

Plastic Pipe Institute Recommendation Regarding the Use of Thermoplastic Piping for the Transport of Compressed Air or Other Compressed Gases

The Plastics Pipe Institute has issued the following recommendation regarding the use of plastic pipe for compressed air systems:

“The evaluation of thermoplastic piping for compressed gas service should consider all pertinent design and safety factors. Chemical effects oxidation and temperature should be taken into account. The Plastics Pipe Institute recommends that thermoplastics piping intended for the transport of compressed air or other compressed gases should be installed by burial, encasement in shatter resistant material, or other appropriate means, to prevent or minimize the possibility of mechanical damage.

Thermoplastic piping that fails from mechanical impact by shattering or whipping can be hazardous to personnel. The potential safety hazard posed by failure must take into consideration the nature of the material, internal pressure, pipe size, and the nature of the gas.

Aboveground installations of thermoplastic piping should be installed per the manufacturer’s recommendations using only products that are recommended by the manufacturer for the particular intended service. Some thermoplastic pipe materials have limited resistance to shatter-type failures from mechanical impact. Suddenly released compressed gas can propel pipe shards or fragments. Materials that can fail by shattering pose a hazard to employees if they are installed above ground without encasement or other protection.

Other thermoplastic materials that resist shattering, may be sufficiently flexible that if there is a failure or separation of the piping the piping can whip about uncontrollably as the pipe is propelled by the energy of the suddenly decompressing gas. Flexible aboveground piping should be properly restrained to prevent or limit whipping of the piping material.”

This material is “Recommendation B” from the Plastics Pipe Institute. Recommendation B was originally adopted January, 1972, revised in October, 1997, and revised again in 2005.

This Tech Sheet was developed by the members of the Compressed Air and Gas Institute (CAGI). CAGI is the leading organization representing manufacturers of compressed air system equipment, including air compressors, blowers, pneumatic tools, and air drying and filtration equipment. CAGI Tech Sheets are information tools and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific instructions regarding their equipment.

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