

Why plastic piping?

by David A. Chasis

Two major criteria for purchasing a car or for that matter any non-commodity product are performance and cost. These should be the exact same parameters when choosing piping systems — performance and cost. Yet in the piping mythology, adhered to by some unscientific and myopic agenda activists, these two major factors are laid aside or treated as insignificant. Maybe the reason for the activist's illogical conclusions is due to the Western World's need to bash or find fault with any hugely successful, company, product or celebrity. Certainly this could be a major reason for all the negativity in recognizing the unbelievable revolutionary success of thermoplastic piping during the last 40 years.

Throughout the world, polyvinyl chloride (PVC), polyethylene (PE), polypropylene (PP), chlorinated polyvinyl chloride (CPVC), cross-linked polyethylene (PEX), acrylonitrile-butadiene-styrene (ABS) and polyvinylidene fluoride (PVDF) piping systems have made tremendous inroads in such applications as residential and commercial drain/waste/vent, hot and cold water distribution, chemical processing, acid waste draining, irrigation systems, fire sprinkler systems, swimming pools,

well casing, natural gas distribution and several others. So why in just four decades have plastics overtaken metal, asbestos-cement and clay pipe in many applications? Right, you guessed it — performance and cost.

Let me explain. In most cases plastics cost less than other piping materials but the real cost savings is that plastic piping is easier to install (lightweight), maintain (almost no corrosion or chemical attack), and has less onsite thefts. Plastics are a non-conductor and require no or minimum insulation. All thermoplastic piping systems have optimum flow characteristics and are more abrasive resistant than most other piping systems. These characteristics allow plastics to have less friction loss in the pipe allowing the need for less energy to convey fluid from point A to B and, due to the abrasion resistance characteristic, most plastics can handle fluids at higher velocities than non-plastic piping systems. This attribute can reduce the pipe diameter size saving piping costs and, in the case of hot water distribution, realize a savings in water usage.

Plus, the joining systems for many plastic piping systems produce a homogenous, monolithic joint which means no intrusion or extrusion of fluids. For example, a recent study of municipal piping pointed out that based on equal amounts of cast iron, ductile iron, asbestos-cement and plastic piping, plastics showed it was head and shoulders over other pipe materials and accounted for just a fraction over 1 percent of all repairs. On top of all these benefits, thermoplastic piping has excellent sustainability regarding issues of economy, energy and environment.

So the bottom line is this, thermoplastic piping systems are environmentally sound, easy and safe to install, reliable, long-lasting and cost effective. These are just some of the reasons for the resounding success of plastics. Critics of plastics can harp on unproven reasons not to use these materials but they ignore the main fact — the marketplace has embraced plastics as its preferred piping material. ■

David A. Chasis is president of Chasis Consulting Inc., author of the book *Plastic Piping Systems*, and a member of and consultant to the Plastic Pipe and Fittings Association. Chasis can be reached at Chasis Consulting Inc., 329 The Hills Drive, Austin, TX 78738 USA; (512) 261-9115, fax (512) 261-3518, e-mail: dchasis@austin.rr.com, www.davidchasis.com.



PVC (1/16th the weight of most non-plastic piping) minimizes on-site heavy equipment, allows easier installation in close quarters and eliminates many job-site safety issues.

PLASTIC PIPING SYSTEMS ARE VITAL TO GREEN BUILDING

Did you know the following facts about plastics?

Save Energy & Water

Plastics use less energy to manufacture, install and transfer fluids when compared with competing materials.

Make Sustainability Affordable

Plastics have lower material and installation costs than competing materials.

Enable Sustainable Systems

Plastics enable systems that save lives, water, and energy.

Are Designed for Durability

Plastics do not corrode. They are engineered to have a long service life.

Contribute to Green Building Certification

Plastics are used in geothermal, radon venting, gray water, rain water, radiant heating, fire sprinklers, central vacuum and other sustainable systems.



PVC industrial process piping including actuated butterfly valves.



Polyvinylidene fluoride (PVDF) chemical processing and drainage systems.



Pallets of PVC purple piping for reclaimed and gray water applications.