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"The Baking of Green Carbon Bodies".
(Kinetic Studies)

In order to study the complex kinetic of the endotherm baking process it is necessary to know the rates of the singular steps. These are:

- 1.) Heat transport from the surface of the body to the inner parts, because heat is allways practized from the outside.
- 2.) Chemical kinetic of the pyrolysis reactions.
- 3.) Mass transport of gaseous byproducts from the inner to the surface of the body.

Model studies were carried out in laboratory scale with moulded fine grain bodies up to 70 mm in diameter.

As to the heat transport, the thermal diffusivity of the bodies during the baking process was measured with an unsteady radial inflow method. It was found, that heat transport is in no case limiting the overall rate of the baking process.

In order to investigate the velocity of the pyrolysis reaction thermogravimetric measurements at different heating rates were carried out. The baking behaviour of the different bodies is reported. This method offers also the possibility to learn about the influence of the mass transport and to evaluate the critical parameters for the maximum heating rate for baking. Additional separate permeability measurements were carried out to study the mass transport. These results confirm the kinetic model which was stated using the thermogravimetric method.