Infrared Spectroscopic Analysis of Spin Induced Thermochromism in [Fe(NH2trz)3]Br2·H2O

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The aim of the project was to discern the cause of thermochromism in [Fe(NH2trz)3]Br2·H2O. It was hypothesized that it occurred due to a spin transition, which would be measurable through IR-spectrometry and magnetic measurements. To conduct the measurements, the product was synthesized and tested when heated and cooled. As predicted, the complex became paramagnetic when heated. The hypothesis was however only partially true for the IR-spectrometry, which had shifts in both directions. Despite this, it was concluded that the complex had in fact exhibited a spin transition, and that the cause of the thermochromism most likely was a Jahn-Teller distortion or a change in the energy of the transitions, although it could not be verified.