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# Atmospheric corrosion of historical organ pipes: The influence of environment and materials

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### Abstract

The corrosion of lead-rich pipes in historical organs in different parts of Europe has been investigated. The influence of the environment and the composition and microstructure of the pipe metal was studied. Pipe corrosion was documented by visual inspection (boroscope). The corrosion attack and the composition and microstructure of the metal were characterized by OM, SEM, XRD, IC and FAAS. It is shown that the degree of corrosion of the pipes is correlated to the concentration of gaseous acetic and formic acid in the organ. The organic acids are emitted by the wood from which the wind system is built. It is also shown that pipe corrosion decreases with increasing tin content in the range 0–4% (wt). Possible conservation strategies are discussed.



## Keywords

A. Lead; A. Organic acid; B. SEM; B. X-ray diffraction; C. Atmospheric corrosion

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