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Synthesis of Some New Functionalized Octasilsesquioxane Hybrid Nanoclusters. III. Potential of the Octameric Clusters as Hydraulic Lubricating Fluids

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Abstract: The reaction of suitable organic compounds such as ω -halo-1-alkenes, allyltrichlorosilane or 2-methyl-3-butyn-2-ol in combination with a well-defined inorganic silsesquioxane, $H_8Si_8O_{12}$ A cores, leads to covalently bound organic-inorganic hybrid materials in high yields. The hydraulic fluid properties of these viscous hybrid materials were evaluated and compared with those of some commercially available hydraulic fluids: Mobil EAL 224H, Super-V (AP) and Puroil SHO. The results showed that most silsesquioxane semi-liquids possess hydraulic fluid properties comparable to those of the 3 commercial lubricants.

Key Words: Hydraulic fluid property, hybrid material, nanocluster, octasilsesquioxane

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