PUBLIC HEALTH STATEMENT
n-NITROSODI-n-PROPYLAMINE
CAS#: 7440-07-5

Division of Toxicology **September 1990**

This Public Health Statement is the summary chapter from the Toxicological Profile for n-Nitrosodi-n-propylamine. It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFAQs™, is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-888-422-8737.

1.1 WHAT IS n-NITROSODI-n-PROPYLAMINE?

n-Nitrosodi-n-propylamine is a yellow liquid at room temperature that does not dissolve in water and evaporates slowly. It is a man-made chemical made in small amounts for use in research. There is no evidence that n-Nitrosodi-n-propylamine exists naturally in soil, air, food, or water. Small amounts of n-Nitrosodi-n-propylamine are produced as a side reaction during some manufacturing processes, as a contaminant in some commonly available weed killers (dinitroaniline-based), and during the manufacture of some rubber products. When exposed to sunlight, n-Nitrosodi-n-propylamine usually does not last for more than a day. Without sunlight (e.g., in water deeper than sunlight reaches or in subsurface soil) n-Nitrosodi-n-propylamine breaks down slowly. It takes between 14 and 80 days for one-half of any certain amount of n-Nitrosodi-n-propylamine to break down when it is released to the subsurface soil.

1.2 HOW MIGHT I BE EXPOSED TO n-NITROSODI-n-PROPYLAMINE?

Persons may be exposed to n-Nitrosodi-n-propylamine by eating foods treated with nitrite preservatives (e.g., cheeses, cured meats) and drinking certain alcoholic beverages. n-Nitrosodi-n-propylamine forms in the stomach during digestion of nitrite-treated foods and foods that contain certain amines, particularly di-n-propylamine. Amines occur in some medicines and in a variety of foods. Levels of n-Nitrosodi-n-propylamine found in food and alcoholic beverages range between 0.03 parts per billion (ppb) in fried, salt- preserved fish to 30 ppb in cheese. The general population may be exposed to n-Nitrosodi-n-propylamine in cigarette smoke.

Workers making molded rubber products have been exposed to levels of n-Nitrosodi-n-propylamine in workroom air that were measured in parts of compound per trillion parts (ppt) of air. Workers applying contaminated weed killers may also be exposed to extremely low (ppt) levels of n-Nitrosodi-n-propylamine. At this time, n-Nitrosodi-n-propylamine has been found in at least 1 of 1177 hazardous waste sites on the National Priorities List (NPL) in the United States. Workers and the general population at these sites could possibly be exposed to this compound by skin contact, breathing, and eating contaminated items.

1.3 HOW CAN n-NITROSODI-n-PROPYLAMINE ENTER AND LEAVE MY BODY?

n-Nitrosodi-n-propylamine can enter the body when a person breathes air that contains n-Nitrosodi-n-

propylamine, or eats food or drinks water contaminated with n-Nitrosodi-n-propylamine. n-Nitrosodi-n-propylamine is not likely to get into your body unless you eat certain foods, drink alcoholic beverages, or are exposed to it at a waste disposal site by breathing n-Nitrosodi-n-propylamine vapors. It is likely that n-Nitrosodi-n-propylamine can enter the body by direct skin contact with wastes, pesticides, or soil that contains it. Experiments with animals suggest that if n-Nitrosodi-n-propylamine enters the body, it will be broken down into other compounds and will leave the body in the urine.

1.4 HOW CAN n-NITROSODI-n-PROPYLAMINE AFFECT MY HEALTH?

The effects of short- or long-term exposures to n-Nitrosodi-n-propylamine on human health have not been studied. Little is known about the health effects of short exposures to n-Nitrosodi-n-propylamine in experimental animals except that eating or drinking certain amounts of this chemical can cause liver disease and death. Long-term exposure of experimental animals to n-Nitrosodi-n-propylamine in food or drinking water causes cancer of the liver, esophagus, and nasal cavities. Although human studies are not available, the animal evidence indicates that it is reasonable to expect that exposure to n-Nitrosodi-n-propylamine by eating or drinking could cause liver disease and cancer in humans. It is not known whether other effects, such as birth defects, occur in animals or could occur in humans exposed to n-Nitrosodi-n-propylamine by eating or drinking. It is also not known whether exposure to n-Nitrosodi-n-propylamine by breathing contaminated air or contact with the skin can affect the health of animals or humans. Liver disease and cancer due to exposure to n-Nitrosodi-n-propylamine by breathing or skin contact are, however, a possibility and a health concern.

1.5 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO n-NITROSODI-n-PROPYLAMINE?

The presence of n-Nitrosodi-n-propylamine in blood and urine can be measured by chemical analysis, but this analysis is not usually available at your doctor's office and has not been used to test for human exposure or to predict possible health effects.

1.6 WHAT LEVELS OF EXPOSURE HAVE RESULTED IN HARMFUL HEALTH EFFECTS?

As discussed above, no information is available on the health effects of n-Nitrosodi-n-propylamine in people. In animals, liver injury and death have been seen from short-term exposure to levels of 308 parts of n-Nitrosodi-n-propylamine per million parts of food (ppm) and above.

1.7 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The EPA controls the release of n-Nitrosodi-n-propylamine. It is proposed that releases or spills of 10 pounds or more of n-Nitrosodi-n-propylamine must be reported to the National Response Center.

The federal recommendations have been updated as of July 1999.

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1.8 WHERE CAN I GET MORE INFORMATION?

If you have any more questions or concerns, please contact your community or state health or environmental quality department or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop F-32
Atlanta, GA 30333

Information line and technical assistance:

Phone: 888-422-8737
FAX: (770)-488-4178

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses resulting from exposure to hazardous substances.

To order toxicological profiles, contact:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Phone: 800-553-6847 or 703-605-6000

Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 1989. Toxicological profile for n-Nitrosodi-n-propylamine. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.