



## International Course on Stone Conservation SC13

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**SESSION:** Durability and retreatability of ethyl silicate treatments

**INSTRUCTOR:** Gottfried Hauff

**TIME:** Wednesday, 12<sup>th</sup> June/ 16:30 – 18:00 (1.5 hours)

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### SESSION OUTLINE

#### ABSTRACT

Durability and retreatability are two priority criteria when selecting a stone consolidant for conservation treatment. Given the context of the stone (environmental and use), for how long will the treatment perform or endure? Will the treatment degrade and if so, can we anticipate the rate of deterioration? Does the degraded treatment permit or prevent retreatment? How can this be determined? In recent German research on the durability of stone consolidants, some 20 previous stone ethyl silicate treatments were examined and rated. According to the extent of new deterioration phenomena, such as sanding or decrease of drill resistance, ultrasonic velocity, or peel resistance. In general, the tendency seems to be: the older the treatment, the worse the rating. However the individual specific results differ widely, i.e. some old treatments are still in good condition. The study could not exactly find the specific reasons for this divergence.

In a separate study on the retreatability of ethyl silicate stone consolidation of a green sandstone, preliminary results have been mildly encouraging,. While retreatments with the original concentration of consolidant lead to unacceptable increase of water vapour resistance, the use of diluted elastified ethyl silicate lead to half way compatible values of water vapour resistance, strength and elasticity.

#### OBJECTIVES

- To understand the concepts of durability and retreatability
- To understand how these criteria inform the conservator's decision of whether or not to use consolidants.
- To understand the advantages, limitations, and potential risks of stone consolidation treatment.

#### CONTENT OUTLINE

- Qualitative and quantitative field methods to examine the durability and retreatability of consolidation treatments
- Discussion and interpretation of exemplary results of field tests.
- When to consolidate? What are the advantages, disadvantages and limitations of stone consolidation treatments?
- What are the criteria for deciding to consolidate?

#### READINGS

No readings

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