

# ULTIMATE RECORDING MATERIALS

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## BEGINNING OF RESEARCH IN COLOR HOLOGRAPHY



In the Museum of holography  
in State Optical S. I. Vavilov  
Institute

St.Petersburg, 1995



Yu. N. Denisuk'  
letter of introduction

### MATERIAL 'ULTIMATE' FOR HOLOGRAPHY (U-04, U-08, U-15, U-25)

PARAMETERS	PROPERTIES
Spectral sensitivity	Difference between materials in sensitivities is 3 times. Each material can be sensitized to any visible wavelength. For one application we use one kind of material and one kind of sensitizer.
Grain size	25 nm for pulse lasers, 15 nm for low power lasers (1 - 2 mW) for Denisyuk holography, transmission holograms or H2 reflection holograms 08 nm is universal material including holoprinter with pulse lasers 04 nm for full color Denisyuk holography and HOEs
Resolution	From 3000 to >10000 lines per cm
Speed	30-90, 200 and 600 $\mu\text{J}/\text{cm}^2$ for monochrome recording
Diffraction efficiency	More 90% reflection HOE (mirrors) for monochrome recording
Layer thickness	9.7, 5 and 4 $\mu\text{m}$
Base	Glass plates (3 mm), film (190 $\mu$ )

## CONSTANT IMPROVEMENTS OF MATERIALS

Uniformity of grain size

Storage stability

Coating quality

New sensitizers

Cutting quality

Packaging quality

Pre-hardening before shipment

Pre-shifting

Maximum sensitivity achievement time

Delivered with set of safe processing materials

## SERVICE OFFERED THESE MATERIALS

- Technical on-line service
- Wide choice of size even customized
- Large choice of sensitizers
- Custom emulsions on request (including DCG)
- Special thicknesses
- Special substrates (ultrafine glass, AR, curved...)
- On stock emulsion=> coating on order
- Test laboratory attached to the manufacture of plates
- Constant use of the production for our own holograms

## PROCESSING OF «ULTIMATE» HOLOGRAPHIC PLATES



**DEVELOPMENT**  
After development the plates has pal orange color



**BLEACHING**  
In some minutes the "floating" image appears in the bath



**AFTER BLEACHING** the plate is fully transparent and almost has no noise



**IN WET STATE** the image is observed in transmission light



**AFTER DRYING** the hologram is protected by black film from back side

## SAMPLES OF COLOR DENISYUK ULTIMATE HOLOGRAMS



Knight (30x40 cm)



Tutankhamun (30x40 cm)



Obelix (20x25 cm)



Swatch (15x20 cm),  
doubleview