



## Having a Corking Good Time Ironing Things Out: Sub- and Super-Critical Fluids in the Conservation Field

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Sub and supercritical fluids have been demonstrated to have many interesting and useful characteristics in a variety of applications from the decaffeination of coffee to solvent-less cleaning. The ability to tailor the properties of these fluids by adjusting the parameters of temperature and pressure make them unique among process fluids. The general properties of super and subcritical fluids will be discussed with an emphasis on those that make them of interest to the field of conservation. The remainder of this presentation will be focused on two specific applications; the utilization of sub-critical fluids for the stabilization of iron recovered from maritime and terrestrial sites and the use of supercritical CO<sub>2</sub> in the drying of archaeological cork. The results from over seventy experiments on Civil War era wrought and cast iron samples recovered from saline environments will be summarized. Archaeological cork was selected for study in the drying experiments because it has often been reported to be very difficult to conserve with traditional methods. PEG and other consolidants generally do not readily penetrate the pore structure as they do in very degraded wood. The cork samples employed in this study were from the *Machault*, a French ship that was scuttled in 1760 in Chaleur Bay during the battle of Restigouche and excavated by Parks Canada. The supercritical CO<sub>2</sub> drying procedure employed was modeled after one that has previously been reported in the literature.

# MCI

## *Topics in Museum Conservation*

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