these values were similar to those found in the controls. Phthalate esters were detected at concentrations lower than the stated sensitivity limit (10 ppb); moreover, these concentrations were insignificantly different from those found in controls.

In the DeLeeuw study (1982), dibutyl phthalates were detected in the cold water samples and phthalate esters and diphenylamine were detected in hot water samples. Whereas none of these chemicals was detected in the controls, all concentrations were less than the stated detection limit; and dibutylphthalate, DEHP, and diphenylamine were determined to have come from the hot water heater.

In summary, slight concentrations of phthalate esters were found in both the Radian V and DeLeeuw studies, but these concentrations can be attributed to sources other than the PB pipe.

Mead CompuChem (1981), under contract to Shell Chemical Company, performed leaching studies on intact gray PB pipe. These tests were similar to the 5-day leaching experiments described in Radian II. A derivative of Irganox 1010 was the only leachate detected at concentrations (approximately 50 ppb) different from those in the controls. The experimental protocol was not reported in detail.

The East Bay Municipal Utility District (1981) sampled in-service black PB and water from PB service pipe that had been dormant for 4 months. One set of in-service samples was analyzed by the Environmental Research Laboratory (Montgomery Engineers); the other set of samples was analyzed by a CDHS laboratory.

No leachates were found in the in-service pipes or the dormant section of pipe at concentrations different from those of the controls. However, the sample procedure was not given and no spiking data were reported; therefore, these data should be viewed with caution.

Shell (1982) conducted research on the leaching of PB4127 in 5-day experiments at 82°C. Samples were taken every day to determine the leaching rates.

Irganox 1010 derivates were the only leachates detected. Quantitative results were reported only for leaching from PB resin nib. Proposed structures of the Irganox derivatives are shown below.