

# Handbook of Polyethylene (PE) Pipe

## Foreword

PE piping, has been successfully utilized for a variety of piping applications for over 50 years. Despite this relatively short history, the engineering community has embraced the overall toughness and durability of PE pipe and the latitude afforded by the variety of installation methods that can be employed using PE pipe to expand its use at a quickening rate.

Today, we see PE piping systems operating in a broad array of installations; from pressure-rated potable water and natural gas lines to gravity sewers, from industrial and chemical handling to telecommunications and electrical ducting; from oil and gas production to marine installations and directional drilling.

This text has been developed to assist designers, installers and owners in the design, rehabilitation and installation of solid wall PE pipe. Applications using profile wall PE pipe are addressed briefly; applications using PEX pipe (for plumbing, heating, ...) and applications using corrugated PE pipe (for drainage, ...) are covered in multiple and separate PPI publications.

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The material presented in this text has been written in a manner that is easily understood, with an emphasis on organization to provide the reader with ease of reference. It is only because of our efforts to be as comprehensive as possible with respect to the subject matter that have resulted in such an extensive publication.

The overall work consists of essentially three fairly discreet sections, each consisting of several chapters. The chapters in the first section cover introductory type information including the origins and growth of the PE pipe industry in North America, the unique features of PE pipe material, its manufacture, handling, storage, field inspection and testing, and safety considerations. This section also includes a chapter dealing with the subject of the product specifications and codes that apply to PE pipe. Completing this section is a comprehensive chapter covering the engineering and physical properties of the PE pipe materials and of the finished pipe product itself.

The second section, or design section, consists primarily of design considerations and includes chapters on pipe design, joining procedures, and basic information on buried and above-ground installations.

The final section of this text is comprised of a set of chapters that provide the reader with detailed information regarding design considerations, installation techniques, repairs and operation of PE pipe in a variety of specific applications, such as directional drilling, pipe bursting, marine, conduit, HVAC.

The overall work concludes with an extensive glossary and, of course, an index to provide ease of reference for specific topics of interest. The organization of the subject matter should allow the reader to quickly reference a specific area of interest or, moreover, for the college educator to utilize specific sections of the handbook within the context of a college curriculum.

This handbook has been developed by the PPI as a service to the industry. The information in this handbook is offered in good faith and believed to be accurate at the time of its preparation, but is offered without any warranty, expressed or implied, including warranties of merchantability and fitness for a particular purpose. Additional information may be needed in some areas, especially with regard to unusual or special applications. In these situations, the reader is advised to consult the manufacturer or material supplier for more detailed information. A list of member companies is available on the PPI website. Also, the reader has to refer to the website to download a copy of the Errata Sheet.

PPI intends to revise this handbook from time to time, in response to comments and suggestions from member companies and from users of the handbook. To that end, please send suggestions for improvements to PPI. Information on other publications can be obtained by visiting the website.

## **The Plastics Pipe Institute**

This handbook has been developed as a result of a task group initiative within the Plastics Pipe Institute (PPI). Founded in 1950, the PPI is the major trade association representing all segments of the plastics piping industry. PPI is dedicated to the advancement of PE pipe systems by:

- Contributing to the development of research, standards and design guides
- Educating designers, installers, users and government officials
- Collecting and publishing industry statistics
- Maintaining liaisons with industry, educational and government groups
- Providing a technical focus for the plastics piping industry
- Communicating up-to-date information through our website [www.plasticpipe.org](http://www.plasticpipe.org)

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