

Polyethylene Piping Distribution Systems for Components of Liquid Petroleum Gases

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Foreword

POLYETHYLENE PIPING DISTRIBUTION SYSTEMS FOR COMPONENTS OF LIQUID PETROLEUM GASES

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The purpose of this technical report is to provide important information available to PPI on a particular aspect of polyethylene piping systems for distribution of liquid petroleum gases. This report has been prepared by PPI as a service of the industry. The information in this report is offered in good faith and believed to be accurate at the time of its preparation, but is offered “as is” without any express or implied warranty, including WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Any reference to or testing of a particular proprietary product should not be construed as an endorsement by PPI, which does not endorse the proprietary products or processes of any manufacturer. The information in this report is offered for consideration by industry members in fulfilling their own compliance responsibilities. PPI assumes no responsibility for compliance with applicable laws and regulations.

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1.0 INTRODUCTION

Polyethylene (PE) gas piping is the most widely used plastic piping material for the distribution of natural gas. PE has a well-documented inertness to both the external soil environment and to natural gas. Extensive testing and over 45 years of successful field experience confirm that the long-term strength of polyethylene is unaffected by natural gas and its common constituents.

Polyethylene (PE) piping systems complying with ASTM D 2513 have been successfully used in all types of fuel gas piping applications since the mid 1960s. These PE piping materials have been continually improved throughout the ensuing three decades assuring the safe, cost effective, transport of fuel gases in residential, commercial and industrial applications.

PE piping is the only approved plastic piping under NFPA 58, *Liquefied Petroleum Gas Code*, and is commonly used in the piping of liquefied petroleum gases (vapor LP-Gas). To be Code-complaint, PE lines must transport gas only in a vapor state, and therefore, must operate at 30 psig or less to avoid LP gas liquefaction. Vapor LP-Gas is one of those fuel gases, which can be safely piped in PE gas piping systems. The use of D 2513 PE piping for the transport of vapor LP-Gas is permitted and codified under US DOT CFR Title 49 Part 192. By reference, Part 192 identifies ANSI/NFPA 58 –as the installation standard for PE vapor LP-Gas piping systems.

NFPA 54 / ANSI Z223.1 – *National Fuel Gas Code* paragraph 2.6.4 also refers the user to ANSI/NFPA 58 by stating “The use of plastic pipe, tubing and fittings in undiluted liquefied petroleum gas piping systems shall be in accordance with *Standard for the Storage and Handling of Liquefied Petroleum Gases [Liquefied Petroleum Gas Code]*, NFPA 58.”

NFPA 58 places certain restrictions on the use of PE piping for vapor LP-Gas distribution. NFPA limits the size of PE piping to 2” NPS piping with a nominal OD of 2.375”. Furthermore, NFPA 58 limits the maximum operating pressure of PE vapor LP-Gas piping systems to 30 psig. The reader should refer to NFPA 58 for the details of these and other installation requirements.