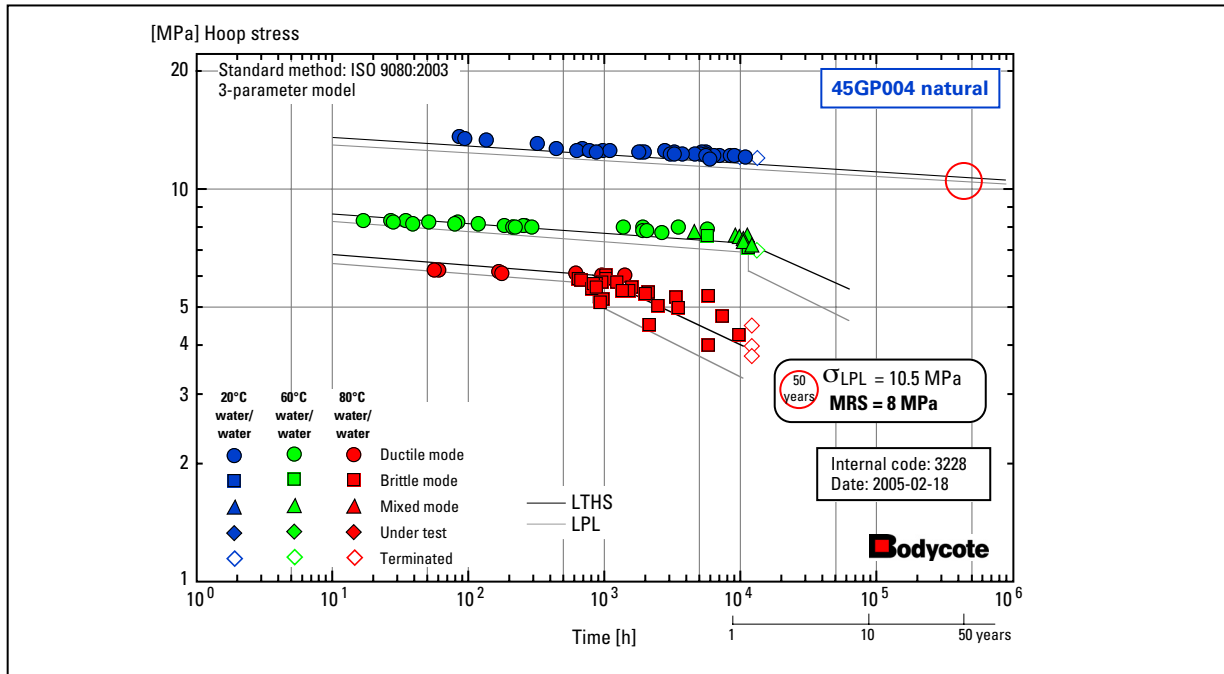


Client: Reliance group of Industries

# Regression analysis according to ISO 9080 of the PE pipe grade 45GP004 natural



## Introduction

Bodycote Polymer offers accredited testing and evaluation according to ISO 9080:2003, i.e. hydrostatic pressure testing followed by evaluation of the long-term hydrostatic strength and MRS-classification according to ISO 12162.

## Task

The aim was to use the Standard Extrapolation Method (SEM) according to ISO 9080 in order to obtain a classification of the PE pipe grade 45GP004 natural from Indian Petrochemical Corporation (A Group company of Reliance Industries Limited).

The work covers hydrostatic pressure testing at 20, 60 and 80°C and a SEM-evaluation according to ISO 9080.

## Results obtained

The evaluation was performed in accordance with ISO 9080. The 3-parameter model gave the best fit. The test results are presented in detail in Bodycote Report P-06/54.

### Number of observations

20°C	60°C	80°C
33	33	35

### Extrapolated strength values

Temp °C	Time yrs	$\sigma_{LPL}$ MPa	$\sigma_{LTHS}$ MPa
20	50.0	10.545*	11.096
20	100	10.366	10.929
60	7.11	4.632	5.574
80	1.19	3.301	3.978

\*Although the  $\sigma_{LPL}$  indicates PE 100 it was agreed that the material is classified as PE 80 on the request of the customer as the same is being marketed as PE 80.

**Classification: MRS = 8 MPa**