

# The study of the screen printing quality depending on the surface to be printed

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**Abstract.** This paper presents the study results regarding the analysis of the screen printing quality on different types of materials. The quality of the screen printing is determined by several particularities of the screen printing process such as: the type of mesh, screen ruling, ink viscosity, raster spacing, etc. The material which is supposed to be printed is as important as the particularities of the screen printing process itself. The composition, structure and features of the printed items as well as the composition, viscosity and other ink properties, all together determine the quality of the screen printed matter.

## 1 Introduction

Screen printing is used to print on different types of items, such as technical textiles, textiles for clothing and footwear, leather goods, furnishing, household and decorative textiles. At the same time, textiles used in the fields of aeronautics, medical, electronics, automotive, etc. have to be taken into consideration. Moreover, the printed surface can be made of paper, cardboard, polymeric materials, wood, metal, leather and non-woven substitutes.

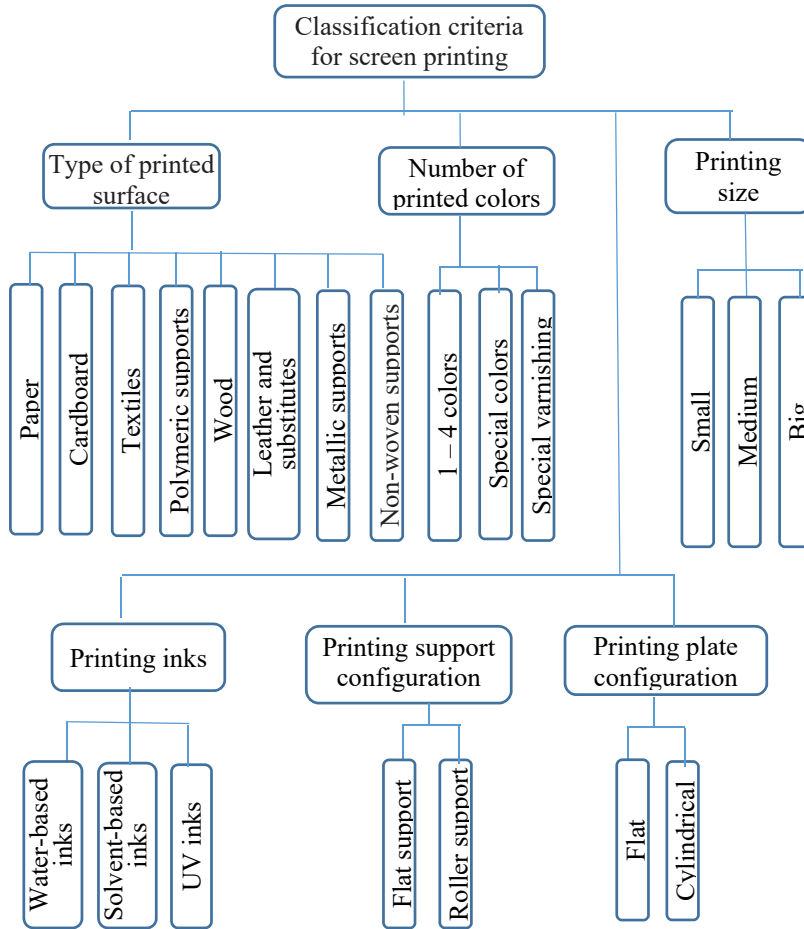
The variety of printed surfaces that can be used in the screen printing by helps to increase the fields where the screen printing can be applied. However, the multitude of these fields requires extensive studies to analyze and evaluate the quality of the screen printing and adhesion characteristics of screen printing inks on different printed surfaces. In this paper, the quality of the screen printing on textiles is analyzed according to the printing with of water-based screen printing inks.

## 2 Screen printing classification

The extent of the diversity of screen printing imposes the need to identify the criteria for classification and classification of their own called. The criteria of the screen printing classification are shown in the Figure 1.

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**Fig. 1.** Classification criteria of screen printing.

### 3 The technological particularities of screen printing

The surface to be by screen printing interacts with inks using a screen that can be flat/plane or cylindrical (Figs. 2-3) and is prepared using mesh. The factors that determine the quality of the screen printing process are [2-6]:

- mesh type (PET, PA);
- mesh color;
- thread diameter;
- mesh density (counted thread/cm);
- mesh stretching angle;
- raster density;
- raster angle;
- ink viscosity;
- print speed;
- squeegee angle;
- take of distance.