

Picture Framers Guild of Australia Incorporated

Acid Free

Although “Acid Free” is a frequently used term its meaning is often confusing. All papers are currently made from plant fibre either wood pulp or cotton fibre. At the cellular level plants have both a cell membrane and a cell wall. The cell wall is either of cellulose or lignin and cellulose. Lignin is present in the cell walls of larger plants to provide the strength for their upright habit and size e.g. eucalypts, pines. Cellulose is present in the cell walls of small plants and those of drooping habit, e.g. cotton/ground covers.

The breakdown of products of cellulose, particularly lignin, produces acid residues that accumulate in the matboard over time in unfavorable conditions. It is these acid residues which ultimately damage artworks on paper. Most matboards and papers are buffered to resist accumulating residues and prevent a rapid deterioration into acid conditions.

A buffer is a solution that is formulated to resist a change in pH* when a small amount of either acid or alkali is added. This solution, applied to the raw product during manufacture, will lengthen the neutrality of the matboard. The breakdown products of lignin are more acidic than cellulose and will, in unfavourable conditions, overcome the buffer and bring the matboard to an acid pH more quickly. Cotton rag mats are less at risk of deterioration when small changes in pH occur.

The chemicals used to make paper pulp lignin free are also suspect in terms of pH neutrality. In some instances the size added to the paper as internal size (during pulp mix time) or on the surface at the end of manufacture, can contribute to acid degradation of the matboard and art paper product.

***pH**

pH is a measure of acidity or alkalinity of a solution or substrate such as matboard or paper. The scale is numbered from 1 – 14 and each number represents a 10-fold increase. No 1 is the most acidic with 7 being considered neutral. Number 14 are the most alkaline. Buffered papers typically have a pH between 8.5 – 9.5.

A note about pH pens.

My experience as a medical technologist and research assistant makes me believe these do not have an accuracy which would lead to an informed opinion on the acidity of product which could be supported, if proper testing was undertaken.

(Source:Jennifer Beale, Frames and Finishes)