



The EU-APACHE project took an interdisciplinary approach to develop and assemble novel materials and sensing techniques with the aim of avoiding and minimizing future degradation and loss of cultural heritage (CH) in terms of its preventive conservation. Most important for the latter is a constant and protective climate during long-term storage, in which the majority of all tangible CH objects is located. This includes adequate temperature, relative humidity and low concentrations of air pollutants. However, the reasonable installation and maintenance of Heating, Ventilation, and Air Conditioning (HVAC) systems in warehouses or storage rooms is often not affordable by small and medium-sized institutions. EU-APACHE thus focused on realizing individual supportive microclimates in storage containers, such as archive boxes.

The active and intelligent archive box prototypes invented by ZFB can be equipped with e.g. humidity control modules or VOC absorbers in specially created compartments. Further, to sense and monitor the interior climate, sensor transponders of individual size can be integrated in a simple and convenient way. Protective walls avoid direct contact with stored objects in both cases. Intensive development work and thermodynamic evaluations have resulted in an ideal design of a collapsible box, which maximizes air-tightness and thus minimizes damaging influences from the outside. All of this while maintaining the well-known and straight forward style of a foldable archive enclosure made of corrugated board (DIN ISO 16245 type A quality).