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The Plastics Pipe Institute

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PPI's Key Elements

The **trade organization** and the **PPI Hydrostatic Stress Board**

Overview - PPI the trade organization

■ Comprises companies along the entire thermoplastic pipe industry value chain

- Manufacturers of resin, pipe, fittings, equipment, ingredients and additives
- Test laboratories, consultants, foreign affiliates, and many others

■ These companies contribute to the confidence of the pipe systems throughout the numerous applications.

Overview - PPI Hydrostatic Stress Board (PPI HSB)

■ 25 member board comprises individuals recognized in the thermoplastic pipe industry for their expertise of the various materials, pipe, ingredients and additives.

■ PPI HSB focuses on addressing critical industry issues where solutions also contribute to the confidence of the thermoplastic pipe used in the vast array of applications.

Watch the PPI-Voice of an Industry video to understand the concert of activities!

http://plasticpipe.org/video.html

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PPI and PPI HSB History

• **1951:** The **Society of Plastics Industry (SPI)** establishes

- The **Thermoplastics Pipe Division (TPD)**
- In turn, the TPD establishes the **Test Methods Committee (TMC)**

• **1952:** The TPD members voted to participate in the US Department of Commerce National Bureau of Standards (NBS) program which issued commercial standards.

- Dr. Frank Rheinhart, Chief of the Plastics Section NBS, liaison to TPD TMC.

• **1953:** TPD retains the **Batelle Memorial Laboratories** to identify the most appropriate test methods to evaluate thermoplastic pipe materials and pipe for pressure applications.

- Methods later become consensus standards, ASTM D1598 and ASTM D1599

• **1954:** The US Department of Commerce issued their first commercial standards for thermoplastic pipe: CAB, ABS, PVC. Also, **ASTM-SPI F17 Subcommittee** (Thermoplastic Pipe) is formed under **ASTM D-20 Plastics Committee**.

- F17 develops requirements for materials in pipe applications and test methods.
- In 1960, scope expanded to cover the development of standards for pipe.

• **1956:** **National Sanitation Foundation (NSF)** proposes the "NSF Seal" of approval for pipe determined to be toxicologically safe for the transport of potable water.

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PPI and PPI HSB History

- **1958:** The TPD TMC establishes the **Working Stress Subcommittee (WSS)**.
  - NSF expands to include performance requirements of pipe standards.
  - TPD retains Batelle Memorial Laboratories for Phase II to develop testing for the determining of the long-term strength properties of thermoplastic pipe material upon which a design stress can be established.
- **1961:** draft "Method for obtaining hydrostatic design basis" was accepted by TMC.
- **1962:** **Dr. Frank Rheinhart** becomes **first Technical Director** after retiring from NBS.
- **1963:** TPD changes their name to the **Plastics Pipe Institute (PPI).**
  - The WSS issues their first recommended HDS is for water at 73F.
- **1967:** Method for obtaining hydrostatic design basis is published, **PPI TR-2/1967** published, *"Recommended Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe"* and the WSS changes name to the **Hydrostatic Stress Committee (HSC).**
- **1969:** minor changes made to PPI TR-2/1967, and republished as **ASTM D2837**, "Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials'.
- **1983:** HSC changes name to the **Hydrostatic Stress Board (HSB).**
- **1999:** PPI becomes an independent trade organization and continues to focus on driving improvements in thermoplastic pipe industry.

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PPI HSB: Who they are today

With the diverse knowledge base and long-standing history, the PPI HSB continue to focus on the evaluation of the long-term hydrostatic strength of compounds and pipes made from materials and ingredients used for thermoplastic pressure pipe in a global complex industry.

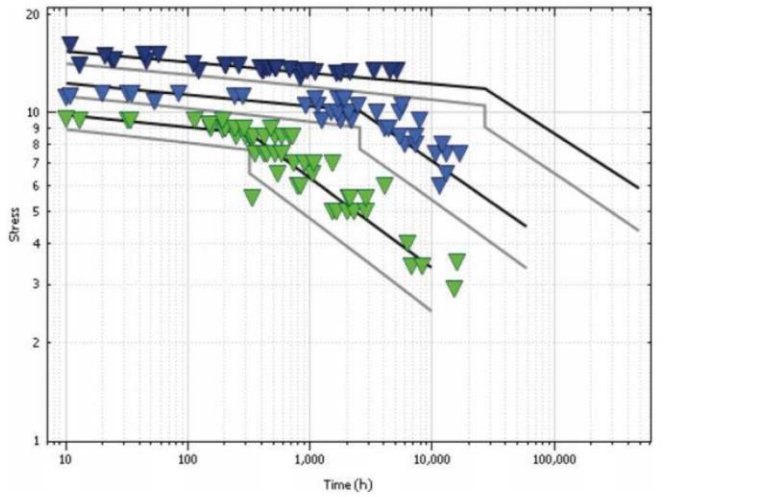

FIG. 3—*Early generation (circa 1970s) PE materials showing forecast of ductile/brittle transition (lines depict the mean and the 95% LCL curves).*

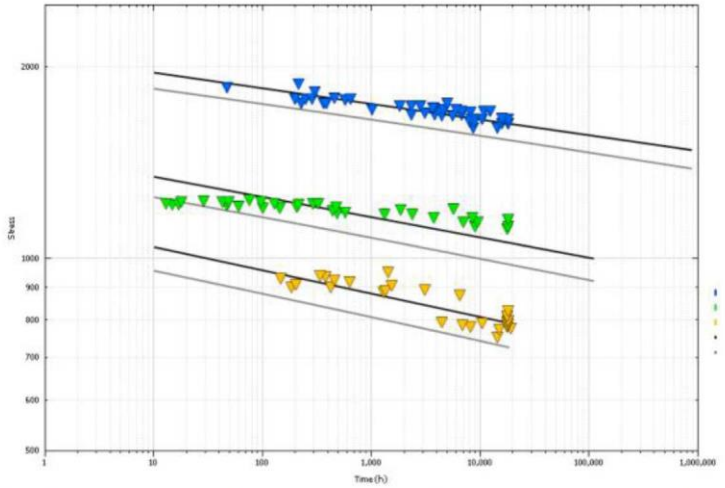

FIG. 4—*Multi-temperature (73, 140, and 176°F) stress rupture curves of high performance PE material where all failure points are ductile in nature.*

**Journal of ASTM International, Vol 8, No.9, Long-Term Hydrostatic Strength and Design of Thermoplastic Piping Compounds.*

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PPI Trade Organization

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PPI The Trade Organization

The Five PPI Divisions

- Building & Construction, Conduit, Corrugated pipe, Energy Piping Systems, Municipal & Industrial.

PPI Key Technical Reports (TRs) and Technical Notes (TNs)

- These documents contribute to the thermoplastic pressure pipe industry by providing guidance on the use of the various compounds. Examples include
  - TR-33, Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe
  - TR-45, Butt Fusion Joining Procedures for Field Joining of Polyamide-11
  - TR-47, Pipe Stiffness and Flattening Tests in Coilable HDPE Conduit; and its Relationship to Burial Depth in conduit Applications
  - TR-48, R-Value and Thermal Conductivity of PEX and PE-R
  - TN-34, Installation Guidelines for Electrofusion Couplings 14" and Larger
  - TN-38, Bolt Torque For Polyethylene Flanged Joints
  - ....and other documents of use

Does your specific application have a need?

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The PPI HSB Listing Program

PPI HSB Listing Program

PPI HSB Key Technical Reports (TRs)

- **TR2:** PPI PVC Generic Range Formulation listings and policies/ procedures
- **TR3:** Policies and Procedures for different thermoplastics pipe
- **TR4:** All public listings for pipe (exclude the PVC Generic Range Formulations)
- PPI HSB Online Database: complete database of all active listings
  - accessible by listing owners (only their specific listings)
  - searchable by those with interest in the products.
  - http://plasticpipe.org/hsb-listing.html (click on “Search Listings”)

The PPI Listing Program (key points)

- The PPI HSB Listing Program is a voluntary program developed in the 1950s.
- The listed products demonstrate a certain level of 'due diligence' as the PPI HSB Listing program is very rigorous.
- Policies and Procedures are detailed in PPI TR-3 and PPI TR-2.

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Benefits of a PPI HSB Listing

- The PPI HSB Listing Program is a voluntary program developed in the 1950s.
- Listings demonstrates the high level of commitment by companies and the global thermoplastic pressure pipe industry by contributing to the reliability of the pipe systems.
- End users recognize the credibility of the PPI HSB listings as it comprises a rigorous 'due diligence' process in order to obtain and maintain the listing. This raises the confidence level of the pipe installed into the different pressure pipe systems.
- The PPI HSB Listing Program is recognized for technical excellence and practice of good science!

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