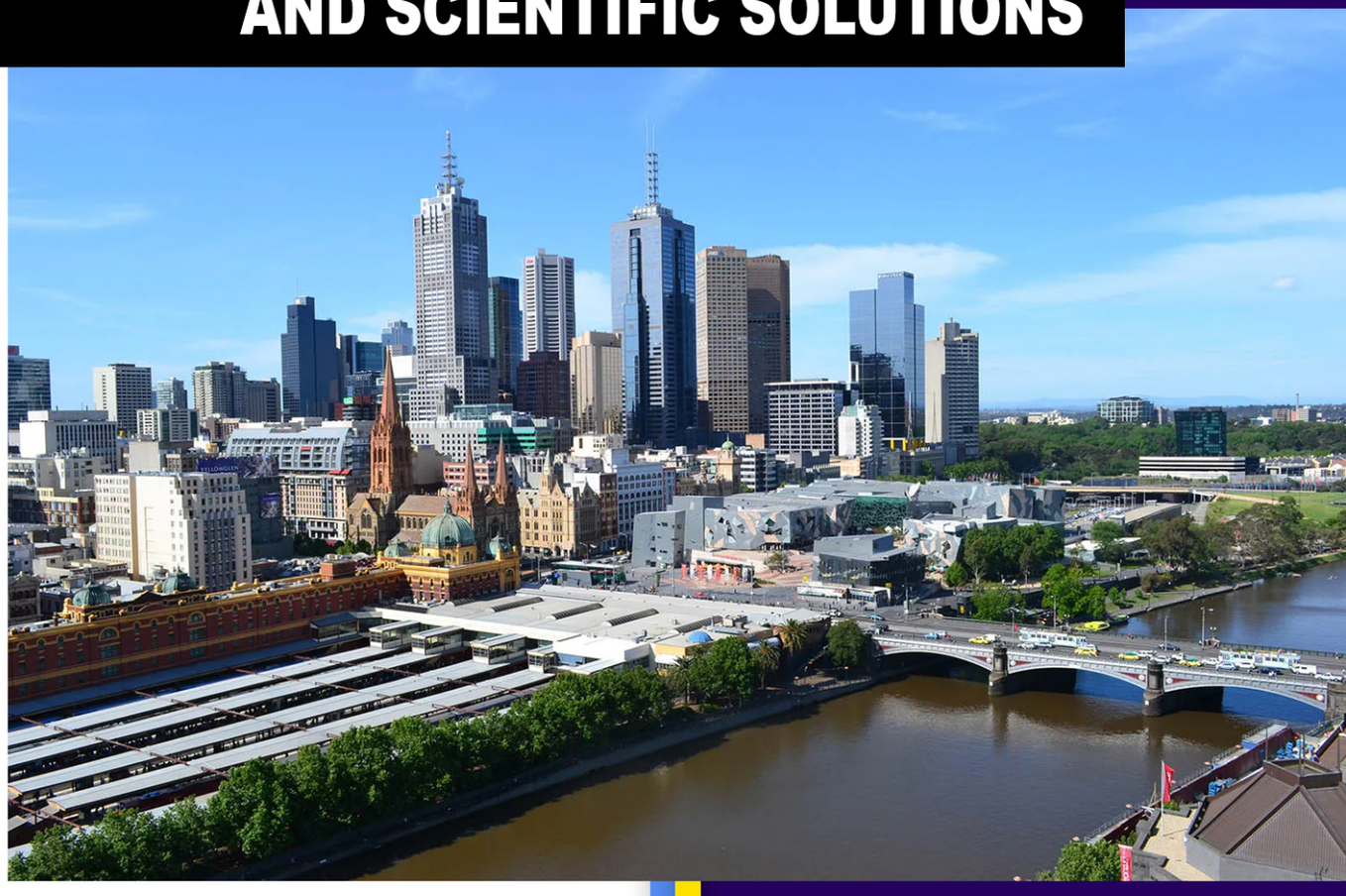
SCIENTIFIC COLLECTION INTERCONF

№ 114
June, 2022

THE ISSUE CONTAINS:

Proceedings of the 10th International Scientific and Practical Conference

INTERNATIONAL FORUM: PROBLEMS AND SCIENTIFIC SOLUTIONS



MELBOURNE, AUSTRALIA

26-28.06.2022

InterConf
Scientific Publishing Center

SCIENTIFIC COLLECTION «INTERCONF»

№ 114 | June, 2022

THE ISSUE CONTAINS:

Proceedings of the 10th International Scientific and Practical Conference

INTERNATIONAL FORUM: PROBLEMS AND SCIENTIFIC SOLUTIONS

MELBOURNE, AUSTRALIA

26-28.06.2022

MELBOURNE
2022

LIGHT INDUSTRY AND FOOD INDUSTRY

Chepurna Kateryna
PhD in technics, associated professor, associate professor of
Department of Technology of printing production, Printing and Publishing Institute
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute», Ukraine

Khmiliarchuk Olga
associated professor, associate professor of
Department of Technology of printing production, Printing and Publishing Institute
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute», Ukraine

Ikonenko Denis
master's student at the Publishing and Printing Institute
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute», Ukraine

TECHNOLOGICAL FEATURES FOR REPRODUCTION OF PANTONE INKS

Pantone inks are most often used in the manufacture of souvenirs, stationery, gift, textile, label and packaging products in such ways of printing: pad, screen printing and flexographic.

Customers of printing products use panton inks as branded or corporate. Process inks are not always able to form the branded color tone and ensure color saturation. That is why in the design of label, packaging, souvenir products are often models that are formed only from panton inks. The use of panton inks places increased demands on the control of color indicators on prints and requires the inclusion in the manufacturing process of operations such as analog color proofing, trial or test printing on a specific printed material to obtain a reference print. In the case of printing one layout on different materials (glass, tinted plastic, wood, fabric, metals, etc.) it is necessary to ensure maximum identity of the panton ink on different bases, which contributes to the recognizability of the company or brand.

The stability of the quality of prints during printing is influenced by the technological modes of the printing process, the characteristics of consumables and technological materials, technical parameters of the equipment, environmental conditions [1–2]. The study of the stability of color indicators of prints in the printing process is a necessary and urgent task that will facilitate the manufacture of products of predictable quality.

A study of the reproduction of pantons by pad, screen and flexographic methods of printing on bases that have excellent spectral indices. It has been established that in order to ensure the stability of the color difference and the minimum color deviation of pantons printed on tinted bases with pad printing, it is necessary to print according to such technological schemes as white background or double application of ink [3–4]. In addition, the need to control the stability of printing operating modes such as pressure and speed. Changing the speed in pad printing is complex, as it affects the productivity of production, and the quality of the prints, namely the graphic accuracy of the reproduction of line art information [1, 5].

The following conclusions can be made on the basis of the research of reproduction of pantons by screen printing on tinted surfaces. The main factors that affect the quality of color and graphic indicators of prints are the texture, wettability and absorbency of printed materials. From the obtained data we can say that the prints obtained by screen printing with panton inks on light surfaces, especially on samples of coated papers, have the highest indicators, which characterize the quality of color reproduction. It is recommended to apply one layer of panton ink on such materials to get a high-quality, rich image, because these materials have sufficient absorbency. Dark and transparent materials require an extra layer of white ink to reproduce the image with the correct color reproduction and color intensity.

In the manufacture of label products by flexographic printing using panton inks, it is critical to ensure a minimum color deviation within the editions.

According to the results of experimental studies of colorimetric indicators of flexographic printing prints, the influence of printing speed on the color indicators of the studied pantons was established, which is manifested in changes in light, chromatic coordinates ab and color tone, which results in increased color difference.

As a result of the analysis it is concluded that the influence on the change of color indicators of inks is complex, which includes indicators of technological modes of printing process and properties of technological materials, namely, it was found that the fluctuations of the chromatic parameters of the studied pantons, in addition to the printing speed, are influenced by the liniatyre of anilox shaft and the working viscosity index of inks [6].

References:

1. Киричок П. О. Фактори впливу на якість тампонного друку на полімерних основах / Киричок П. О., Чепурна К. О., Коробка М. В., Назаренко О. В // Технологія і техніка друкарства. – 2021. – № 2(72). – С.4–12. DOI: 10.20535/2077-7264.2 (72).2021.239333.
2. Чепурна К. О. Дослідження якості відтворення штрихових зображень трафаретним друком на тканинах / Чепурна К. О., Хмілярчук О. І., Колчина К. О. // Технологія і техніка друкарства. – 2020. – № 4(70). – С.25–33. DOI: 10.20535/2077-7264.4(70).2020.223318.
3. Чепурна К. О. Вплив способів нанесення фарби на колірний тон відбитків, отриманих на тонованих пластиках при виготовлені паковань / К. О. Чепурна, М. О. Карась // XVIII Науково-практична конференція молодих вчених «Новітні технології пакування». 2019. [Електронний ресурс]. Режим доступу до ресурсу: http://dspace.nuft.edu.ua/jspui/ bitstream/123456789/29375/1/ packing.pdf.
4. Chepurna K. The influence of printed material on the lightness of the panton color in tampon printing / K. Chepurna // The 2nd International scientific and practical conference “World Development of Science and Technology”, 18–19.05.2020. Chikago, USA. 2020. P. 348–353. [Електронний ресурс]. Режим доступу до ресурсу: https://el-conf.com.ua/wp-content/uploads/2020/05/USA_site.pdf.
5. Kyrychok P. Influence of printing speed on graphic accuracy of prints in pad printing / P. Kyrychok, K. Chepurna, M. Korobka // Proceedings of the 1 st international scientific and practical conference “Scientific paradigm in the context of technologies and society development”, 18–19.11.2021. Geneva, Switzerland. 2021. P. 564–569. [Електронний ресурс]. Режим доступу до ресурсу: https://ojs.ukrlogos.in.ua/index.php/interconf/ issue/view/18-19.11.2021
6. Бараускєне О. І. Відтворення пантонів при виготовленні етикеткової продукції флексографічним друком/ О. І. Бараускєне, К. О. Чепурна, О. В. Вихристюк // Технологія і техніка друкарства. – 2021. – № 3(73). – С.31–41. DOI: 10.20535/2077-7264.3(73).2021.247265