

assumption that most users will attain exposure levels at or below the AEL of 25 ppm, EPA finds nPB acceptable in terms of its human health risks. As discussed in section IV.A.4, "What limit is EPA proposing on isopropyl bromide contamination of nPB as a condition of acceptability, and why?" iPB is a contaminant in nPB formulations that is considerably more toxic than nPB. Therefore, in order for nPB formulations to "reduce overall risk to human health and the environment," EPA finds it necessary for users to use nPB formulations that have minimal levels of iPB. Hence, the Agency's proposed decision of acceptability depends on the condition that users use nPB formulations that limit the amount of iPB. EPA's proposal is that this limit be 0.05% before other chemicals are added.

Balancing these different factors, it is not clear that nPB poses greater risks than other substitutes in the same end uses, so long as nPB is used consistent with the use condition and recommended AEL. Further, it appears that nPB reduces overall risk compared to the ozone depleting substances being replaced. Thus, EPA proposes to find that nPB is acceptable, subject to a use condition.

V. What Other Factors Did EPA Consider That Are Unique to nPB?

A. Review of nPB by Other Federal and International Programs

In proposing to find nPB acceptable in solvents cleaning, and as a solvent in adhesive and aerosol applications, we have sought to avoid overlap with other existing regulatory authorities. EPA's mandate under the CAA is to list agents that "reduce overall risk to human health and the environment" for "specific uses." In light of this authorization, EPA is recommending an occupational exposure limit which, if adhered to, would result in the safe use of nPB in the workplace. This is an interim measure until OSHA issues a PEL for nPB. EPA defers to OSHA on workplace safety standards, and is not in any way assuming that agency's responsibility for regulating workplace safety.

As stated in a footnote in today's proposed rule language at the end of this document, "In accordance with the limitations provided in section 310(a) of the Clean Air Act (42 U.S.C. 7610(a)), nothing in this [rule] shall affect the Occupational Safety and Health Administration's authority to enforce standards and other requirements under

the Occupational Safety and Health Act of 1970 (29 U.S.C. 651 *et seq.*)." EPA's recommended workplace exposure guidelines, which are not regulatory, and use requirements, which are not expressly related to use in the workplace, will not bar OSHA from regulating under authority of the Occupational Safety and Health Act.

As mentioned above in section IV.E, nPB is a VOC. Two companies have petitioned EPA to exempt nPB from VOC regulations. To date, EPA has not received sufficient information on photochemical reactivity of nPB and thus, has no plans to exempt it. In contrast to other solvents, nPB is not controlled as a hazardous air pollutant under the CAA and generates wastes that are not considered hazardous under regulations implementing the Resource, Conservation and Recovery Act (RCRA). Several commenters on the ANPRM argued that because no U.S. environmental authorities regulate nPB use, EPA's SNAP program has all the more obligation to establish an acceptable exposure limit for the workplace, even if it is recommended rather than mandated (IRTA, 1999). With today's proposed rule, EPA is recommending a workplace exposure limit to protect workers exposed to nPB in the absence of OSHA regulations.

While the Montreal Protocol currently does not control the production and distribution of nPB worldwide, nPB may be controlled by the Protocol in the future. At the Thirteenth Meeting of the Parties to the Montreal Protocol in Colombo, Sri Lanka, the Parties made a decision regarding nPB. Decision XIII/7 states:

Noting the Technology and Economic Assessment Panel's report that n-propyl bromide (nPB) is being marketed aggressively and that nPB use and emissions in 2010 currently projected to be around 40,000 metric tonnes,

A. To request Parties to inform industry and users about the concerns surrounding the use and emissions of nPB and the potential threat that these might pose to the ozone layer;

B. To request Parties to urge industry and users to consider limiting the use of nPB to applications where more economically feasible and environmentally friendly alternatives are not available, and to urge them also to take care to minimize exposure and emissions during use and disposal;

C. To request the Technology and Economic Assessment Panel to report annually on nPB use and emissions.

B. Potential Market for nPB

There are varying estimates of the total market for nPB. The Brominated Solvents Consortium, which consists of producers of nPB, estimated in 2001

that approximately 9.2 million pounds of nPB were sold worldwide in 2000, with that number expected to rise to 15 million pounds in 2002 (Biles, 2001). In contrast, the Technology and Economic Assessment Panel (TEAP) of the United Nations Environment Programme (UNEP) estimated that the "most likely" amount of nPB use in 2010 would be between 44 million and 132 million pounds worldwide, pending the result of toxicity testing and price trends of various solvents (UNEP, 2001). EPA believes that the actual market size in 2010 may be lower than the 44–132 million pounds cited by the TEAP report. Further, since the TEAP report was published, some manufacturers and blenders of nPB have withdrawn their products from the market.

EPA notes that the TEAP report based its estimates of how much nPB would be used by assuming that nPB will displace significant amounts of chlorinated solvents and HCFCs in the marketplace. The report states, "If occupational exposure limits for nPB were 2–4 times higher than exposure limits of methylene chloride, nPB would replace a substantial portion of methylene chloride solvent use even if nPB had a significantly higher price. High rates of market penetration will require U.S. EPA SNAP listing, a favorable AEL, and market confidence" (UNEP, 2001). Given that today's proposal recommends an AEL equivalent to that for methylene chloride (OSHA PEL) and perchloroethylene (ACGIH TLV) and slightly lower than that for trichloroethylene (ACGIH TLV = 50 ppm, 8 hour TWA), it is likely that the TEAP's estimates for market penetration of nPB are too high.

In addition, we note that producers of HCFC-141b, a solvent with slightly lower cost and similar solvency to nPB, never sold more than 36 million pounds per year as a solvent, even at the height of its usage (AFEAS, 2002). HCFC-141b has recently been phased out of production in the U.S. and the Agency expects nPB to be only one of several alternative solvents that will substitute for it. Further, experience with the growth of the market for HCFC-141b suggests that the growth in the market for nPB is unlikely to continue at its current pace for more than a few years. The most recent information from suppliers of nPB indicates that in 2001, sales were approximately 9 million pounds, similar to the level in 2000 (Biles, 2002).

such as emission controls in place, work practices, ventilation, rate of spraying, and vapor pressure of the solvent.