dehydration, as in the case of 2-propanol, no differences are observed among the ytterbia samples. On the contrary, for % 1-pentene and cis/trans ratios the variations are rather analogous to those observed for the sesquioxides.

The study of the textural properties of Yb_2O_3-(HYD) and Yb_2O_3 (GR) shows notable differences to each other, the latter one being an essentially nonporous sample. This suggests that the fraction of the total surface area corresponding to the narrower pores has a minor contribution to the overall reaction rate, which would be more closely related to the external surface area than to BET surface. When Fig. 2 is analysed, it can be deduced that the preparation method affects not only the effective surface area but also, as % 1-pentene and cis/trans ratio changes show, the distribution of centers participating in the dehydration reactions.

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Neodymium Catalysts for Diolefin Polymerization. Influence of the Anionic Ligand Bonded to Neodymium on the Stereospecificity

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Heterogeneous Neodymium containing systems for the polymerization of diolefins to *cis*-1,4 polymers are well known. We have focused our attention on homogeneous catalysts prepared from Neodymium complexes and Aluminum tri-alkyls able to polymerize diolefins and have found that the stereospecificity of the catalysts can be modulated through the variation of several parameters such as the nature of the anionic ligand bonded to Neodymium, the Al/Nd ratio, the concentration and type of Aluminum alkyl in the catalyst. Among these parameters the most efficient in affecting the polymer microstructure is the nature of the anionic ligand bonded to Neodymium. In order to study this effect, the following Nd compounds have been used in combination with $Al(iBu)_3$ for the preparation of the catalysts: $NdCl(OCOCF_3)_2$, $NdCl(OR)_2$, $Nd(OCOCF_3)_3$, $Nd(acac)_3$, $Nd(OR)_3$ (R = isopropyl, neopentyl).

All these catalysts gave polybutadienes with a predominantly 1,4 structure (the content of 1,2 units ranged from 3 to 12%) but with strikingly different *cis/trans* ratios, varying almost continuously from 98.5% *cis*-1,4 with $NdCl(OCOCF_3)_2$ up to 95% *trans*-1,4 with $Nd(OR)_3$ (R = neopentyl).

The nature of the anionic ligand was found to remarkably affect also the rate of polymerization: the halogen containing Neodymium compounds gave the catalysts with the highest activity.