

MODIFICATIONS OF PORE SIZE DISTRIBUTION IN ARTIFICIAL GRAPHITES  
DENSIFIED BY THERMAL CRACKING OF NATURAL GAS. STUDY BY MEANS OF  
A NEW MERCURY POROSIMETER USING  $\gamma$  ABSORPTION.

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A brief description of a new mercury porosimeter is given. The principle consists of using  $\gamma$  beam absorption to measure, at every choosen point, the volume of mercury infiltrated in a porous structure. So, it is possible to have a series of pore size distributions, along a radius of a given sample, to define for instance radial heterogeneities in this respect.

This apparatus has been used to study evolution of pore size distribution after deposition of pyrocarbon inside the porosity of conventional nuclear graphites treated at temperature of 900-1000°C in natural gas atmosphere. Indications are given on the main parameters controlling the process, and also examples of porous characteristics evolution. For instance, bulk open porosity is reduced from 15 % to about 3 % and it is possible to observe smoothing away of pores whose diameter is below about 10  $\mu$ , and especially those around 3  $\mu$ . Heterogeneities were studied along radius on samples about 3.0 and 5.0 centimeters in diameter, and for different predetermined pore sizes.

This process of pore size distribution modification seems to be interesting for studies of radiolytic corrosion of graphites in CO<sub>2</sub> atmosphere, and perhaps for inhibiting it. Some comments are given on these points.

(10 minutes)

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