



## International Course on Stone Conservation SC13

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**SESSION:** Consolidants – Alkoxysilane based

**INSTRUCTOR:** George Wheeler

**TIME:** Tuesday, 11<sup>th</sup> June/ 9:30 – 11:00 (1.5 hours) & 11:30 – 13:00 (1.5 hours)

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### SESSION OUTLINE

#### ABSTRACT

Alkoxysilanes have a long history of testing and use for the consolidation of stone beginning in 1861. It required over 100 years of field experience and laboratory development to bring the first product of general use into the hands of conservators. Versions of that product continue to be used today on a wide range of stone types with varying success. Some advantages of these consolidants are that the parent reactive ingredients have inherently low viscosities and react at reasonable rates in situ to produce light stable polymer networks. Limitations include the poor strength increases experienced by carbonate stones such as limestone and marble and the brittleness of the gel deposited in the porous network. Newer formulations have attempted to address these limitations.

#### OBJECTIVES

Participants should become familiar with the commercial and ad hoc alkoxysilane-based consolidants that have been used for the consolidation of stone and gain an understanding of their performance, advantages and disadvantages.


#### CONTENT OUTLINE

- Types of alkoxysilanes,
- history of formulations,
- influence of stone type,
- reversibility & retreatability,
- light stability,
- solar radiation,
- color changes,
- use indoors,
- service life.

#### READINGS

 = Essential reading material

 = Available online

 Wheeler, George. 2005. In *Alkoxysilanes and the Consolidation of Stone*. Research in Conservation. Chapters 1,3, 4 and 7. Los Angeles: Getty Conservation Institute.

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