

Studies of the nature of the adhesive used for the pedestal of the bronze sculpture

Bust of a Child

Antonio Lombardo (c. 1458-1516) (?)

Methods:

The samples of the mass were examined under a microscopic in reflected light (Hund wetzlar microscope).

The microstructure of the sample was studied using a scanning electron microscope (JSM-5910LV, JEOL) in reflected electrons in the Z-contrast regime. Analysis of the distribution of the elements (qualitative and quantitative composition of the samples) was carried out by the method of energy-dispersive microanalysis (analytical systems INCA and AZtecENERGY, Oxford Instruments). Electron microscopy studies were carried out at the Scientific Center for Fiber Optics (headed by Iskhakova, LD, the analytical centre).

X-ray examination of the sample was carried out using a Bruker D2 PHASER diffractometer on $\text{CuK}\alpha$ -radiation. The results were processed and X-ray phase analysis of the sample was performed using DIFFRACplus (EVA and TOPAS 4.2.0.2) software complexes.

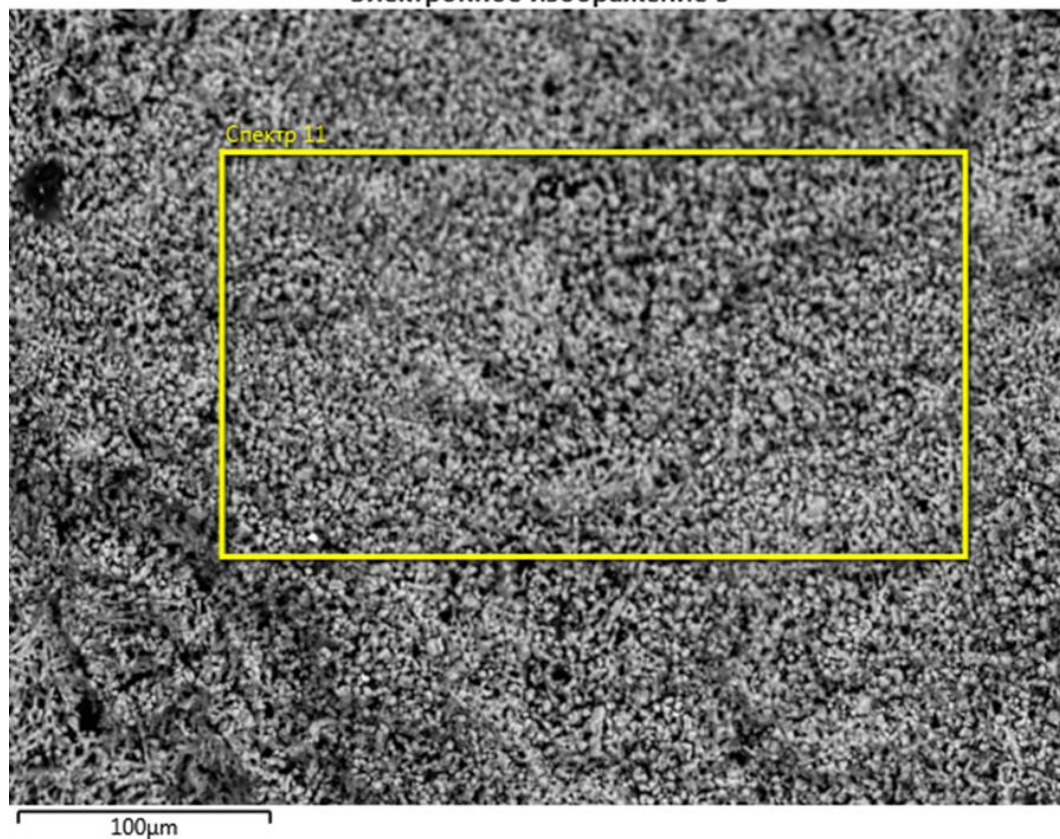
The method of IR spectrometry on the Simex instrument IR Fourier spectrometer FT-801 and microchemical analysis was also used.



Sampling site

Electronic image of the sample

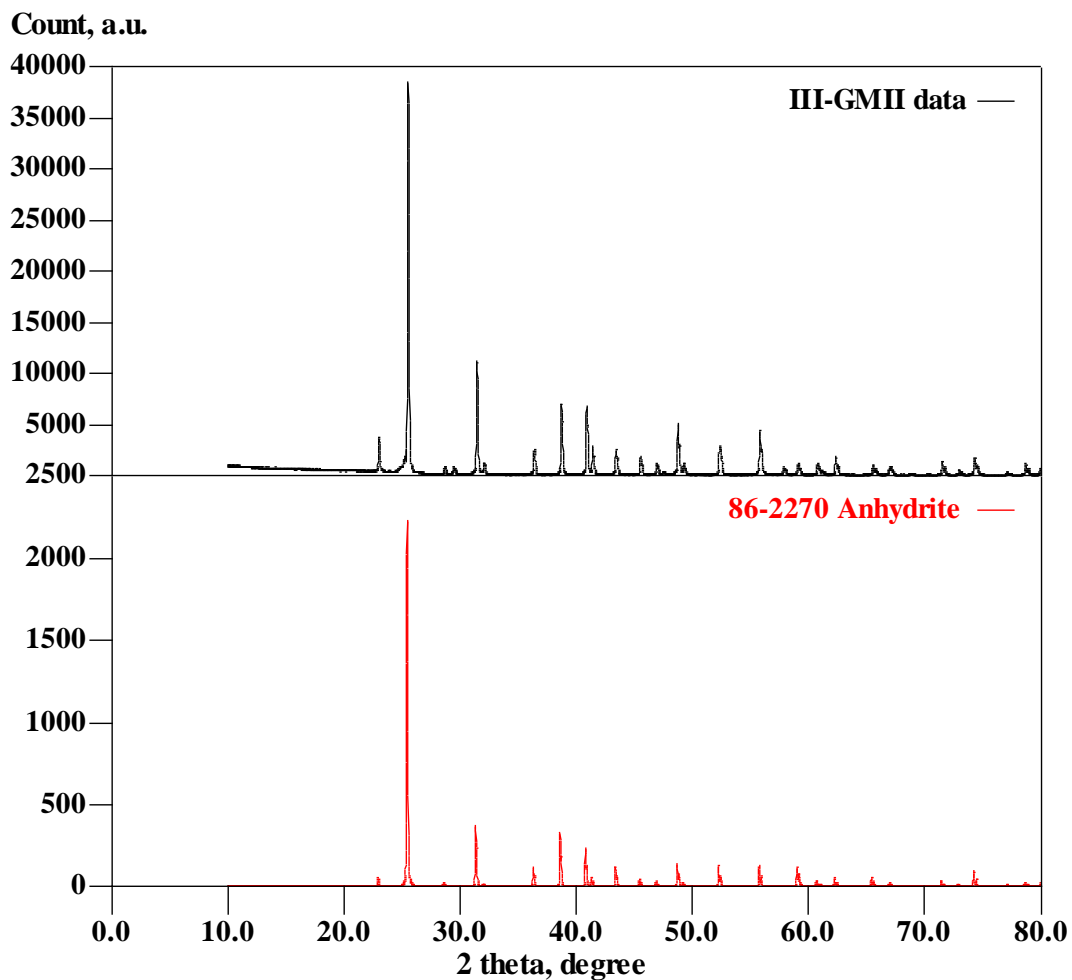
Электронное изображение 3



Element	Spectrum 11
	% mass.
O	41,83
S	23,28
Ca	34,89

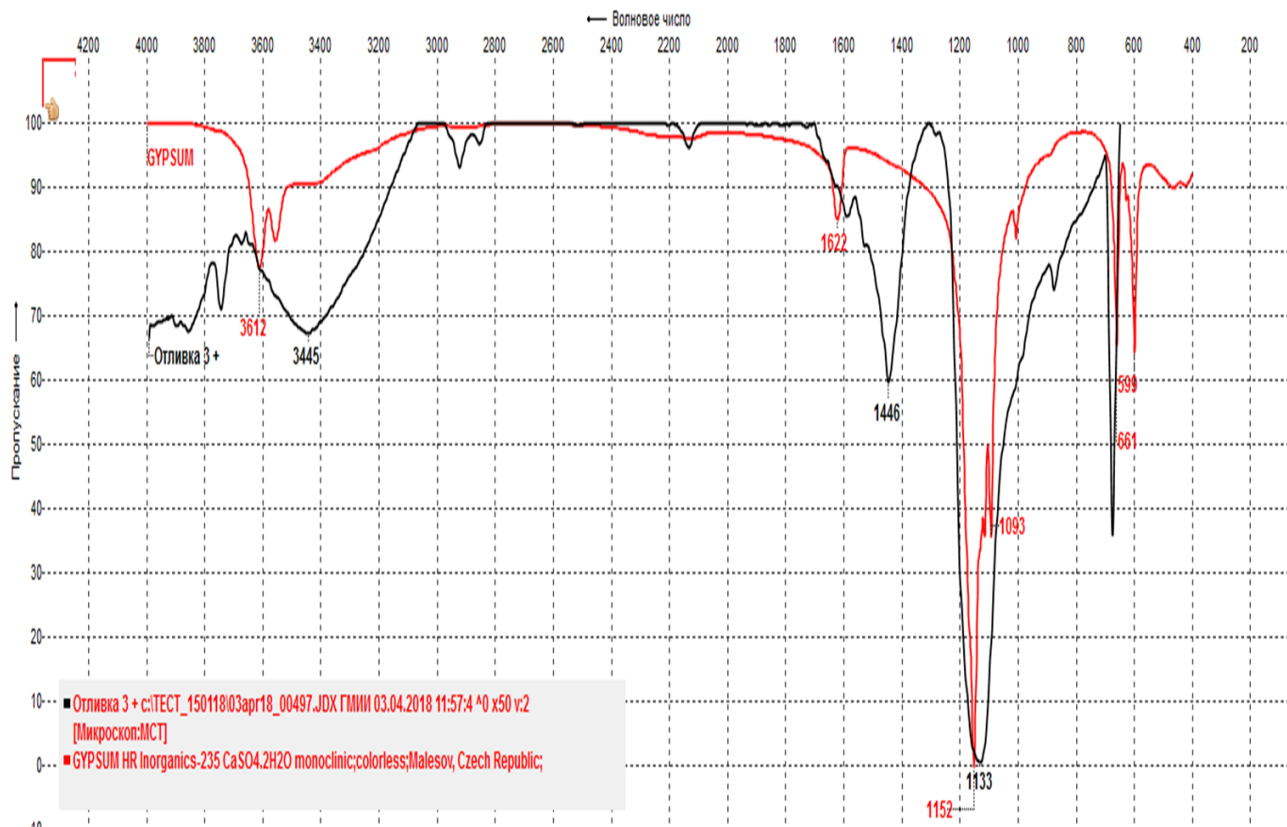
The sample is anhydrite CaSO_4 (anhydrous gypsum) with small impurities $\text{CaSO}_4 \cdot 0.5\text{H}_2\text{O}$ (semi-aqua gypsum).

Phase composition analysis



Phase composition of the sample: The main phase is rhombic anhydrite CaSO_4 with an admixture of not more than 1-2% calcium sulfate hemihydrate $\text{CaSO}_4 \cdot 0.5\text{H}_2\text{O}$

Phase composition analysis



The analysis showed that the sample consists of almost pure gypsum.

IR spectra confirm the results obtained by energy dispersive and X-ray phase methods.

Energy dispersion spectra of the sample surface

