



# PUBLIC HEALTH STATEMENT

## 2,3-BENZOFURAN

CAS#: 271-89-6

Division of Toxicology

September 1992

This Public Health Statement is the summary chapter from the Toxicological Profile for 2,3-Benzofuran. 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.

This Statement was prepared to give you information about 2,3-benzofuran and to emphasize the human health effects that may result from exposure to it. The Environmental Protection Agency (EPA) has identified 1,177 sites on its National Priorities List (NPL). 2,3-Benzofuran has been found in at least 5 of these sites. However, we do not know how many of the 1,177 NPL sites have been evaluated for 2,3-benzofuran. As EPA evaluates more sites, the number of sites at which 2,3-benzofuran is found may change. This information is important for you to know because 2,3-benzofuran may cause harmful health effects and because these sites are potential or actual sources of human exposure to 2,3-benzofuran.

When a chemical is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment as a chemical emission. This emission, which is also called a release, does not always lead to exposure. You can be exposed to a chemical only when you come into contact with the chemical. You may be exposed to it in the environment by breathing,

eating, or drinking substances containing the chemical or from skin contact with it.

If you are exposed to a hazardous chemical such as 2,3-benzofuran, several factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. These factors include the dose (how much), the duration (how long), the route or pathway by which you are exposed (breathing, eating, drinking, or skin contact), the other chemicals to which you are exposed, and your individual characteristics such as age, sex, nutritional status, family traits, lifestyle, and state of health.

### 1.1 WHAT IS 2,3-BENZOFURAN?

2,3-Benzofuran is a colorless, sweet-smelling, oily liquid which does not mix with water. 2,3-Benzofuran is made by processing coal into coal oil. 2,3-Benzofuran may also be formed during other uses of coal or oil. The part of the coal oil that contains 2,3-benzofuran is made into a plastic called coumarone-indene resin. Coumarone-indene resin can then be used to make paint, varnish, glue, and floor tiles, and it is allowed on food products and packages. We know very little about how 2,3-benzofuran might get into the environment or what happens to it after it gets there.

### 1.2 HOW MIGHT I BE EXPOSED TO 2,3-BENZOFURAN?

2,3-Benzofuran has been found in a few places in the air and water. In most instances, when it was found, the amount that was there was not measured. We do not know what the levels of 2,3-benzofuran are in soil, air, water, or food. The reason that 2,3-benzofuran has not often been found could be that

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2,3-benzofuran usually attaches to particles, and is not free in the air or water. We do not know where 2,3-benzofuran comes from, except when it is found near fuel-processing factories. Workers who make coal oil or coumarone-indene resin might be exposed to 2,3-benzofuran. Cigarette smoke has some 2,3-benzofuran in it. Coumarone-indene resin is allowed in food packages and as a coating on oranges and grapefruit. We do not know how often the resin is used or whether any 2,3-benzofuran in it gets into the food.

### **1.3 HOW CAN 2,3-BENZOFURAN ENTER AND LEAVE MY BODY?**

We know very little about how 2,3-benzofuran can enter or leave your body. Some 2,3-benzofuran can enter your body from the environment if it is in the water that you drink, the food that you eat, or the air that you breathe. We do not know how much you would take in or when and how it would leave your body.

### **1.4 HOW CAN 2,3-BENZOFURAN AFFECT MY HEALTH?**

The effect of 2,3-benzofuran on your health depends on how much you take into your body. In general, the more you take in, the greater the chances that an effect will occur. No studies have been done to test the effects of 2,3-benzofuran on the health of humans. Studies in animals show that 2,3-benzofuran can damage the liver and kidneys if large amounts are given within a short time, and that very large amounts can kill. We do not know whether exposure to 2,3-benzofuran can affect your ability to have children or can harm an unborn baby.

Studies in animals show that exposure to 2,3-benzofuran at moderate levels over a long time can damage the liver, kidneys, lungs, and stomach. The brain, muscles, and heart do not seem to be seriously damaged by long-term exposure. Some rats and mice that received 2,3-benzofuran for their whole lives developed cancer of the kidney, lung, liver, or stomach. However, no cases of cancer in humans have been linked to exposure to 2,3-benzofuran.

### **1.5 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO 2,3-BENZOFURAN?**

2,3-Benzofuran can be measured in your blood or in your milk if you are a nursing mother. The test is specific for 2,3-benzofuran but it requires special equipment and is not easily available. The test may only be able to detect 2,3-benzofuran for a certain period of time because it is not known how long 2,3-benzofuran remains in the body after you have been exposed to it. Also, the test only shows that you have been exposed; it cannot predict which health effects, if any, you will develop.

### **1.6 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?**

No standards have been set for exposure to 2,3-benzofuran. The Food and Drug Administration specifies the quantity of coumarone-indene resin that may be used on food and in food packages.

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**1.7 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). 1992. Toxicological profile for 2,3-  
Benzofuran. Atlanta, GA: U.S. Department of  
Health and Human Services, Public Health Service.

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