POLYBUTYLENE PIPES AND PLUMBING SYSTEMS

WILLIAM G. FLINT, ESQUIRE
COZEN AND O'CONNOR
1900 Market Street
Philadelphia, PA 19103
(215) 665-2000

Atlanta, GA
Charlotte, NC
Cherry Hill, NJ
Chicago, IL
Columbia, SC
Dallas, TX
Los Angeles, CA
New York, NY
Newark, NJ
Philadelphia, PA
San Diego, CA
Seattle, WA
W. Conshohocken, PA
Westmont, NJ

Since 1978 polybutylene pipes and plumbing systems have been installed in an estimated 6 million homes in the United States. It is estimated also that these pipes and plumbing systems were installed in an additional 3 million mobile homes since 1978. Shortly after the polybutylene pipes and plumbing systems began appearing in the market place, they started breaking and leaking. As a consequence, several class actions and multi-plaintiff suits have been filed in three states where it is estimated that the majority of the polybutylene plumbing systems were installed: Florida, California and Texas. In October, 1994, a proposed $750 million dollar settlement arose from Beeman v. Shell Oil Company, et al., 93-047363, (164th Jud. Dist., Harris County, Texas). The primary manufacturers of polybutylene plumbing systems, Shell Oil Company, E.I. duPont deNemours and Hoechst Celanese Corp. proposed to resolve all claims nationwide through the settlement. The proposed settlement if realized would be the largest property damage settlement in U.S. history.

Notwithstanding that three states seem to have most of the polybutylene litigation, suits have been initiated in 36 states, so far, as a result of the pipes failures. In analyzing water losses, we should look for this distinctive pipe and its fittings. In the past where we might have looked for tradesman error, we should now also look to the type of pipe involved.

The distinguishing factors of the polybutylene pipe are its color: gray, silver and blue, and its flexibility. Unlike PVC (polyvinylchloride) which is ridged, polybutylene can be bent and twisted. Primarily, the gray and silver color pipes are found indoors while the blue pipes are found underground as part of the water service to the house.

Shell Oil Company developed polybutylene as a means to use a resin bi-product from its refining process. Shell, along with U.S. Brass and others, designed, engineered, manufactured and marketed polybutylene for potable water pipes. Hoechst Celanese and duPont developed

Celcon and Delran, respectively, which are acetal copolymer resins used as fittings in the polybutylene plumbing systems. U.S. Brass and Celanese developed crimped tools to be used with the polybutylene pipe systems.

There are three theories as to why the pipes, fittings and plumbing systems failed. The first is that Celcon, Delran and polybutylene deteriorate when exposed to chlorine. Chlorine is found in most public and private water distribution systems. The second is that the high clamp force needed to crimp the pipes and fittings put excessive stress on the systems. It is also thought that the longer the pipe the greater the possibility that the extrusion method added to the stress. Lastly, it has been confirmed by test that polybutylene pipes breakdown prematurely due to oxidation.

Some of the manufacturers have known of the stress related problems and the adverse reaction to any level of chlorine since 1978. Notwithstanding this knowledge, they continued to manufacturer, market and supply polybutylene plumbing systems to the unsuspecting public. In fact, a jury decided in Andraus, et al. v. U.S.Brass Corp. et al., W.L. 313208, (Tex. App. Hous. 1 Dist. 1993); that Celanese and U.S. Brass made knowing misrepresentations to the plaintiffs as to the quality and durability of their products. In that case a former U.S. Brass employee testified that U.S. Brass instructed him to destroy a memorandum wherein he acknowledged the enormous problems U.S. Brass was experiencing with the crimping tool and the fittings and the resultant stress failures. Celanese's expert testified that based upon his examination, the fittings were failing because of stress: the crimp ring was placed to close to the shoulder, the ring was over crimped and squeezed to tightly and the tubing was bent to far, or the crimp ring was badly cocked as a result of a tool being twisted during installation. He did not give his opinion on whether adequate instructions were given by the manufacturer relative to the proper use of the crimp tool and the appropriate pressure needed to accomplish crimping without damaging the

pipe. Also in this trial an internal Celanese memorandum dated 1978 was introduced which stated "chlorine at any level will react with and ultimately adversely affect kematal (Celcon). " At the time that these memorandums were prepared and the knowledge acquired by the defendants, they were representing that the polybutylene plumbing systems were practical, efficient, thoroughly tested and time proven, in compliance with all national standards, trouble free, the best tubing for worst water conditions and not subject to corrosion.

The oxidation problem probably is related to the manufacturers attempt to make their product environmentally degradable. Sensitive to the public's concern that plastics can remain in landfills without change for centuries, and interested in increasing polymeric materials in textiles, coatings, electrical insulation, house sidings, etc., the polymeric industry began leaving some of the catalysts used in the synthesizing process in polybutylenes materials. By leaving the catalysts in the polybutylenes they found they could accelerate the degradation of the polymer. Unfortunately, what may have occurred was that instead of the predicted eventual degradation (25 to 50 years) the process accelerated. The Swedes have conducted hydrostatic pressure tests on polyolefin (polybutene - 1 PB) pipes using over 12,000 samples. They have confirmed that 3 stages of failure occur. Each stage involved oxidation of the pipe.

The status of the $750 million dollar settlement is unclear at this time. It is unclear because District Judge Katie Kennedy rejected a joint plaintiff/defendant motion which had three parts: preliminary approval of the settlement, class notice and scheduling of a fairness hearing. The Judge did not announce her reasons for denying the joint motion but did write that "the Court has also considered, among other things, whether the Court has jurisdiction over this matter; whether the settlement appears to be the product of serious, informed, non-collusive negotiations; whether the settlement has any obvious deficiencies; whether the settlement improperly grants preferential treatment to the class representatives or segments of the class, and

whether the settlement falls within the range of possible approval." The parties involved wanted the State Court Judge to take on nationwide jurisdiction, something she obviously rejected.

The proposed settlement provided that homeowners would be paid for "un-reimbursed property damage and repair costs." The settlement included those with claims dating back to 1978 and as well as any claims up and until 2007. Class members could opt out of the class if they wanted to pursue individual litigation. $700 million dollars of the settlement was to go to class members, the remaining $50 million would be spent on advertising and administrative costs. Plaintiffs lawyers including the Philadelphia firm of Kohn, Nast and Graf, as well as Ralph Nader's Trial Lawyers for Public Justice were to be paid $37.5 million which was not to come out of the $750 million settlement. One of the attorneys for the plaintiffs has stated with regard to the current status of the settlement "we have a settlement with Shell, Celanese and duPont. It is our intent to enforce that settlement. We believe the defendants will honor their side."

A Color copy of various polybutylene pipes and fittings is attached. I have also attached a bibliography. The bibliography contains articles and cases I have accumulated on polybutylene pipes and plumbing systems. Some of them are highly technical, others voluminous. For the sake of not killing any more trees, I haven't copied and attached all of the materials that I have acquired. However, if you want or have a need for any of these items, please let me know and I will provide copies.

BIBLIOGRAPHY

1. "Plane Strain and Plane Stress Analysis of Fatigue Crack Propagation in Medium Density Polyethylene Pipes Materials," J.J. Strebel and A. Moet, Polymer Engineering and Science, February 1993, Volume 33, No. 4.

2. "Molecular Structure, Morphology, and Anti-Oxidant Consumption in Polybutylene - 1 Pipes in Hot-Water Applications," K. Karlsson, P-A. Eriksson, M. Hedenqvist, M. Ifwarson, G.D. Smith and U.W. Gedde, Polymer Engineering and Science, mid-March 1993, Volume 33, No. 5.

3. "Flow Defects in Linear Low Density Polyethylene Processing: Instrumental Detection and Molecular Weight Dependence," A. Ajji, S. Varennes and H.P. Schreiber, Polymer Engineering and Science, mid-December 1993, Volume 33, No. 23.

4. "Long-Term Properties of Hot-Water Polyolefin Pipes - A Review," U.W. Gedde, J. Viebke, H. Leijstrom and M. Ifwarson, Polymer Engineering and Science, December 1994, Volume 34, No. 24.

5. "Standard Specification for Polybutylene (PB) Plastic Molding and Extrusion Materials," ASTM Designation: D2581-80 (reapproved 1987).

6. Encyclopedia of Chemical Technology, 3rd Edition, Supplemental Volume "Plastics, Environmentally Degradable," Kirk-Othmer, John Wiley and Sons.

7. "Homeowners to be Paid for Faulty Water Pipes," Maryanne Haggerty and Ann Mariano, Washington Post.

8. "Chemical/Physical Characteristics and Properties of Polybutylenes," Edward J. Thorn, M.S. Chemical Consultant.

9. "Plastic Pipe Deal Quickly in Trouble: Judges Jurisdictional Doubts Could Kill $750 Million Dollar Settlement," Brenda Sapino, Texas lawyer, Volume 10, No. 33 (1994).

10. "Pipe Class Action Settlement Knocked, The National Law Journal, Volume 17, No. 10, (1994).

11. "Polybutylene Pipes Settlement Rejection Puzzles Both Sides," Brenda Sapino, Texas lawyer, Volume 10, No. 48 (1995).

12. Andraus. et al. v. U.S. Brass Corporation, et al., W.L. 313208, (Tex. App. Hous. 1 Dist. 1993).

13. Knowlton v. U.S. Brass Corporation, et al., 864 S.W. 2d 585 (1993).

14. Williams, et al. v. Shell Oil Company, et al., 169 B.R. 684 (S.D. Calf. 1994).

15. U.S. Brass Corporation v. Hoechst Celanese Corporation, et al., 173 B.R. 1000, (E.D. Tex. 1994).

16. Beeman, et al. v. Shell Oil Company, et al., 93-047363, (164th Jud. Dist. Harris Co.) "Settlement Agreement."

PHILA1\1307132\1 099997.000