

## NITROGEN-FLOW-FUMIGATION (NFF)/ PRESERVATION OF WOOD AND TEXTILES FROM INSECT DAMAGE BY USE OF NITROGEN

Christoph REICHMUTH, Wibke UNGER, Achim UNGER, Andrea  
FRANK, Dieter RUDOLPH, Rüdiger PLARRE,  
Maja PÖSCHKO and Alexander WUDTKE  
*Federal Biological Research Centre for Agriculture and Forestry, Institute  
for Stored Product Protection,  
Königin-Luise-Straße 19, W-1000 Berlin 33, Germany.*

Precious old sculptures from wood, paintings on wood or with wooden frames as well as furs and skins in museums are very susceptible to damage by insects that are able to digest cellulose through the intermediary of microorganisms in their gut. The usual way of disinfestation consists of treatment with residue building insecticides. Due to undesired possible chemical reaction of the insecticide with the dyes of paint or with furs and skins as well as the ban of ethylene oxide there is an urgent demand for alternative methods.

The development of inert atmosphere treatments (using mixtures of nitrogen and/or carbon dioxide with rather low content of oxygen) in stored agricultural products to control arthropod pests, has led to the same approach for other materials of organic origin also susceptible to insect damage.

Nitrogen-Flow-Fumigation (NFF): A simple method is presented to apply nitrogen to gasproof plastic bags or gastight chambers at constant low oxygen

content on any museum object by providing a constant low pressure of 5 to 10 Pa.