

KI-STARCH MICROTEST

Francine Gauthier
Centre de conservation du Québec

EQUIPMENT NEEDED

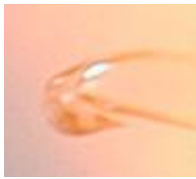


Test paper, Pasteur pipette, deionised water, alcohol burner, modelling clay, tweezers, scissors.

PROCEDURE*



1



In a hot flame, melt the fine end of the pipette to seal it.. Pasteur pipettes with finest ends are easier to seal.



2

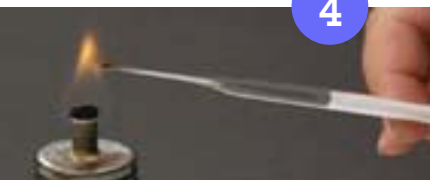
With scissors, cut a minute sample from a non image area at the border of the negative.
With fine tip tweezers, insert the sample and shake its way down to the sealed end of the pipette.



3



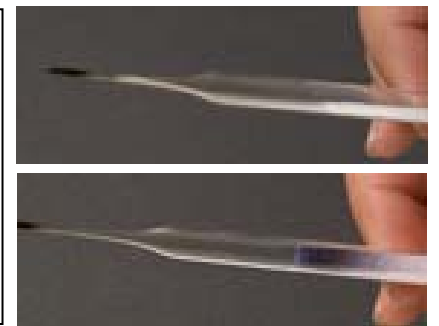
Wet the test paper in deionised water before inserting in the pipette. Seal adequately the aperture with modeling clay.



4

Bring sample to the flame. The moment it is burnt, remove from fire.

Keep the pipette horizontal to permit the combustion fumes to contact the test paper.
The test paper reacts within a few seconds.
A dark blue color indicates a positive result; if the test paper stays white, the result is negative.



* Pipette miniaturisation technique by France Rémillard, published in *Material Characterisation Tests for Objects of art and Archeology*, ODEGAARD, Carroll, 21MMT, Archetype publications, 2000, p.29

KI-STARCH MICROTTEST

Purpose

Identification of cellulose nitrate supports in photographic collections.

Application

Initially conceived to respond to the needs of archivists, this test can be easily performed by the non specialist. It is especially useful when it is not otherwise possible to determine the presence of cellulose nitrate in photographic collections. The closed milieu in which the reaction takes place allows for the taking of minuscule samples, which respects the physical integrity of the object. This easy test requires little equipment or technical knowledge.

Principle

A redox reaction takes place between potassium iodide and the combustion residues of cellulose nitrate. Performed in a closed and humid environment, this reaction activates the formation of a soluble reactive iodide complex which allows iodine to colour dark blue the starch impregnated paper.

Reagents

Potassium iodide, iodine, nitrates, deionised water.

Equipment needed, sampling technique and procedure

See reverse

Interpretation and observations

The white test paper turns dark blue after a few seconds of exposure to combustion fumes, indicating the presence of cellulose nitrate. Cellulose acetate and polyester samples will produce no color change.

The test is non toxic and can be used in any museum or archive environment. The tiny amount of sample involved precludes any danger of explosion.

The potassium iodide and starch test paper must be kept dry and stored in the dark in a closed vial. In these conditions, the papers may be kept for at least four years. In case of doubt, the reagent may be tested with a known sample to verify its accuracy.

Availability

KI-starch test paper:

Fisher Scientific, Gallar-Schlesinger Industries, Precision Laboratories

Reference

Paper Conservation Catalogue. AIC Book and Paper Group. (Chapter 10), *Spot Tests*, p.39.