

Q and A
2007 Final and Proposed Regulations for n-Propyl Bromide (nPB)

Through its Significant New Alternatives Policy (SNAP) Program, the U.S. Environmental Protection Agency (EPA) is allowing or proposing to allow the use of n-propyl bromide (nPB) as an alternative to ozone-depleting substances (ODS) in some, but not all, end uses. The SNAP program implements section 612 of the Clean Air Act, which requires EPA to evaluate substitutes for ODSs to ensure they minimize risk to human health and the environment. This fact sheet answers commonly asked questions about EPA's regulations on the appropriate use of nPB.

What is EPA deciding about how nPB may be used?

EPA is finding nPB acceptable for use as a substitute for CFC-113 and methyl chloroform in metals, electronics, and precision cleaning in a final decision. EPA is also issuing a separate proposal for other uses of nPB.

How is EPA proposing that nPB may be used?

For this end use,	EPA is proposing that use of nPB is:
Coatings (only for facilities that as of proposal date provided data demonstrating ability to maintain acceptable exposure levels)	Acceptable Subject to a Use Condition
Aerosol solvent	Unacceptable
Adhesive carrier solvent	Unacceptable

Data from a number of facilities and from modeling indicate likely exposures in excess of potentially protective levels, and therefore, unacceptable health risks for users of nPB-based adhesives and aerosols.

What exposure levels does EPA consider potentially protective?

EPA is considering the following ranges of exposures on an eight-hour time-weighted basis to be potentially protective:

- § 17 to 22 parts per million (ppm), to protect the female reproductive system
- § 18 to 30 ppm, to protect the male reproductive system
- § 20 ppm, to ensure reproductive success.

Am I allowed to use nPB now that this regulation has been proposed?

Yes, you may continue to use nPB until EPA issues a final rule.

What ozone-depleting substances is nPB a substitute for?

CFC-113, HCFC-141b, and methyl chloroform.

What is nPB? How do I know if I am working with nPB?

Also called 1-bromopropane, nPB is a non-flammable organic solvent with a strong odor. Its Chemical Abstracts Service Registry Number (CASRN) is 106-94-5.

nPB's main uses are in degreasing and spray adhesives. Brand name products containing nPB include Abzol, Ensolv and Solvon cleaners, Ensolv-NDI aerosol cleaner, Whisper Spray, and fire retardant Soft Seam adhesives, among others. The manufacturer's Material Safety Data Sheet (MSDS) contains information on the formulation and whether it contains nPB.

How did EPA decide what exposure levels for nPB are potentially protective?

EPA reviewed all available toxicological and occupational case studies as well as manufacturers' recommended guidelines and third party assessments. The Agency coordinated its review with key federal agencies including the Occupational Safety and Health Administration (OSHA) and the National Institutes for Occupational Safety and Health (NIOSH). The Agency's risk assessment underwent independent expert peer review.

What are the health effects of overexposure to nPB?

The following effects have been reported among workers with high exposures to nPB:

- § Leg weakness and pain leading to a difficulty with standing and walking (stumbling)
- § Numbness, tingling, and prickling in legs
- § Headache, dizziness, nausea, memory and concentration difficulties

Studies on animals indicate a range of effects on the liver, nervous system, and the male and female reproductive systems.

How can I prevent overexposure to nPB?

If you are working with nPB:

- § Move away from the source of nPB when you are not directly using it.
- § Use personal protective equipment, such as flexible laminate gloves, aprons, and goggles.
- § If you are using nPB in solvent cleaning equipment, avoid drafts over the equipment, remove parts no faster than 10 feet per minute, and tilt parts so that solvent will drain out instead of collecting on the parts.
- § Until the proposed rule is finalized, if you use nPB in aerosols or adhesives, install and use local exhaust ventilation designed to attain a face velocity of 100 to 150 feet per minute.

Companies using nPB should take advantage of manufacturer's exposure monitoring programs or set up an exposure monitoring program of their own. Or, consider switching to a less toxic alternative.

How do EPA's acceptable exposure levels compare to industry standards and regulatory requirements?

In December 2004, the American Conference of Governmental Industrial Hygienists (ACGIH) established a Threshold Limit Value™ (TLV) of 10 ppm for nPB as an 8-hour time-weighted average of exposure. If EPA were to rely on this TLV of 10 ppm, the agency would likely propose the same acceptability decisions described here.

To date, OSHA has not issued a Permissible Exposure Limit (PEL) for nPB. At OSHA's request, the National Toxicology Program will perform a number of studies on the effects of nPB. When these studies are completed (studies could take several years), OSHA could set a mandatory nPB workplace exposure limit that would supersede EPA's recommended exposure level.

What are the environmental impacts of nPB?

At the latitude of the US, nPB has an ozone depletion potential (ODP) of 0.013 to 0.018. At tropical latitudes, nPB has an ODP of 0.071 to 0.100, close to that of methyl chloroform and HCFC-141b. EPA is basing its proposed decision on the ODP in the U.S. nPB may contribute to smog and is regulated as a volatile organic compound.

Although nPB is not currently regulated as a hazardous waste, EPA recommends that you dispose of it as any other halogenated solvents to avoid impacts on aquatic life (LC₅₀ is 67 mg/L for fathead minnows). nPB has a low tendency to concentrate in living organisms with a bioconcentration factor of 23. It is moderately mobile in soil with a K_{oc} value of 330. nPB tends to volatilize and breaks down easily in water, with a hydrolysis half-life of 26 days.

Why is EPA changing from its earlier proposal for adhesives and aerosols?

Since EPA's initial proposal in 2003, additional exposure data and studies on the adverse effects of nPB on human health have become available which are listed in the proposed regulation.

Where can I find a copy of EPA's final and proposed rules?

You can download the rules from the Federal Register's website at <http://www.gpoaccess.gov/fr/index.html> or from EPA's SNAP Program Website at <http://www.epa.gov/ozone/snap/index.html>. The name of the proposed rule is: "Protection of Stratospheric Ozone: Listing of Substitutes of Ozone-Depleting Substances—n-Propyl Bromide."

When will EPA issue a final ruling on nPB for adhesives and aerosols?

EPA plans on issuing a final rule in 2008. The actual date will depend on the number and complexity of the issues the public raises in response to the proposed rule.

How can I get more information about nPB?

Contact

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Email: sheppard.margaret@epa.gov

Visit EPA Website

<http://www.epa.gov/ozone/snap/index.html>

Review EPA Docket

EPA maintains information on nPB in a public docket. You can access the docket by:

- § Visiting www.regulations.gov and accessing electronic docket EPA-HQ-OAR-2002-0064
- § Calling EPA's Air Docket at (202) 566-1742 and asking for copies of documents in Docket A-2001-07 and for up-to-date information on the status of EPA's Docket Center.

How and where should I send public comments on EPA's proposed rule?

Please submit your written comments no later than 60 days after the date the rule was published. If a hearing is requested, EPA will publish a notice with the date, time and location of the public hearing and we will extend the public comment period until 30 days after the public hearing.

Send your written comments by one of the following ways:

Internet

Submit electronically to Docket EPA-HQ-OAR-2002-0064 at www.regulations.gov.

Email

A-And-R-Docket@epa.gov (Subject line: comments for docket number EPA-HQ-OAR-2002-0064)

Mail

US EPA
Air & Radiation Docket, Mail Code 6102T
Attention: Docket EPA-HQ-OAR-2002-0064
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Hand Delivery or Courier

EPA Air Docket
Attention: Docket EPA-HQ-OAR-2002-0064
1301 Constitution Avenue, NW (EPA West Building)
Room 3334
Washington, D.C.