

Accepted Manuscript

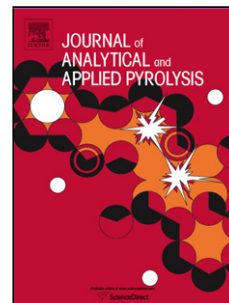
Title: Synthesis and Thermal decomposition study of
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PII: S0165-2370(17)30907-5
DOI: <https://doi.org/10.1016/j.jaap.2018.03.018>
Reference: JAAP 4292

To appear in: *J. Anal. Appl. Pyrolysis*

Received date: 11-10-2017
Revised date: 13-3-2018
Accepted date: 18-3-2018



Please cite this article as: Y.A.Opata, J.-C.Grivel, Synthesis and Thermal decomposition study of Dysprosium Trifluoroacetate, Journal of Analytical and Applied Pyrolysis <https://doi.org/10.1016/j.jaap.2018.03.018>

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Synthesis and Thermal decomposition study of Dysprosium Trifluoroacetate

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Highlights

- The thermal decomposition process of the dysprosium trifluoroacetate has been investigated.
- The presence of some carbon is verified in the system after decomposition stage.
- Formation of the DyF_3 and $DyOF$ phases are confirmed by TG and x-ray diffraction data.
- Analysis of the gases released allowed following the entire decomposition process.

Abstract

A study of the thermal decomposition process of dysprosium trifluoroacetate hydrate under flowing argon is presented. Thermogravimetry, differential thermal analysis, evolved gas analysis and ex-situ x-ray diffraction techniques have been employed in the investigation. Three main stages were identified: dehydration, decomposition and phase transformation from DyF_3 to $DyFO$. The dehydration takes place in 2 steps and the decomposition also occurs in two stages. The observed residual mass demonstrated a discrepancy with the calculated value for DyF_3 formation. Observations on quenched samples at temperatures just above the decomposition step and at 828°C showed a variation in the sample color, being dark in the first case and rather bright at the higher quenching temperature. Based on this fact, we concluded that some carbon remains in the

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