

CRANACH

Colouring materials are:

Blues: Azurite

Greens: Malachite, Cu-resinate.

Yellow: Yellow ochre.

Reds: Vermilion, lead red, madder.

Blacks: Bone-black, iron black (Reddish black iron colour)

White: Lead white.

Medium is of a drying oil base.

1. From the blue robe of Christ
2. From the blue robe far left
3. From the light blue far left
4. From the green boy down left
- 4 a - " - only analyses
5. - " -
- " -
6. From the hair of Christ
- " -
7. From the dark red robe middle left
- 7 a - " - analyses
- 8 From bright red robe middle right
- 8 a - " -
- 9 From red robe of boy down right
- 10 From red robe far right
- " -
- " From white boy down right
- 12 From grey hood woman back far right
- 13 From neck of Christ, skinn colour
- 13 a From face of woman back right (analyses)

- A Edge of the top of the painting
- B From the frame on left
- C - " -
- D Wood spoons from worm holes behind
- E From the top, back (felling)
- F From a filling, by the head of woman in green
- G - " - behind the picture
- H I From the letters on topp.

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Colouring matters, medium and painting technic.

The ground:

The ground is whitish and consists of chalk in animal glue

It is impregnated on top with oil.

The thickness is on an average ca. 200 u

Remarks:

Most of the sampling is done along the bottom edge of the painting, so the results may show some inconsistencies.

The pinkish folds on one of the robes to the right were not examined. (No damage on the surface).

There is a thick glaze of a drying oil base covering the whole painting. The glaze has been tinted with a yellow ochre. This layer is partly removed.

Painting structure

Blues: There are three kinds of blues. All are analysed and cross-sections are made.

The robe of Christ consist of first a layer of lead white with bone black, on top there is a layer of azurite and lead white mixed about one to one.

The medium in both layers is on oil basis.

The thickness of the first layer is $15\mu \pm$

The thickness of second layer is $10\mu \pm$

The robe of the old man at the far left consists of first a layer of lead white with bone black, and second a layer of azurite (possibly containing some lead white).

The medium of both layers is on oil basis.

The thickness of the first layer is $10\mu \pm$

The thickness of the second layer is $25\mu \pm$

The shawl of the same old man at the far left consists of first a layer of lead white with bone black and second a layer of lead white with some azurite and traces of a red pigment not identified (vermilion)?

The medium in both layers is on oil basis.

The thickness of the first layer is $10\mu \pm$

Green: Samples ate taken from the robe of the boy standing down to the left. The woman in the green robe in the midde seems to have the same stucture, but is not investigate
Cross-sections and analyses give the following structure: first a layer of malachite and bone black, second a layer of malachite and lead white, and third a layer of Cu-resinate

The medium of the first layers are on oil basis.

The thickness of the first layer is up $25\mu \pm$

The thickness of the second layer is $10-15\mu \pm$

The thickness of the third layer is $7\mu \pm$

Yellow-brownish: One sample was taken from the hair of Christ
Cross-section and analysis show the following
structure: one layer of yellowish iron colour with
some bone black and traces of vermilion (?).
The medium is on oil basis
The thickness of the layer is $10\mu \pm$

Black: One sample of the background is examined showing
a thin layer of bone black (?).
Medium is on oil basis.
Thickness of the layer is $5-7\mu \pm$

Whitish: Two greyish-Whitish (no clean Whites) were examined
One is the robe of the boy down to the right.
Cross-section and analysis give the following
structure: first a layer of lead White with bone
black and second a layer of lead white.

The medium is in both layers on oil basis.

The thickness of the first layer is $10 \pm$

The thickness of the second layer is $15 \pm$

The second whitish area examined is the greyish
hood of the woman in the back on the right. One sample
was taken and cross-section and analysis show the
following structure: one layer of lead white with
bone black

The medium is on oil basis.

The thickness of the layer is $15\pm$

Flesh Colour: One sample was taken from the neck of Christ.
Cross-section and analysis were made. (A sample for
analysis is taken from the face of a woman to the
right). The results show the following structure:
one layer of lead white and yellow ochre with some
dark reddish iron colour a little vermilion and
traces of blue pigment, probably azurite.

The medium is on oil basis

The thickness of the layer is $15\mu \pm$

Reis: There are four "different" reddish areas, starting with the dark red robe of the woman in the middle to the left. Cross-section and analysis show the following structures first a layer of bone black, second a layer of lead red with traces of vermilion, and third a layer of madder.

The medium in the layers is on oil basis.

The thickness of the first layer 5 - 7u ±

The thickness of the second layer 5 - 7u ±

The thickness of the third layer 10 u ±

Samples were taken from red robe of woman in the middle to the right. Cross-sections and analysis show the following structure: first a layer of vermilion with some reddish black iron colour, second a layer of madder.

The medium is on oil basis.

The thickness of the first layer is 5u ±

The thickness of the second layer is 5u ±

One sample was taken from the boy in red robe down to the right. Cross-section and analyses are made showing the following structure: first a layer of vermilion with traces of reddish black iron colour, second a layer of madder.

The medium is on oil basis.

The thickness of the first layer is 10u[±]

The thickness of the second layer is 10u[±]

One sample was taken from the robe of woman far right. Cross-section and analyses give the following structure: one layer of lead red with some vermilion and traces of a dark reddish iron colour. The highlights on some of the folds are done with a yellowish lead colour (?).

The medium is on oil basis.

The thickness of the layer is 10-15u[±]

Fram

- A. From the edge of the top of the painting.
Sample istaken, but not analysed.
- B. From the fram, black line.
Sample was taken in order to make a cross-section. This could possibly show whether the paintlayer was seccendary or not no cross- section was however necessary.
- C. From the fram, black line. Same as mentioned above.
- D. From wood holes Fillings behind the panel nothing done. WOOD SPOONS.
- E. From the top Back. Analyses show: lead white and chalk in oil.
- F. From back head of woman in green. Analysis show: Ca Co + Ca So, in oil.
- G. Behind the picture (panel) Lead white.
- H. Frool scripts above the grouping.
- I. ----- " -----

"CRANACH", LARVIK KIRKE, NORWAY

1. Identification of the wood from the panel

The wood has pores (hard wood) in groups of two or three. The pores are almost equally tall as well in the spring wood as in the summer wood. There are also tracheids between the pores.

The cross walls of the pores are ordinary perforated. The longitudinal walls of the pores have many points and many spiral convolutions.

There are pithrays on regular distances.

The pithrays have a breadth of two or three cells.

Conclusion : this wood is linden (Tilia).

2. Examination of the textile tissue overlapping the split between two planks

In the microscope, the fibres look like ribbons with many convolutions and they have a large lumen.

They are cotton fibres.

The threads are spun in Z-direction and in S-direction according to either the warp of the woof. They are woven in "linen" crossing.

3. Examination of the coarse textile tissue from the backside of the panel

In the microscope the fibres look like cylinders with a narrow lumen and they show many cross-markings (or nodes).

They are bastfibres (linen or hemp : it is impossible to differentiate this two).

The threads are spun in Z-direction and woven in "linen"crossin

4. Examination of the fibres from the paint layer

It is impossible to make a conclusion about the kind of fibres by microscopy.

The fibres are soluble in NaOH conc.

When they are heated they curl and become carbonized. This shows that the fibres have an animal origin (wool or silk).

The fibres dissolve also in $ZnCl_2 \cdot 60 \text{ Bé}$, what means that they are silk fibres.