

## Study of the physical and thermal properties of composite polymers of high density polyethylene (HDPE) -porcelain obtained by experimental approach.

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### ARTICLE INFO

#### Article History:

Received : 20/08/2018

Accepted :10/10/2018

#### Key Words:

Composite polymers;  
Tri-layer coatins;  
Mechanical properties.

### ABSTRACT/RESUME

**Abstract:** Composites of HDPE-porcelain with an average diameter of 51.961  $\mu\text{m}$  have been developed. . Experimental results, tensile tests show that the elongation at break and the tensile strength increase in the presence of the porcelain particles in the HDPE more precisely in the material (80wt. % HDPE + 20wt. % porcelain). The DSC results show a melting temperature shift of HDPE to high temperatures in the presence of porcelain particles up to 128.37°C for the 20wt. % porcelain sample. The heat treatment at 1380°C of the porcelain powder which was used as reinforcement in the HDPE matrix, the mullite needles form a network within the vitreous phase, the porosity decreases by the reduction of the black voids observed in the MEB images.