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**Research of thermal processes of laser engraving  
of polymer layers of screen printing plates**

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***Research methodology.*** *To get the main results of the scientific work, the research of thermo-mechanical and heat-physical properties of photopolymer materials for the application of relief-dot images by laser engraving has been conducted to determine their suitability for manufacturing screen printing plates.*

***Results.*** *The studies indicate the sufficient thermal stability of polymer materials based on oligo urethane acrylates for manufacturing screen printing plates by laser engraving. The results of thermo-mechanical and differential thermal studies correlate and show that the use of polymer materials based on oligo urethane acrylates as copying layers of screen printing plates can provide their high graphic reproduction characteristics.*

***Novelty.*** *Suitability of the developed material for manufacturing and exploitation of screen printing plates has been proved by the research of its thermo-mechanical and heat-physical properties to optimize the manufacturing process of plate making.*

***Practical significance.*** *The use of polymer materials based on oligo urethane acrylates for manufacturing screen printing plates by laser engraving allows providing: high graphic reproduction characteristics of printing plates (high degree of reproduction of image elements with maximum accuracy); possibility of creating «thick» stencils for very thick ink layer prints; reducing the length of the technological process through the use of copying layers, on which images are directly applied by laser, without additional operations; reducing the cost of printing plates manufacturing by using cheap and available materials; environmental safety of processes of printing plates manufacturing by using non-toxic, environmentally friendly materials.*