

## Reading Between the Lines: Would You Know Invisible Ink If You Saw It?

### ABSTRACT

Many people dismiss sympathetic inks, more popularly known as invisible inks, as a novelty or amusement, of interest only to spies and schoolchildren. In reality, their use may have been much more widespread, and even today they are a part of popular culture, as witness the phrase “reading between the lines,” which refers to the practice of writing invisible ink messages in between the lines of innocent looking correspondence written in ordinary ink. Recipes for making these inks have been available in published sources since the 15th century, and some are even now finding new audiences through the internet. Formulas for sympathetic inks have appeared in chemistry textbooks for centuries to illustrate chemical reactions to students, and this use still continues in science classes.

Chemically, many sympathetic inks are related to the materials of early photography, document copying, and dyeing, and also to the so-called security or safety inks and papers used to prevent forgery and counterfeiting. In recent decades, especially as fluorescent and infrared-readable inks have been introduced, there has been a resurgence of interest in sympathetic inks, as a security measure for printing business and official documents, as well as for marking property. This paper will present a brief history of the most commonly used sympathetic inks, their treatment in scientific and more general literature, and their connection to various branches of arts and sciences, plus some of the modern developments. The experimental section will include examples of writing done with the most commonly cited formulas as a visual reference; it will also demonstrate how to detect developed and undeveloped sympathetic inks on paper through modern non-destructive forensic methods.

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