POSTER

NANOCOMPOSITES OF RIGID POLYURETHANE FOAM

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Abstract

Nanocomposites of polyurethane foam on the other hand, constitute a new class of materials with an ultrafine phase dispersion whit - (Bentonite clay) of the order of a few nanometers that endows them with unique properties not shared by conventional materials and offers a new technological and economic opportunities.[1] Nanocomposites preparation, characterization and properties have been previously reviewed by: Mulhaput[3-4], Giannelis[5], Legaly[6] and Frisch[7].
In this work we will give a proposal of a constructive system for the construction, improving their mechanical properties and of fire slowing. through nanocomposites of polyurethane foams. The method that we used, was a molecular level incorporation of the layer silicate (Bentonite) into the polymer by addition. and modified silicate, whit Sour Aminoundecanoic, Either during the polymerization (in situ method) In – situ Polymerization of monomers confined in molecule – sized spaces has been use in the past to synthesize

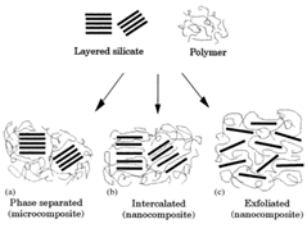

Image [1]

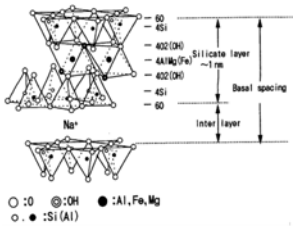

Image [2]

However, we used the norms ASTM-D – 3014 – 99 Standard Test Method for Flame Height, Time of Burning, and Loss of Mass of Rigid Thermo set Cellular Plastics in a Vertical Position, in other way, the release of heat by the polyurethane nanocomposites over a longer period, however, points to its slower degradation. And the best proprieties is slowing the Drip, whit a few percentage of nanocomposites, only 3%, of Bentonite – clay.
And Mechanical properties, According to the norms ASTM –D 3574 – 95 “Stand Test Methods for flexible cellular material. – Slab, bonded, and Molded Urethane Foams. Was improve the resistance, whit Bentonite – clay.
Finally, If we apply the nanocomposites of silicates (Bentonite-clay), to slowing concentration we get a positives result of flammability properties, such as slowing the Drip, whit a few percentage of nanocomposites, only 3%, of Bentonite – clay.

Image 3 image 4 image 5

Image [1] Schematic representation of composite structure obtained using layered silicate.
Image [2] Idealized structure of 2:1 layers silicate showing two tetrahedral – site – sheets (containing aluminum or magnesium) fused to an octahedral – site – sheet. (containing aluminum or magnesium)
Image [3-5] Test of flammability.

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