

A method for obtaining an iron-containing complex with a spin transition of the formula $[\text{Fe}(\text{pz})_2(\text{BH}_3\text{CN})_2]$, where pz is pyrazine, comprises obtaining an ethanol solution of $\text{Fe}(\text{BH}_3\text{CN})_2$ by dispersing a twofold excess of 2, 5 % solution of NaBH_3CN in ethanol, followed by mixing with a 20 % solution of $\text{Fe}(\text{OTs})_2 \times 6\text{H}_2\text{O}$ in ethanol, separating the resulting ethanol solution of $\text{Fe}(\text{BH}_3\text{CN})_2$ from the undissolved excess of NaBH_3CN by centrifugation. Next, mix the obtained ethanol solution of $\text{Fe}(\text{BH}_3\text{CN})_2$ with a threefold excess of pyrazine (ligand) in ethanol (33 % solution). The resulting mixture is incubated for 60 minutes. Centrifuge the dark red polycrystalline powder $[\text{Fe}(\text{pz})_2(\text{BH}_3\text{CN})_2]$, followed by washing with ethanol and drying.