

ORGANOTIN (TIN) STABILIZERS: NOT A HEALTH CONCERN FOR PVC PIPE

PVC pipe is manufactured in a process that involves heating and extrusion of PVC compound. Heat stabilizers known as organotins are used in the manufacture of PVC pipe in the United States and Canada. Because there are many different types of organotin, there has been some confusion about the safety of the organotin stabilizers used in PVC pipe.

DIBUTYLTIN DICHLORIDE IS NOT PRESENT IN PVC PIPE

Dibutyltin dichloride (DBTDC) is an organotin that may cause adverse health effects. The fact that DBTDC is an organotin has led to questions about whether PVC pipe could be a source of DBTDC exposure. The answer is no because:

- DBTDC is not used in the manufacture of PVC pipe, either as a stabilizer or for any other purpose.
- The organotin stabilizers used in PVC pipe do not break down to produce DBTDC.
- The tin stabilizers in PVC pipe do not leach to form DBTDC in water.

PVC PIPE: CERTIFIED TO NSF/ANSI STANDARD 61 FOR DRINKING WATER USE

Product standards for PVC water pipe require conformance to NSF/ANSI Standard 61 “Drinking Water System Components – Health Effects,” which covers all types of materials used in drinking water systems. NSF/ANSI 61 sets health-based limits for chemicals migrating from products that come into contact with potable water. All PVC pipe, fittings, and materials are tested at least once per year for organotins. Pipe samples are provided by the manufacturer or are selected randomly by third-part laboratory auditors during unannounced inspections of production facilities.

NSF/ANSI 61 requires the total of any potentially leachable amounts of tin from PVC pipe be less than the Single Product Allowable Concentration (SPAC) which is set based on the type of organotin. (For the stabilizers used in PVC water pipe, the SPAC is 4µg/L = 4 parts per billion.)

[Click here](#) for a letter from NSF regarding testing protocols for PVC pipe.

Certification to Standard 61 confirms that leaching of organotin stabilizers used in PVC water pipe manufacturing is not a concern. Not only does the pipe meet the requirements of the standard, the test results for tin are consistently “Non-Detect”.

ENVIRONMENTAL PRODUCT DECLARATION FOR PVC PIPE

An Environmental Product Declaration (EPD) for PVC pipe, certified by NSF International, states that:

“PVC pipe and fittings are resistant to chemicals generally found in water and sewer systems, preventing any leaching or releases to ground and surface water during the use of the piping system. No known chemicals are released internally into the water system. No known toxicity effects occur in the use of the product.”

[Click here](#) for the EPD.

References: “Environmental Product Declaration for PVC Water and Sewer Pipe,” NSF International (2023); NSF Standard 61 “Drinking Water System Components – Health Effects,” NSF International (2023).