

THE AROMA OF BOOKS

WHAT CAUSES THE SMELL OF NEW & OLD BOOKS?

BOOKS, BOTH NEW & OLD, WILL GIVE OFF SEVERAL HUNDRED VOLATILE ORGANIC COMPOUNDS (VOCs). THESE COMPOUNDS HAVE A VARIETY OF ORIGINS - SOME ARE THE PRODUCTS OF DEGRADATION, WHILST OTHERS ARE THE RESULT OF THE TYPE OF PAPER, BINDING ADHESIVE AND PRINTING INK USED IN THE MANUFACTURE OF THE BOOK. THE EMISSION OF THESE COMPOUNDS CAN ALSO BE USED AS A TOOL TO ASSESS DEGRADATION & CONDITION OF BOOKS.

NEW BOOKS

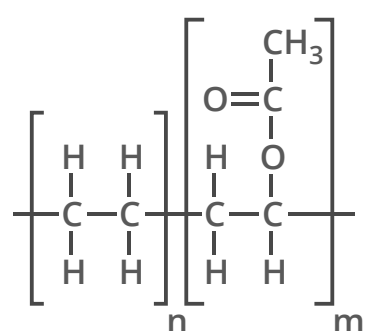
The odour of new books is contributed to by a mix of volatile chemicals which originate from the adhesive, ink, and the paper treatment methods used in the book.



OLD BOOKS

Over time, the gradual breakdown of the cellulose & lignin contained in paper leads to the production of large numbers of different organic compounds.

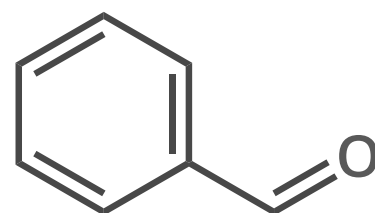
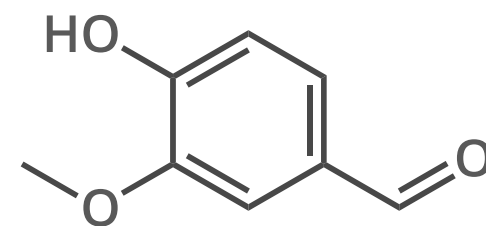
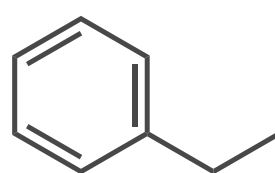
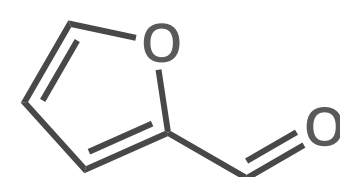
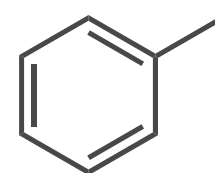
ADHESIVES



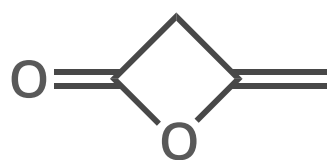
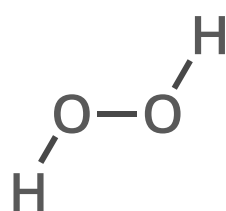
VINYL ACETATE ETHYLENE

Modern day book binding adhesives are often based on 'co-polymers' such as that shown here. Some VOCs may originate from these compounds.

SELECTED COMPOUNDS & THEIR INDIVIDUAL ODOURS

BENZALDEHYDE
Almond-likeVANILLIN
Vanilla-likeETHYL BENZENE & TOLUENE
Sweet odoursFURFURAL
Almond-like

PAPER & INK

ALKYL KETENE DIMER
(aids water resistance)HYDROGEN PEROXIDE
(bleaching agent)

In the paper-making process, the paper is treated with a variety of chemicals, to achieve desired properties. Some of these chemicals could contribute to the release of VOCs. Additionally, petrochemicals used as solvents for inks can also contribute.

IN SHORT: No single chemical causes the odour of books. It's a result of a complex mix of volatile chemicals produced by chemicals used in their manufacture, as well as the gradual degradation of the chemicals within the paper.