

DERIVATIVES OF 16,17-DIALKOXYVIOLANTHRONE AS FLUORESCENT COMPONENTS IN THE DEVELOPMENT OF COLORS FOR MARKING PACKAGING MATERIAL

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Food production will be successful and will only make a profit if all safety measures and regulations for the consumer are complied with. These include indicators of freshness and quality composition, which are regulated by standards, as well as ensuring the proper storage conditions. On this basis, the production of packaging for food plays a significant role in the process of selling a food group, and the success of a company depends on its quality.

One of the factors that determines the passage of goods on the market is the application of a drawing to the package. Paints that are used for application to polymeric materials (polyethylene, polypropylene, polyethylene terephthalate, polyamide, etc.) should have good adhesion to polymers that are colored, be safe for labeling food packaging in the following industries: meat processing, dairy products, ice cream, as well as vacuum packaging.

At the moment, foreign paints are used in this process. This leads to a rise in price of products. Cyan triad paints are now widely used. Such acrylic polymer inks are used for printing on polyethylene, propylene and polyamide materials. Thanks to bright colors and good adhesion, they found demand in the market.

Taking into account these factors, we are developing an assortment of dyes on the basis of which analogues of imported paints can be developed.

Dialkoxyviolanthrones have been widely used as light-resistant dyes for coloring textile and polymeric materials that make up paint materials. Due to their luminescent properties, they are used in the development of polymer-based materials for encoding information, etc.

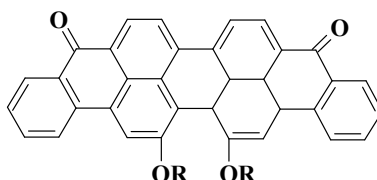


Fig. 1. General formula 16,17 - dialkoxyviolanthrone

Due to its properties, in particular solubility in ethers and esters (ethyl acetate, butyl acetate), as well as in mixtures with alcohols, it makes them suitable for flexographic and offset printing. The deep blue color allows them to be used as a component of the blue-blue triad paint.

In addition, the presence of luminescence in the long-wavelength part of the electromagnetic spectrum ($\lambda_{\max} \text{ lum} = 630\text{-}635 \text{ nm}$). This feature can be used as an additional level of quality certification and verification of originality of products.

It should also be noted the high thermal stability of derivatives of 16,17-dialkoxyviolanthrone ($> 300 \text{ }^\circ\text{C}$), which allows to enter this dye directly into the matrix by extrusion of such high-melting polymers as polyamides and polyesters. This produces a stable luminescent color.