



**CONSTGLASS**



Table of results

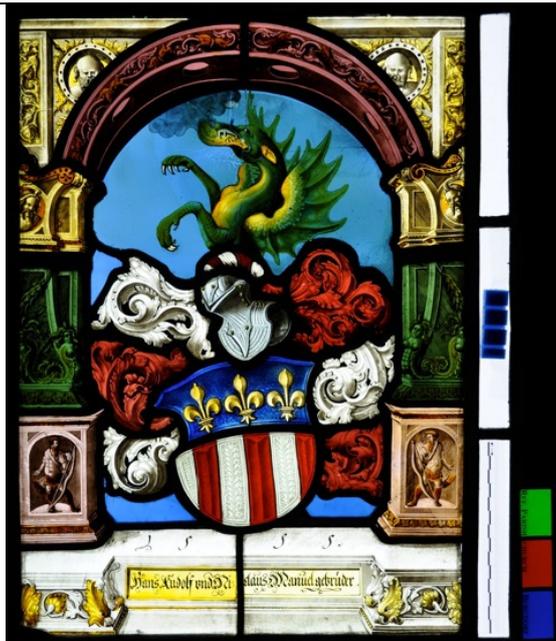


## 1-Pilot object

**Pilot object:**

Ref. Parish Church south – Heraldic stained glass panel

**Picture**



**Identification of the panel:**

*Panel of fragments*

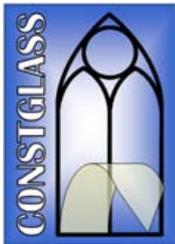
*Internal face, transmitted light*

*External face, reflected light*

**Treatment:**

- 1971, by Konrad Vetter
- Araldite® binder AY103 by 100 parts,  
Hardener HY951 by 9 parts  
(Astorit AG 8840 Einsiedeln).
- For thin fragments (1-1.5mm) with multiple fractures,  
the simple edge bonding was not considered to be  
sufficient and the method of back-plating was used.





**CONSTGLASS**



Table of results



## 2-Results

**sample reference:**

*Has not been taken.*

**Questions**

**Techniques**

**Answers**

**Morphology**

*Why is the Araldite® deterioration so different (yellowing in different stages / crizzling and stable surfaces) on the same piece of glass?*

*When peeling off, does the Araldite® hurt the glass surface?*

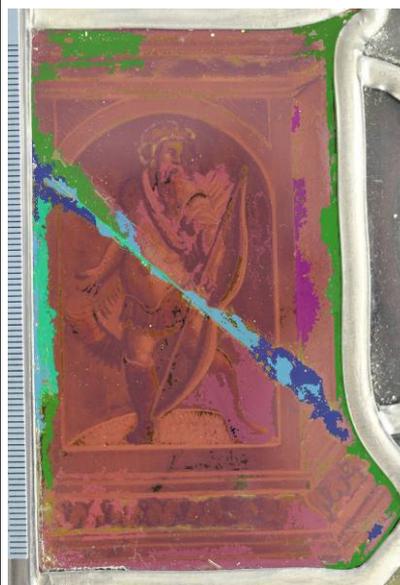
*How far did the Araldite® penetrate into the painting surface?*

*Can you detect and differentiate several preparations of Araldite® on the samples from these objects?*

On these samples you can see several steps of this process, as well as our corresponding, provisional classification and cartography of these phenomena. We propose that the various stages of changing of the material and of its properties which occur on this large sample are investigated and described according to the possibilities of the analyzing methods available in the project: visual microstructure, chemical and physical properties, interfaces properties.

**Optical Microscope**

We made visual and microscopic analyses of its appearance to establish the characteristics of the decomposition process when Araldite® has been used.



**Stage 1**

Clear and transparent resin, no or very little yellowing. The plated glass compound has a dark shining aspect, due to the intact adhesion of the filling material with both glass surfaces. There are no air bubbles or other structural changes.







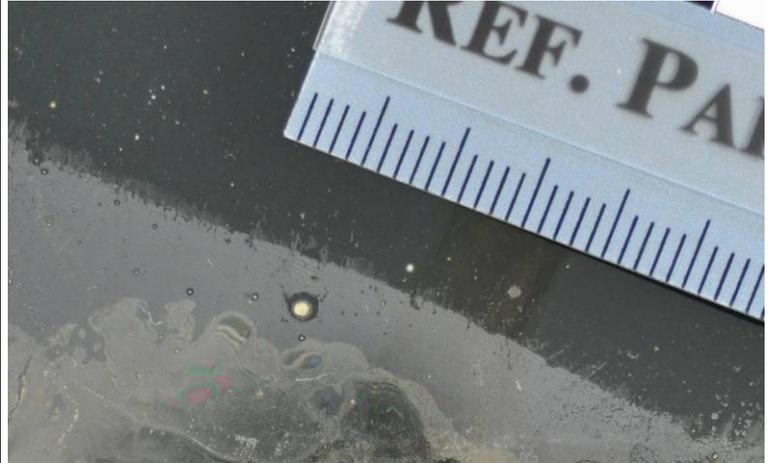
**CONSTGLASS**



Table of results

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ROMONT**  
HERALDIE, SECOURS ET MEMORIALIS  
SOLA ET VITRUM, ET L'ESPERANCE ET VITRUM

**Stage 5:**



Transparent detachment of the Araldite<sup>®</sup>, which looks grey-bluish in reflecting light. The filling resin starts to peel of from the smoother carrier glass but is still attached to the original glass surface. The compound can look less yellow in transparent light.

**Stage 6:**



The Araldite<sup>®</sup> takes an even brighter whitish aspect, “smoky” or “foggy”. The layer may have been shrinking. It seems to be detached from the old glass, but still adhering to the doubling glass.



**CONSTGLASS**



Table of results

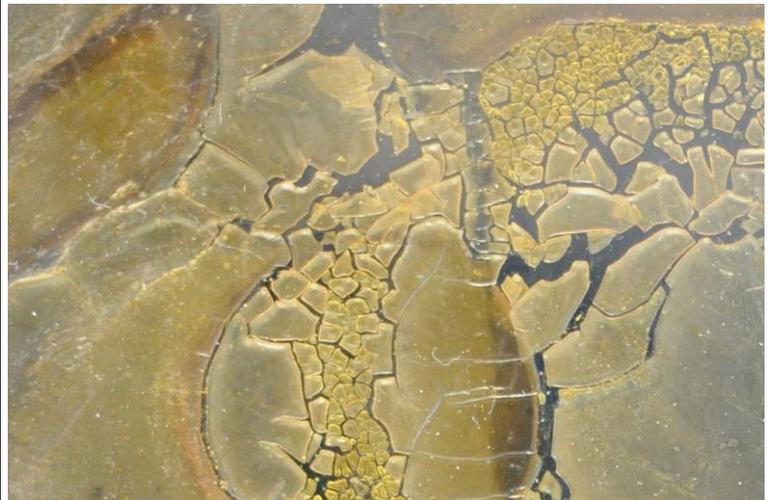
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ROMONT**  
HERALDIC, SECURING THE HERALDIC  
SILVER LAY TECHNIQUE FOR GLASS ARCHITECTURE

**Stage 7:**



The Araldite® looks golden, amber until ochre-yellow. The layer begins to break up, by lined-up cracks or flakes. It seems that at this step it has been detached from both glass surfaces.

**Stage 8:**



Yellowed Araldite® with a shining whitish surface aspect looks therefore as detached from both surfaces. Broken up by cracks or flakes, also shrunken “flake-insulate” which can even overlap.

(Air bubble from process.)

**SEM**

n/a



**CONSTGLASS**



Table of results



	<b>Desktop tomography</b>	n/a
	<b>Phase-contrast tomography on Synchrotron</b>	n/a
	<b>Optical computer tomography OCT</b>	n/a
<b>Chemical Composition</b>	<b>SEM/EDX</b>	n/a
<b>Organic component composition</b>	<b>FTIR</b>	n/a
	<b>RAMAN</b>	n/a
<b>Microbiology</b>	<b>Molecular biology ATP measurements</b>	
<b>Reversibility</b>	<b>Test studies Elimination</b>	We found out by taking out the test samples of the fragment panel, that even when the Araldite® seems to be in a bad condition, it's still sticking to the carrier glass.
<b>Re-treatability</b>	<b>Test studies Re-treatability</b>	In this case, we don't re-treat the panel.