

*Correlations of some tensile  
Properties for Various grades of high density  
Polyethylene produced by the state company for  
petrochemical industries.*

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**ABSTRACT.** The tensile Properties of eight different grades of high density polyethylene were measured , and the relationships resulting from the combination of different pairs of properties were analyzed. It was found that some properties correlate well together, with a correlation coefficient better than 0.8. Such correlation will be useful in easily predicting the tensile properties of high density polyethylene produced in the state company for Petrochemical Industries.

**INTRODUCTION**

Polyethylene is a wax-like thermoplastic softening at about 80-130 °C with a density less than that of water. It is commercially produced from ethylene, the polymer being produced by this route in 1933. Later three technological routes were developed relating to the polymerization of ethylene, the first using metal oxide catalyst ( the Phillips Process ), the second using aluminum alkyl or similar materials (the Ziegler process) and the third using metal oxide in combination with a promotor ( The standard oil

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