

a long-term basis. When adhering tops on counters or tables, workers are more likely to have breaks between exposure, with short-term exposure being of greater concern (HSIA, 2001).

EPA is aware that it may be difficult to meet the recommended 25 ppm AEL in adhesive applications that are highly emissive. Exposure data from nPB used in adhesives in the foam-fabrication industry show high nPB concentrations within the workplace. At three different foam-fabrication facilities, NIOSH investigators reported that mean exposures to nPB ranged from 60 to 381 ppm (8-hour time weighted averages) (NIOSH, 1999, 2000a, 2000c, 2001). In one facility, average nPB exposures were reduced from 169 ppm to 19 ppm, following installation of ventilation equipment recommended by NIOSH (NIOSH, 2000c). Although use of spray booths at this facility had a dramatic effect of reducing average exposures to nPB, a significant percentage of workers whose jobs required direct use of spray adhesive containing nPB continued to have exposures in excess of 25 ppm. Among sprayers and assemblers working in the Assembly area, 2 of 10 (20%) full-shift samples exceeded 25 ppm, and among sprayers working in the Covers department, 9 of 11 (81%) of samples exceeded 25 ppm, with a maximum of 58 ppm (time-weighted average, TWA). These findings indicate that it may be necessary for employees to wear appropriate respiratory protection where engineering controls do not reduce exposures to or below the AEL. Where respirators are used to protect workers against nPB, employers should be aware that OSHA's Respiratory Protection standard (29 CFR 1910.134) would apply.

Because there is evidence that workplace exposures to nPB can be reduced to levels close to or below the recommended AEL, the Agency has concluded that it is appropriate to find the use of nPB acceptable in adhesive applications. Nevertheless, EPA expects that businesses using nPB in adhesive applications may have difficulty meeting the recommended exposure limit without some form of engineering controls such as confining operations to spray booths with ducts and a fan providing ventilation. Further, although use of spray booths at this facility had a dramatic effect of reducing exposures to nPB, as discussed above, some workers whose jobs required direct use of spray adhesive containing nPB continued to be exposed to nPB in excess of 25 ppm. Given this information, EPA requests comment on whether nPB should be acceptable for use in adhesives.

EPA conducted a detailed risk screen for nPB use in adhesives applications in the foam fabrication industry (ICF, 2001a, Attachment C) since this represents the most emissive use, and the use where workers and the general population have the highest exposures. Because this highly emissive use passed our risk screen, we did not conduct a formal risk screen for the solvents cleaning sector and aerosol solvents sectors end use, because emissions and worker exposures in these uses are expected to be lower than the adhesives end use.

2. Are There Other Entities That May Set or Recommend Workplace Standards?

Under the National Technology Transfer and Advancement Act of 1995, Section 12(d), Public Law 104-113, Federal agencies are required to consider using technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities. No such standards for occupational exposure to nPB currently exist. In comparison, the American Conference of Governmental Industrial Hygienists (ACGIH) has established threshold limit values (TLVs) for the primary chlorinated solvents used in the same applications as nPB. The most current TLVs for these solvents—25 ppm for perchloroethylene, and 50 ppm for trichloroethylene and methylene chloride—are identical or moderately higher than our proposed recommended guideline for nPB. It is possible that the American Industrial Hygiene Association (AIHA) or the ACGIH will review the toxicity of nPB in the future and set a voluntary standard. AIHA may develop a Workplace Environmental Exposure Limit (WEEL) for nPB. Further, in 2002, the ACGIH listed 1-Bromopropane and 2-Bromopropane (nPB and iPB, respectively) in its list of "Chemical substances and other issues under study." If either of these standard-setting bodies recommends an exposure limit on nPB, we would make that information available to the public for comment.

In the future, OSHA may develop a mandatory exposure limit for nPB use in the workplace. The result of OSHA's review could result in a permissible exposure limit (PEL) different from EPA's recommended exposure limit of 25 ppm. Unlike nPB, the chlorinated solvents are regulated by OSHA and have been regularly re-evaluated by OSHA, NIOSH, and EPA (e.g., as a National Emission Standard for Hazardous Air Pollutants). The most

current permissible exposure limits for these solvents established by OSHA are 25 ppm for methylene chloride and 100 ppm for perchloroethylene and trichloroethylene. The OSHA permissible exposure levels for perchloroethylene and trichloroethylene of 100 ppm were originally issued on 1971 based on the 1968 threshold limit values established by the ACGIH. Since then, ACGIH has issued TLVs of 25 ppm for perchloroethylene and 50 ppm for trichloroethylene and OSHA has issued a PEL of 25 ppm for methylene chloride; as such, the Agency does not believe that a 25 ppm recommended AEL for nPB would result in a significant competitive advantage for any of these solvents. As stated earlier in this preamble, EPA defers to OSHA in regulating workplace safety. The recommended AEL in today's proposal is an interim measure in the absence of an OSHA PEL. Thus, any PEL that OSHA sets would supersede EPA's recommended AEL.

3. Is the General Population Exposed To Too Much nPB?

As a part of the SNAP review process for alternative chemicals, EPA also considers exposure to the general population. Near facilities that use nPB in non-emissive applications such as vapor degreasing, exposure is expected to be insignificant. For emissive applications of nPB, such as an adhesive solvent in foam fabrication, we conducted a more detailed assessment of potential exposure to people living in the immediate vicinity of a facility. We first estimated a community exposure guideline, using EPA's Methods for Derivation of Reference Concentration Guidelines (1994) as a risk index to compare against potential community exposure. This community exposure guideline is an estimate of a continuous inhalation exposure (averaged over 24 hours per day, 7 days per week) to the general public (including sensitive subgroups) that is likely to be without an appreciable risk of adverse health effects during a lifetime. Community exposure guidelines can be derived from a NOAEL, LOAEL, or benchmark concentration, with uncertainty factors generally applied to reflect limitations of the data used. Average daily exposures of people living close to facilities where nPB is used in an emissive application were then estimated and compared to the community exposure guideline to determine whether nPB exposure presents an appreciable risk to the general population.

EPA derived the community exposure guideline for nPB using the same critical