THE MODELING OF THE SPEED, OF THE FRICTION COEFFICIENT AND THE CAPILLARY PRESSURE IN THE HEAT CONVECTIVE TRANSFER THROUGH POROUS MEDIA

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Abstract: *In case of heat transfer and mass transfer through flat thermal micro-pipes with excess of liquid, it is compulsory an analysis of the porosity grade of the capillary layers which are a part of their construction. The theoretical analysis is focused on two directions. The first one aims the blend between vapors and liquid, which move through porous media, made from copper and polysynthetic materials. The second direction aims the influence of the porous media over the movement speed and on the study of the friction coefficients which appear between them and the media which they cross. The variation of the thermal flux applied to the flat thermal micro-pipe has as the result the modification of the inner capillary pressure and, implicit, the modification of the speed and the friction coefficients of the liquid and the vapors in their movement through porous capillary media.*

Keywords: *friction coefficient, porous media, capillary pressure*

1. Introduction

The convective mass heat transfer phenomena in flat thermal micro-pipe, appears as a heat transfer realized through flat thermal micro-pipe, produced after some mixture of gaseous substances, liquids or biphasic with solids at a high temperature. As a practical effect, mass heat transfer materializes as a movement of the components of the mono mixture or a biphasic one from an area with high pressure, in an area where the pressure is lower. The movement of the working liquid or of its vapors in the interior of the flat thermal micro-pipe is determined by the property of the porous materials to absorb the fluids. [1] The capillarity made by the porous layer contributes in a big measure at the capacity of movement of the fluid from the condensation area to the vaporization one.

For the calculation of the general diffusion coefficient of the porous media, marked with ε, the computing relationships are, in general, semi empirical or empirical and don't offer an accurate solution. However it could be taken into account and correlate with the results obtained experimentally.

For the convective diffusion of which phases are in movement, the mass transfer occurs as a result of concomitant mixing and movement of the molecules, from the