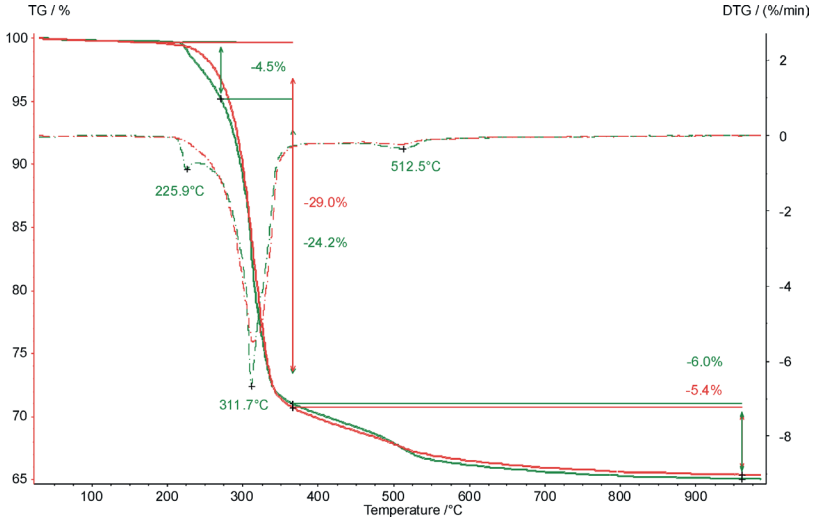
APPLICATION**SHEET**

Inorganics · Chemical Industry
TG 209 ***F1*** *Libra*®

Aluminum Hydroxide

Introduction

Aluminum hydroxides are the main compounds of bauxite. The principal aluminum hydroxide minerals found in varying proportions with bauxites are gibbsite ($Al(OH)_3$) and the polymorphs boehmite (α-AlOOH) and diaspore (β-AlOOH). The bulk of world bauxite production (approximately 85%) is processed into aluminum oxide (Al_2O_3) via a wet chemical, caustic leach method (Bayer process). The resulting Al_2O_3 is then reduced to aluminum metal (Al) using an electrolytic process, the Hall-Heroult processor used in high-temperature ceramic applications. Purified aluminum hydroxides and oxy-hydroxides were used as flame-retardent fillers in polymers, employed as paper coating pigments in paints and varnish.



Test Conditions

Temperature range:	RT ... 1000°C
Heating rate:	10 K/min
Atmosphere:	Air at 40 ml/min
Sample mass:	36 mg
Crucible:	Alumina
Sensor:	Platinel

Test Results

The two $Al(OH)_3$ samples are nearly pure indicated by the mass loss of 34.7% and 34.4%. The theoretical mass loss from $Al(OH)_3$ to Al_2O_3 is 34.6%. This means there might be surface water at sample 1 and some boehmite amounts with the second one. Sample 1 additionally shows a three-step degradation in comparison with sample 2.

NGB · Application Sheet 065 · E · 0621 · Technical specifications are subject to change.

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