

Study on PVC pipe products and causes of failures

Ikram Husain, Nesar Merah, Husain J. Al-Gahtani, Shamsad Ahmad, and Fareeduddin

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Abstract:

The study was carried out to determine the types and causes of failures occurring in the pipes in Riyadh water distribution networks. The main objective of this study was to evaluate the performance of PVC pipes used in water transportation and assess the probable causes of failure of PVC piping encountered. The study included also an investigation of pipe handling and pipe laying practices. This extensive study was conducted during the period covering from October 2003 to September 2005. This report presents a summary of the study, introduction, literature review, experimental scheme, results and discussion, conclusions and recommendations.

Experimental work and data analysis included important tasks such as: i) procurement of fresh and failed PVC pipe samples and soil samples, ii) failure analysis of failed pipes, iii) quality evaluation of failed pipes gathered from failure sites, iv) study of parameters related to pipe installation, v) measurement of pressure transients and temperatures in water distribution network, vi) quality evaluation of fresh PVC pipes, vii) conduct of weathering trials on fresh PVC pipe samples, and viii) statistical analysis of failed pipe reports.

Based on the findings of this study, important conclusions pertaining to the causes of pipe failures were drawn and accordingly recommendations were made to prevent the failure of pipes in future.