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TITLE: (6) Infrared absorption spectra of diaspor  $\alpha$ -AlOOH, boehmite  $\gamma$ -AlOOH and GaOOH

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TEXT: Specimens of natural and synthetic diaspor, GaOOH, boehmite and deutero-boehmite were studied in the spectral region 420-4000  $\text{cm}^{-1}$ . The comparatively high values found for the  $\delta(\text{OH})$  frequencies and the presence of moderately stable hydrogen bonds in the lattice of diaspor and GaOOH suggest that the Al-O and Ga-O bonds in these crystals are largely covalent, as is the Al-O bond in boehmite. The valence oscillations of these bonds correspond to bands with frequencies of 760  $\text{cm}^{-1}$  for diaspor, 720-780  $\text{cm}^{-1}$  for boehmite, and 640  $\text{cm}^{-1}$  for GaOOH. In the case of boehmite the  $\nu(\text{OH})$  frequencies vary with time and depend substantially on the way in which this compound is prepared. The OH...O bond may be

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Infrared absorption ...

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curved and not straight. The origin of bands in the 1950-2100  $\text{cm}^{-1}$  spectral region of boehmite and diaspor cannot as yet be established. It is also impossible to interpret simply the area below 650  $\text{cm}^{-1}$  in the diaspor spectrum and 600  $\text{cm}^{-1}$  in the GaOOH spectrum. There are 4 figures.

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