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Methods for Assessing the Color Indicators of Copies

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Abstract: Analysis of the essence and application processes of pre-article printing process systems; optimization of technological factors of pre-click processes; analysis of the quality indicators of the copies obtained on different printing papers by applying a printing mold to different CTP equipment and the methods of evaluating exactly the color blinds from them, as well as the technological processes that affect them; study of technological factors affecting product quality in CTP equipment in the preclick process; it consists in a comparative analysis of the quality parameters of the products obtained in their pre-printing processes and an assessment of the quality of the printed product.

Keywords: Quality concept, CTP-technology, densitometric size, raster indicators, color coverage.

There are a number of problems related to the systematization of process parameters before pressing and continuous research in enterprises. The problem is exacerbated by the lack of universal equipment and technologists of a single technological complex capable of switching from one order to another with minimal costs for large production enterprises. In addition, the variety of print sizes and volumes, as well as the preparation of different materials and processes before printing complicates the solution of this task**.**

In this work, the process of optimizing the technology modes of multi-dye printing is studied based on the research of the technological parameters of the processes in terms of actual performance. One of the tools of standardization and quality control of printing production is the criterion of image quality and similarity of printing production output, which allows the operation of one copy within the limits of certain stocks.

Research object and used methods.

In order to increase the efficiency of printing mold preparation in the pre-press section during the work and according to the analytical results, it was proposed to introduce modern Suprasetter 106 CTP equipment instead of CREO Trendsetter 800 CTP equipment in the conditions of "Sharq" publishing house joint-stock enterprise, quality control laboratory and TITLI "Printing and packaging process technology" department tested in laboratory conditions.

The goal of any printing method is to obtain optical, graphic, high-quality printed products of high quality, which significantly depends on the color parameters determined by the image and many technological parameters [1]. The concept of "quality" itself is diverse and multidimensional [2].

Ctp CREA Trendsetter 800 and Heidelberg suprasetter 106 ctp equipment were prinied under enterprises "Sharq" and "ColorPak" conditions, and their color parameters were measured on a portable spectrodensitometer ET-120HD, Beiign ETNALN CIE LAB. Original color parameters were evaluated on a CIE Lab colorimetric system. Raster images appear in the form of a

rectangular matrix, each cell of which consists of a colored dot. The basis of raster graphics is a pixel, which is represented by color. The image is displayed as a set of dots, and the more they are, the clearer and better the image is, and the file takes up more space. That is, one image itself can be of high or low quality, with more or less dots depending on the unit of measurement (usually the number of dots per inch is defined as dpi or the number of pixels lpi) [3].

Densitometric control is one of the most common methods of device control in determining quality indicators and color indicators, which are part of it. It is carried out using densitometers, spectrophotometers and spectrodensitometers and is used in all stages of reproduction [4]. Perception of color and shades of gray in visual control is subjective. Exactly one color is perceived differently by each person. It depends on his emotional state, experience, surrounding background, goal and age. Evaluation of all parameters in densitometric measurements is objective. However, in order to minimize the effect of structural features (filters, apertures, light sources, the principle of processing the measured light fluxes), it is better to use densitometers of the same manufacturer in all types of technical processes [5-6].

The obtained results and their analysis.

A printing mold was prepared on different CTP equipment and a total of 4 samples were printed on Speedmaster 102 printing equipment on 2 different types (coated paper 180 g/m2, card stock 120 g/m2), optical densities change was determined and plotted using a portable spectrodensitometer ET-120HD, Beiign ETNALN CIE LAB.

Currently, the most important and most widely used method of paper processing is chalking, that is, applying one or more layers of white pigment to a layer of the main carrier paper (base paper), gives the paper a bright, clear, colorful image [7-8]. The properties of the chalk papers selected for the experiment in this work are presented in Table 1.

Color indicators of a copy printed on offset paper under the conditions of the "Sharq"

Table 1

№	Color	L	a	b
1	Cyan	62.83	-20.2	-32.8
2	Magenta	60.58	45.96	-2.69
3	Yellow	87.59	-5.90	77.0
4	Green	50.39	-30.4	36.66
5	Purple	44.54	4.26	30.71
6	Red	54.59	30.57	32.94

Color indicators of a copy printed on offset paper under the conditions of the ColorPak

Table -1.1

№	Color	L	a	b
1	Cyan	61.0	-22.0	-35.3
2	Magenta	61.03	46.96	-3.13
3	Yellow	87,79	-6.54	78.5
4	Green	53.79	-33.0	-38.0
5	Purple	57.05	5.23	-30.5
6	Red	56.10	34.12	36.26

Calculating color contrast

Table -1.2

Paper type	Plashka	Color	L	a	b	ΔE
№1 orig.	1	Cyan	62.83	-20.2	-32.8	$\sqrt{12.83} = 3.58$
№2 .	1	Cyan	61.0	-22.0	-35.3	
	Δi		1.83	1.8	5.5	

	$(\Delta^i)^2$		3.34	3.24	6.25	
№1	2	Magenta	60.58	45.96	-2.69	$\sqrt{1.39} = 1.17$
№2	2	Magenta	61.03	46.96	-3.13	
	Δi		-0.45	1	0.44	
	$(\Delta^i)^2$		0,20	1	0.19	
№1	3	Yellow	87.59	-5.90	77.0	$\sqrt{2.25} = 1.5$
№2	3	Yellow	87,79	-6.54	78.5	
	Δi		0.20	0.64	1.5	
	$(\Delta^i)^2$		0.04	0.4	2.25	

Color indicators of the cover copy printed under the conditions of the "Sharq"

Table -2

№	Color	L	a	b
1	Cyan	56.20	-35.4	-38.3
2	Magenta	56.99	60.82	-6.18
3	Yellow	88.27	-6.07	88.29
4	Green	53.64	-56.9	36.66
5	Purple	56.07	7.03	-23.9
6	Red	52.68	58.54	45.51

Color indicators of the cover copy printed on offset paper under the conditions of the ColorPak

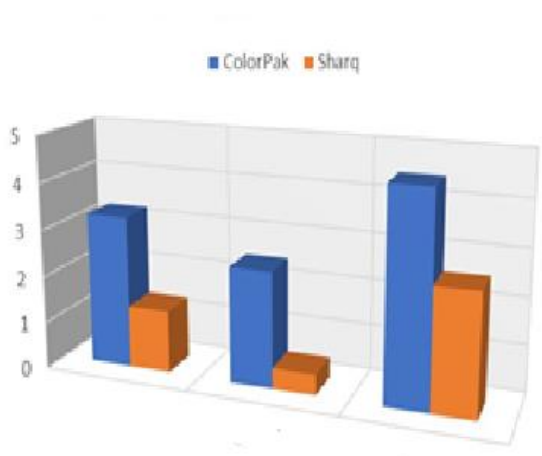
Table -2.1

№	Color	L	a	b
1	Cyan	54,63	-38,4	-41,1
2	Magenta	50,36	71,07	1,73
3	Yellow	87,37	-5,24	94,07
4	Green	49,34	-62,2	26,49
5	Purple	45,88	45,43	-20,3
6	Red	50,96	64,10	49,41

Calculating color contrast

Table -2.2

Paper type	Plashka	Color	L	a	b	ΔE
№1 orig.	1	Cyan	56.20	-35.4	-38.3	$\sqrt{19.3} = 4.39$
№2.	1	Cyan	54,63	-38,4	-41,1	
	Δi		1.57	3	2.8	
	$(\Delta^i)^2$		2.4649	9	7.84	
№1	2	Magenta	56.99	60.82	-6.18	$\sqrt{68.7} = 6.0$
№2	2	Magenta	50,36	71,07	1,73	
	Δi		6.63	-10.25	-4.45	
	$(\Delta^i)^2$		43.95	105	19.8	
№1	3	Yellow	88.27	-6.07	88.29	$\sqrt{35.79} = 5.9$
№2	3	Yellow	87,37	-5,24	94,07	
	Δi		0.9	-0.83	-5.88	
	$(\Delta^i)^2$		0.54	0.68	34.57	



Picture-1. Comparison diagram of the color indicators of the copy printed on cover and offset paper under conditions of "SHARQ" publishing and printing joint-stock company and ColorPak.

Conclusion. Factors affecting product quality, in particular, the technological factors of the processes pre-printing, in the conditions of "SHARQ" publishing and printing joint-stock company, comparing and evaluating the efficiency of CTP equipment maintenance and improving technological processes, comprehensively analyzing printing production and developing directions for improvement released.

Based on our comparison table above, we can say that the color indicators were measured on the portable spectrodensitometer ET-120HD, Beiign ETNALN CIE LAB using the samples taken at the "Color Pack" and "Sharq" publishing and printing joint-stock company. Original color parameters were evaluated on a CIE Lab colorimetric system. From the diagram, it can be said that the color coverage of copies obtained in "Color Pack" is much higher.

References

1. Mesrop Azatovich Bozoyan. "The effect of the supply of a moisturizing solution on the quality of prints in flat offset sheet printing" topic of the dissertation and abstract on the Higher Attestation Commission of the Russian Federation 05.02.15.
2. R.Ismatov, O.Ahmedov. "Educational and methodological complex for the science of quality management" -Namangan-14.
3. Starchenko, O. P. Metrology, standardization and quality management of printing products: textbook.- method. manual for students of the specialties "Publishing", "Technology of printing production" – Minsk: BSTU, 2014. – 140 p.
4. X.A. Babakhanova, A.A. Jalilov "fundamentals of design of technological processes" Tashkent-2013.
5. Nikolay Dubina. “CtP technology and consumables” info@prodtp.ru
6. Nagornova I.V. “Development of control elements for computer-to-plate systems” Moscow State University of Printing Arts, Moscow-2014.
7. N.X.Sharofiddinova, Z.K. Galimova. Factors affecting product quality. Namangan-2022. P. 131.
8. Kh.A.Babakhanova, I.G.Gromyko, Z.K.Galimova. Information assessment of print quality. Proceedings of BSTU. Ser.4. Print and media technologies. – Minsk: BSTU, 2020 - No. 1 (231). –P.5-10. ID:42899903.