

# INEOS

## Olefins & Polymers USA

### PE100: Performance Plus

Steve D. Sandstrum\*  
INEOS Olefins & Polymers USA  
Battleground Technical Center, La Porte, TX

#### ABSTRACT:

This is the third in a series of papers prepared at the request of the AGA-PMC to educate the US gas distribution industry on the history and benefits of PE100 polyethylene resins for gas piping applications. (1) In this paper, we will briefly review the origin of PE 100 and its performance history outside of the US as well as the standards by which PE 100 resins are classified. Typical physical properties for PE 100 will be explained and the relationship to pipe and fitting performance explored. The paper will conclude with specifics regarding enhanced performance of PE gas pipe produced from PE100 resin as it relates to higher pressure capability, improved slow crack growth resistance and enhanced resistance to rapid crack propagation.

#### INTRODUCTION:

The continuing expansion of applications for HDPE pipe has led to extensive research and development of higher performance polymers. Recognizing the needs of specific end uses such as natural gas distribution, resin companies in collaboration with pipe producers continue to develop materials which offer higher levels of performance as defined under internationally recognized

standards. "PE100" is one such evolution which has generated a significant amount of interest within recent years on an international level. This singular term has become synonymous with higher levels of performance in both water and gas HDPE pipe applications. Born within the ISO methodology, PE100 continues to be at the forefront of international focus for new piping applications. This paper shall provide a basic understanding of the nature of PE100 and shall focus specifically on the improved performance benefits it offers the gas distribution industry.

#### WHAT is PE100?

The term PE100 refers to the classification of polyethylene resins for piping applications using ISO 9080 and ISO 12162. (1) (2) ISO 9080 is one of the most widely recognized standard methodologies for regression analysis of piping materials in the world. .

(1) The first two paper in this series were: a) "What is PE100?" presented at the AGAPMC Winter Workshop, 1999 in New Orleans, LA, and b) "PE100 vs. PE3408: Can Someone Please Explain These?" presented at the AGA Operations Conference, 1999 in Cleveland, Ohio.

---

\* Now with ISCO Industries LLC

