



AP Paper – False Positive Investigation (Valerie Caldwell and Allan McNevin)

❖ Incident

On 08/11/2016 whilst carrying out testing of a CTS exhibit, the negative control gave a false positive AP result when testing was performed using the large filter paper sheets located within ER laboratory.

Positive and Negative controls are performed each time AP testing is carried out. The Positive control is a dilution of a known semen source on a small Whatman filter paper disc prepared as required in bulk and stored in the freezer in 6124. The negative control test is a reagent blank test, and the reagent can either be added direct to the filter paper, or the paper may be wet first using nanopure water. No nanopure water used in this instance.

The filter paper showed a colour change within the 2 min test period. Subsequent testing at the time was performed on a small (45.2 mm) Whatman filter paper disc and a large (150mm) Whatman filter paper disc. Both were negative @ 2 mins.

Further investigation was required.

❖ Investigation

All paper types within the laboratory were tested with the same lot of AP reagent.

The spray method was used in the fumehood.

Large filter paper sheets have been in use in ER lab 6124 and Bone prep room 6121



ERT blotting paper



Bone room blotting paper

The blotting paper is not of the same batch or type – see images.

All items used in investigation:

- 2 x 50mL AP solution (Lot 20160901JSM – exp. 01/03/2017)
- Large AP paper (ERT stock)
- Large blotting paper (Bone prep room stock)
- Brown paper
- 45.2 mm Whatmans filter paper
- 150mm Whatmans filter paper
- A4 paper

Investigation results tabulated as follows:

	Nanopure H ₂ O result @2 mins	AP solution result @ 2 mins
Large A.P. blotting paper ER	Neg	Pos @ ~10secs- developing
Large blotting paper Bone	Neg	Neg
A4 paper	Neg	Neg
Whatman 42.5mm	Neg	Neg
Whatman 150 mm	Neg	Neg
Brown paper	Neg	Neg

Images of the above reactions have been stored to in G:\ForBio\AAA Evidence Recovery\Photos\AP neg control investigation.

A possible reason for the false positive result is a steady build-up of bleach residue from environmental cleaning. Although the paper itself is not cleaned, the cupboard containing the paper is, and the cardboard box that the paper is stored in is not sealed. The paper is generally only used to test whole items, and these are only rarely received for AP testing by the laboratory.

❖ Outcomes

Corrective actions taken

- Remove the large blotting paper in the ERT lab from use in AP testing (can be used as general blotting paper, for example when draining / drying coplin jars) and purchase new paper
- Place some of the blotting paper from the stock in the bone room in the laboratory, and store within a plastic bag
- Keep the new paper in plastic to avoid exposure to bleach aerosols

This investigation was a good learning tool, reminding the team of the importance and relevance of negative control testing, and testing reagents prior to testing of exhibits. It must also be noted that there was no impact on the testing of any exhibits as a result of the events and investigations outlined above.