



Analysis of pore size distribution in the woven fabric 2D

Elena V. Chepelyuk¹, David Hui² and Yuri Strzhemechny³

¹ Kherson National Technical University, Mechanical Technology of Fibre Materials, Berislavskoe av., 24, Kherson, 73008, Ukraine.

² University of New Orleans, Mechanical Engineering, New Orleans, LA 70148, U.S.A.:
E-mail: DHui@uno.edu.

³ Texas Christian University, Physics and Astronomy, TCU Box 298840, Fort Worth, TX 76129, U.S.A..

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Abstract

Purpose – The present work aims to propose the method of analysis of value and form of porosity in accordance with the structural parameters of the woven fabric 2D.

Design/methodology/approach – In work essential dependence of pores formation on the order of a phase of a woven fabric structure is shown at various density of an arrangement of threads.

Findings – The evident geometrical method of the analysis of peculiarity of porosity parameters of a woven fabric on the basis of air permeability of fabrics in a range from normal up to limiting density of an arrangement of threads of various diameter and fibrous structure is offered.

Research limitations/implications - The work could be expanded to industrial woven fabrics.

Practical implications - Depending on purpose of a woven fabric the designer can well grounded choose the necessary form of a pore for maintenance of effective air permeability of a woven fabric. The size of a pore is offered to be projected by means of a variation of threads parameters and density of their arrangement at various order of a phase of a woven fabric structure.

Originality/value – The method of an estimation of air permeability of a woven fabric according to the theory of a phase structure is original and brings the essential contribution to a science and technology of designing and manufacture of woven fabrics with the set properties.

Key words: Porosity, Air permeability, Woven fabrics 2D, Phases structure, Modeling

1. General introduction

Operational ability of all woven fabrics of any

purpose are in some extent defined by size of through pores, i.e. the area free from threads, free for an unobstructed direct way of air, a liquid and particles of any