contact adhesive and similar liquid or semiliquid consumer product as defined in § 1302.3 (b), which has been manufactured or initially introduced into commerce after January 17, 1978, is a banned hazardous product. In addition, any other extremely flammable contact adhesive and similar liquid or semiliquid consumer product, as defined in § 1302.3(b), no matter when manufactured or initially introduced into commerce, is a banned hazardous product after June 13, 1978.

§ 1302.5 Findings.

(a) *The degree and nature of the risk of injury.* The Commission finds that the risk of injury which this regulation is designed to eliminate or reduce is the

risk of injury of burns from explosive vapor ignition and flashback fire associated with extremely flammable contact adhesives as defined in this rule.

(1) *Degree of the risk of injury presented by extremely flammable contact adhesives.* (i) In October 1976, the Commission's staff prepared a report entitled Hazard Analysis on Contact Adhesive Fires. According to the Hazard Analysis, three factors that measure burn severity are percent of body burned, days hospitalized, and whether clothing ignition occurs. Injury data sources summarized in the Hazard Analysis reveal that contact adhesive fires often result in a high percent of body burned, result in many days hospitalized, and usually involve clothing ignition burns.

(ii) The American Burn Association (ABA) participated in a special survey with the Commission to obtain an estimate of the incidence and severity of burns associated with the use of contact adhesive cements. In January 1976, the President of the ABA sent a letter to the 1,300 ABA members asking the members to record any thermal injuries or deaths that have occurred between January 1975 and March 1976 associated with contact adhesives. In November 1976, the Chairman of the ABA Committee on Burn Prevention submitted a statement to the Commission estimating that between 45 and 125 contact adhesive related injuries are treated annually in hospital emergency rooms. Although ABA members reported an annual rate of 20 severe burn injuries for the January 1975 to March 1976 period, the actual rate of severe burn injuries may be higher, since only approximately 400 hospitals, less than 10 percent of the country's short-term hospitals, are represented in ABA membership. The results of the ABA survey, as reported by the ABA Chairman, showed that the injuries treated by members resulted in an average hospitalization of 42 days, almost double the length of stay for all burn victims in special facilities for burns. According to the ABA Chairman, when a burn victim experiences such a lengthy stay, it is an indication of very severe injury and predicts a lengthy period of recuperation and potentially permanent physical and psychological consequences.

(iii) The Hazard Analysis prepared by the Commission's staff also contains a summary of the results of the ABA survey. According to the Commission's staff, the ABA survey revealed 33 incidents with sufficient details for analysis. Nine of the victims died from their burns and 21 were hospitalized. The average body area burned was 40 percent. In addition, the victims' clothing ignited on all except three of the 33 victims.

(iv) The Hazard Analysis also contains a summary of contact adhesive related fires in the National Fire Protection Association's (NFPA) Fire Incident Data Organization (FIDO), a computerized file of fire experience that includes data collected from 1971 to 1975. The NFPA files contained reports of 38 fires from 1971 to 1975, seven of which occurred in residences. These seven fires resulted in injuries to fifteen persons and deaths to three persons.

(v) In addition to the above injury information, the Hazard Analysis also indicates that the Commission has received three death certificates specifying the involvement of an adhesive.

(vi) According to the hazard analysis, after cases from the various data sources were verified as being mutually exclusive, at least 130 persons have been injured in contact adhesive fires since 1970. Fifteen of these persons subsequently died from the injuries they sustained in these accidents.

(vii) Technical analysis of extremely flammable contact adhesives by the Commission's staff indicates that the degree of the hazard associated with these products is such that as little as one pint of extremely flammable contact adhesive may produce a substantial explosion hazard.

(2) *Nature of the risk of injury presented by flammable contact adhesives.* (i) Technical analysis of these substances by the Commission's staff indicates that extremely flammable contact adhesives have a low flash point (20 °F or below), a rapid evaporation rate (as a result of a high percentage of solvents, 70–90 percent by weight), a low percentage of solids, 10–30 percent by weight, and a low wet-viscosity (300–6,000

centipoise when measured by an RVF Brookfield viscometer).

(ii) Flash point, viscosity, low solid to high solvent ratio, evaporation rate, size of the application area, and rate of application are factors which determine the potential for creating an ignitable vapor situation. The rapid rate of evaporation of extremely volatile, low flash point solvents from extremely flammable contact adhesives is capable of creating a highly explosive atmosphere. The flammable nature of these contact adhesives is such that the vaporized solvents from these products can be ignited by a sparking electric motor or an overlooked pilot light in an area remote from the site of use. Analysis of actual injury reports by the Commission's staff reveals that extremely flammable contact adhesives have, in fact, been ignited by many ignition sources including oven and stove pilot lights, water heater and furnace pilot lights, electric space heaters (without any visible flame), sparks from a refrigerator motor and a wall receptacle, and friction. Analysis of available injury reports has shown that these ignition sources are frequently located in areas of the house remote from the room in which the contact adhesive is being used.

(iii) The possibility of ignition from a source in another room or another part of the house may well be overlooked by the public, in spite of warnings on the label of the product. Ignition of the vapors may result in a sudden, flash back fire from the source of vapor ignition to the container of adhesive with little or no warning to the consumer and with the potential for serious or fatal injury to the user or bystanders. The injury information available to the Commission shows that the vast majority of accidents occur while the product is being used for its intended purpose. The potential for serious injury, therefore, appears to be present during normal use of the product.

(iv) Although the Commission has in the past required the extremely flammable contact adhesives now subject to this ban to bear minimum cautionary labeling for the hazard caused by the extreme flammability of the mixture, the Commission finds that this cautionary labeling is inadequate to protect the public. An analysis prepared by the Commission staff of the available injury data indicates that in spite of the cautionary labeling, accidents have continued to occur, inflicting serious injuries in much the same manner as those accidents that occurred prior to the issuance of the 1970 labeling regulation. The cautionary labeling presently required could be revised to include more explicit and graphic warnings. However, as a result of the degree and nature of the risk of injury presented by the product, this labeling would also provide inadequate protection to the public. The degree and nature of the risk of injury is such that a bystander or visitor could present an ignition source resulting in an accident. Since the bystander or visitor would not normally have an opportunity to read the warning label on the product, additional labeling would not benefit these potential victims. The possibility of ignition from a source in another room or another part of the house may well be overlooked by the public, in spite of warnings on the label of the product.

(b) *Products subject to this ban.* (1) The products banned by this rule are listed in §1302.1.

(2) The Commission finds that the types of products subject to this ban are those contact adhesives that are extremely flammable and are packaged in containers of more than one-half pint. The average annual consumption of all types of contact adhesives in the United States is estimated at approximately 25 million gallons. Of this, it is estimated that 4–5 million gallons are sold in containers of 1 gallon or less, the sizes consumers generally buy. Professional users are estimated to purchase about half of the contact adhesives in this size range with most purchases probably of gallon containers. Therefore, consumers probably purchase 2–2.5 million gallon of all contact adhesives, most of which is estimated to be in quart containers, and a smaller amount in containers of one pint or less.

(3) In early 1976, contact adhesive sales were estimated as 80 percent extremely flammable, 10 percent chlorinated-solvent based, and 10 percent water-based. Since that time, a

flammable petroleum solvent based contact adhesive has been developed and there has been a trend away from extremely flammable to flammable and nonflammable for consumer use. Although this trend is evident, reliable estimates of current market shares are not available. A rough estimate would be that perhaps 50 percent of contact adhesives in container sizes of more than one-half pint to 1 gallon are extremely flammable.

(c) Need of the public for the products and effects of the rule on their utility, cost, and availability.

(1) *The need for contact adhesives.* Contact adhesives are used primarily for bonding plastic laminates to counter and table tops, for applying tile board to walls, and for applying some types of flooring. Other uses include bonding metals, wood, leather, linoleum, tiles, rubber and plastics. Contact adhesives may also be used in furniture construction and repairs. There are contact adhesives available other than the extremely flammable type and other alternatives to contact adhesives that consumers can use.

(2) *Probable effects of the ban on the utility of contact adhesives.* Of the three general types of contact adhesive other than extremely flammable contact adhesives, flammable and non-flammable (chlorinated) contact adhesives have about the same general performance characteristics as extremely flammable contact adhesives. Therefore, because these two products are available to the public, the Commission believes the ban will have little impact on the utility of contact adhesives. In terms of performance characteristics, there is little difference between flammable and extremely flammable contact adhesives. Although the extremely flammable product requires approximately 10 minutes of drying time before the item can be bonded, the flammable product requires about 20 minutes. This difference in time is not likely to be significant for most consumers who do ordinary home improvement or repair work. The performance characteristics of non-flammable chlorinated based contact adhesives are similar to those of the extremely flammable type for most applications. Non-flammable chlorinated based contact adhesives may be unacceptable for applications involving leather. Water based contact adhesives may not be as satisfactory, in terms of performance characteristics, as the other contact adhesives. The drying time for water-based contact adhesives varies with humidity. Although manufacturers of water-based neoprene contact adhesives claim that their products will dry in 30 minutes, for most of the country a drying time from one to four hours is probably more realistic. It is possible that the adhesive will never dry in some areas of the country with very high humidity. The time needed for the adhesive to adhere after joining (open time) will also vary with the humidity. Water-based acrylic contact adhesives are similar to neoprene type adhesives in terms of the effect of humidity on drying time. The neoprene and acrylic based adhesives are not completely satisfactory for binding some substances with non-porous surfaces, such as metals. In addition, the water in these adhesives might have an adverse effect on leather. Neoprene water-based adhesives may become unstable if frozen and thawed several times. This may occur during shipping or storage in some areas of the country during deaths associated with the extreme winter. To the extent that injuries and flammable contact adhesives are reduced or eliminated as a result of the ban, the utility of contact adhesives will be increased.

(3) *Probable effects of the ban upon the cost of contact adhesives.* For gallon containers, the Commission estimates that the contact adhesives available as substitutes for the extremely flammable type may cost in the range of $1–$6 more than the extremely flammable type. Although a gallon of extremely flammable contact adhesive may cost $7.50–$10.50, a gallon of flammable contact adhesive may cost from $8–$11, a gallon of nonflammable chlorinated base contact adhesive may cost from $12–$15, a gallon of water-based neoprene contact adhesive may cost from $11–$16, and a gallon of water-based acrylic contact adhesive may cost from $10–$15.

(4) *Probable effect of the ban on the availability of contact adhesives to meet the need of the public.* The Commission

estimates that the ban will not have any effect on the availability or use of contact adhesives. Manufacturers are most likely to switch production to flammable petroleum-based and to 1,1,1,-trichloroethane (1,1,1,-TCE) based or water-based contact adhesives.

(d) *Alternatives.* (1) The Commission has considered other means of achieving the objective of this rule, such as labeling, but has found none that would achieve the objective of this ban, consistent with the public health and safety.

(2) The Commission believes that any adverse effects of the ban should be minimal and would be expected to be confined to some shift in distribution patterns to accommodate professional users, including methods of distinguishing between professional users and consumers.

(3) The Commission finds that competition should not be significantly affected by this rule.

(e) *Conclusion.* The Commission finds that this rule, including its effective date, is reasonably necessary to eliminate or reduce the unreasonable risk of injury of burns from explosive vapor ignition and flashback fire that is associated with the banned products described in §1302.3(b). The Commission also finds that issuance of the rule is in the public interest. The Commission also finds that no feasible consumer product safety standard under the act would adequately protect the public from the unreasonable risk of injury associated with the product.

§ 1302.6 Effective date.

This rule becomes effective January 18, 1978.

PART 1303—BAN OF LEAD-CONTAINING PAINT AND CERTAIN CONSUMER PRODUCTS BEARING LEAD-CONTAINING PAINT

Sec.

1303.1 Scope and application.
1303.2 Definitions.
1303.3 Exemptions.
1303.4 Banned hazardous products.
1303.5 Findings.

AUTHORITY: Secs. 8, 9, 86 Stat. 1215–1217, as amended 90 Stat. 506; 15 U.S.C. 2057, 2058.

SOURCE: 42 FR 44199, Sept. 1, 1977, unless otherwise noted.

§ 1303.1 Scope and application.

(a) In this part 1303, the Consumer Product Safety Commission declares that paint and similar surface-coating materials for consumer use that contain lead or lead compounds and in which the lead content (calculated as lead metal) is in excess of 0.06 percent of the weight of the total nonvolatile content of the paint or the weight of the dried paint film (which paint and similar surface-coating materials are referred to hereafter as ''lead-containing paint'') are banned hazardous products under sections 8 and 9 of the Consumer Product Safety Act (CPSA), 15 U.S.C. 2057, 2058. (See parts 1145.1 and 1145.2 for the Commission's finding under section 30(d) of the Consumer Product Safety Act (CPSA) that it is in the public interest to regulate lead-containing paint and certain consumer products bearing such paint under the CPSA.) The following consumer products are also declared to be banned hazardous products:

(1) Toys and other articles intended for use by children that bear ''lead-containing paint''.

(2) Furniture articles for consumer use that bear ''lead-containing paint''.

(b) This ban applies to the products in the categories described in paragraph (a) of this section that are manufactured after February 27, 1978, and which are ''consumer products'' as that term is defined in section 3(a)(1) of the Consumer Product Safety Act. Accordingly, those of the products described above that are customarily produced or distributed for sale to or for use, consumption, or enjoyment of consumers in or around a household, in schools, in recreation, or otherwise are covered by the regulation. Paints and coatings for motor vehicles and boats are not included within the scope of the ban because they are outside the statutory definition of ''consumer product''. In addition to those products which are sold directly to consumers, the ban applies to products which are used or enjoyed by consumers after sale, such as paints used in residences, schools, hospitals, parks, playgrounds, and public