

Zirconia under water vapour up to 1700°C

Experimental:

Samples of about 2.2 g of Zirconia (powder) are heated from ambient up to 1700°C at 10 K.min⁻¹.

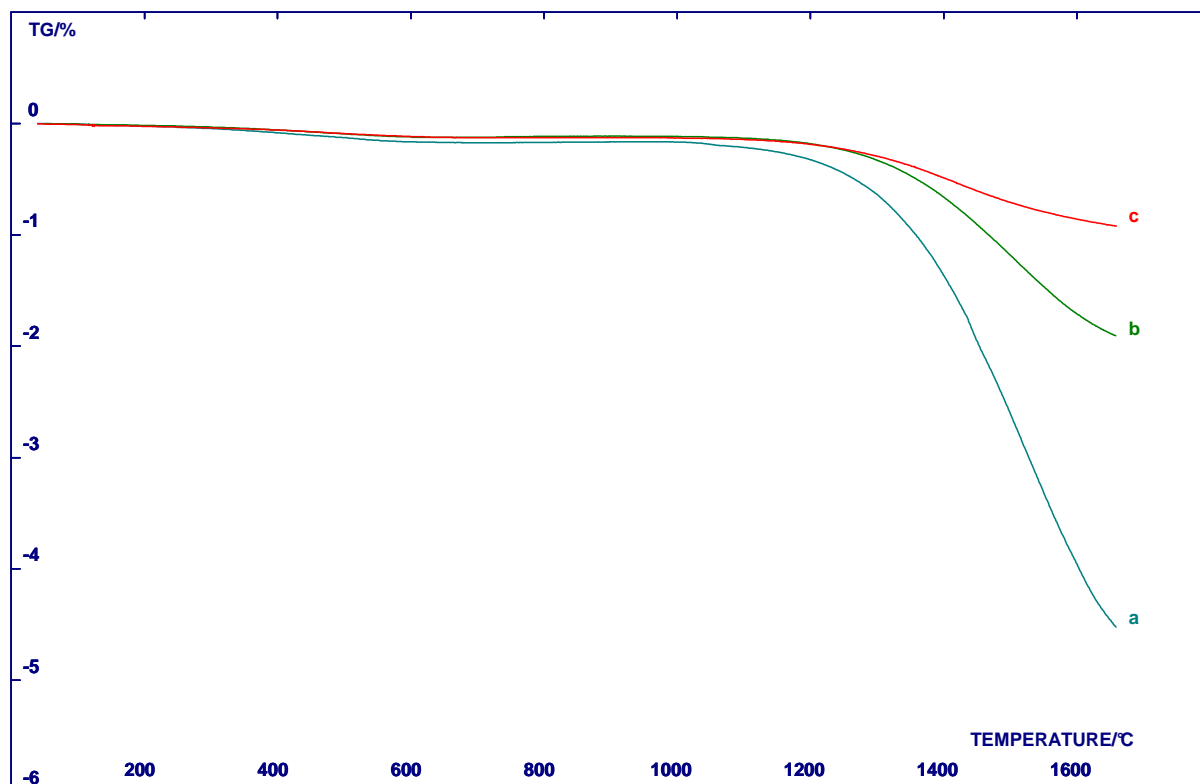
Gas : (a) : He + 4% H₂O

(b) : He + 12% H₂O

(c) : He + 20% H₂O

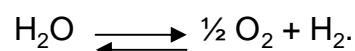
The control of water percentage is explained in application note # AN092.

Crucible : alumina container

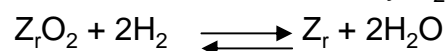


Conclusion:

When heated, water will dissociate :



The Zirconia will then be reduced by H₂ :



From this equilibrium it can be said that if the percentage of water increases, the reduction process will be not so important : it is what was observed during the analysis.

Instrument:

Setsys Evolution TGA

-150°C to 2400°C



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