

# **THE EARLY HISTORY OF PVC PIPE**

By

**Robert Walker, P.E.**

**Uni-Bell PVC Pipe Association**

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**“Many of you have expressed a curiosity about the historical development of PVC pipe. In response to your requests, we provide you with this brief early history of PVC pipe and fittings.**

**PVC was discovered as early as 1835, but the first definite report of the polymerization of vinyl chloride did not come until about 35 years later. At that time, the material was reported to be an off-white solid that could be heated to 130 degrees C without degradation.**

**PVC remained a laboratory curiosity for many years, probably because of its intractable nature. The polymer was inert to most chemicals and very tough (strong). These properties eventually led scientists to consider PVC for applications where durability and toughness were desirable.**

**In 1912 the first industrial developments were initiated in Germany. Throughout the 1920's, attempts were made to use PVC copolymers that easier to process than PVC. These early attempts were only marginally successful.**

**By 1932, the first tubes made from a PVC copolymer were produced. Nearly three years later the first PVC pipes were produced using a roll mill and hydraulic extruder. This two step process involved melting the PVC powder on a roll mill and rolling the sheet produced up to a billet. The PVC could then be processed in a discontinuously working ram extruder to make pipe. This process was adapted from that used for celluloid and was really ill-fitted for PVC. As a result, the products were often of dubious quality.**

**Never-the-less, these early PVC pipes were deemed suitable for drinking water supply piping and waste water piping because of their chemical resistance, lack of taste or odor and smooth interior surface. From 1936 to 1939 over 400 residences were installed with PVC drinking water and waste pipelines in central Germany. Various test pipelines of PVC were laid in Leipzig, Dresden, Magdeburg, Berlin, Hamburg, Cologne, Heidelberg and Wiesbaden during the period of 1936 to 1941.**

**Both the pipelines for chemicals and those for water supply and waste water came up to expectations, as did the test pipelines in the cities mentioned above, apart from damage caused by World War II. The PVC pipes installed in central Germany are still in use today without any major problems.**

**In retrospect, these first PVC pipes had been made before their time, before the material compounds and machines for their manufacture had been perfected. It was not until 1950 that the systematic development of extrusion technology began. Prior to this, the manufacture of PVC pipe remained makeshift and the use of PVC pipes did not become widespread.**

**The 1950's and 1960's were decades of dramatic advances for PVC pipe and fittings technology. Encouraged by the results obtained from primitive pre-war PVC pipelines, several European and American companies realized the enormous potential for PVC pipes. These companies pursued the technology, both in formulation and processing. Systematic research and trials were successful in the development of effective stabilizers, lubricants and processing aids, together with processing machinery engineered specifically for PVC. During this time period, PVC pipe began competing with traditional products in a number of major markets, such as: gas distribution; sewer and drainage; water distribution; electrical conduit; chemical processing; and drain, waste and vent piping."**

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