

Similarities of plastic tape and pipe by David A. Chasis

A well-known Midwest company is celebrating its vinyl electrical tape's 60th anniversary. Like PVC pipe, vinyl tape was created to solve problems. The dominant insulating tape in use in the 1940s was composed of tar, cotton and rubber. This tape was expensive, prone to rotting, not very strong and difficult to apply. Doesn't this problem scenario sound familiar? In the '40s, metal piping was expensive, difficult and unsafe to join, lacked durability, especially in aggressive environments — and not very environmentally friendly (although in the '40s era the environment wasn't even a blip on the radar screen of any special interest group).

In a short period of time, vinyl tape, due to its strength, stretchability, adhesiveness and price competitiveness, be-

came the market leader and preferred supplier — not only of the insulating tape market but for markets never even dreamed. And so it is with plastic piping.

In a relatively short time period, thermoplastic piping became the preferred supplier in such diverse markets as hot/cold water distribution, water mains, drain/waste/vent, sewer, irrigation systems, gas distribution, swimming pools, acid/chemical drainage and several others. Why? Plastics are environmentally sound, easy and safe to install, reliable, long-lasting and cost-effective.

Another similarity of "wunderkind" tape and pipe is the use of Japan's very valuable contribution in the engineering world — "kaizen." Kaizen in English translates into a focused constant im-

provement mentality used in the manufacturing and product design process. Since the introduction of vinyl tape in 1947, there have been a minimum of 16 improvements in this product. Plastic piping manufacturers in the last several decades have made even more improvements than its tape cousins.

Consider some of these innovative piping product improvements in just the last 30 years: high impact and high-temperature compounds, electrofusion joining methods, translucent and multicolored compounds, spirally wound drainage piping, ultra-high purity compounds, flame and smoke retardant compounds, reduced volatile organic compounds (VOCs) used in cementing, joining using infrared heat fusion, molecular biaxially oriented compounds, compounds especially designed for compressed air and gases, cross-linked polyolefin compounds, composite piping systems of plastic and metal, liners designed specifically for slipping into failing nonplastic piping systems, spline and grooved couplings for mining applications, injected molded fittings for pressure applications up to 12-inch in diameter, fluoropolymer compounds for chemically challenging environments and temperatures approaching 300°F (148°C), specially designed compounds for fire sprinkler systems, push-fit joining systems for small diameter piping systems, and dozens more.

With the advent of applied nanotechnology and more advanced organic chemical research, the future of plastic piping has few limits. For many plumbing and mechanical design engineers and installers, change is not easy to accept especially in the field of piping. But as the marketplace embraces and rewards new piping technology that provides products that are safe, durable, sustainable and cost-effective, plastics will continue to lead the way. Just as vinyl tape has become a toolbox staple, plastics will continue to be the preferred material in most piping applications now and in the future. ■

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