

**A-118 CHAPMAN'S MODIFIED WARTHIN-
STARRY USING ZINC FORMALIN**

FIXATION: **10% Buffered Neutral Formalin**

SECTION: Cut paraffin at 4-6 microns

STAINING PROCEDURE:

1. Deparaffinize and hydrate to acidulated water. Let sit for 2 changes at 5 minutes each to bring sections to pH 4.0.
2. Place slides in heated **Zinc Formalin** (A-118-1), for 15 minutes in 60°C water bath.
3. Rinse with acidulated distilled water.
4. Put slides in heated **Silver Nitrate, 1% pH 4.0** (A-118-2), for 2 hours in a 43°C water bath.
5. After the 2 hours are up, prepare developer. Combine the following in order:

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|---|--------|
| <u>Silver Nitrate, 2%, pH 4.0</u> (A-118-3) | 15ml |
| <u>Gelatin, 5%, pH 4.0</u> (A-118-4) | 37.5ml |
| <u>Hydroquinone, 0.15%, pH 4.0</u> (A-118-5) | 20.0ml |

Tap water heated to 56°C
6. Take the slides out of the **Silver Nitrate, 1%, pH 4.0** (A-118-2), individually, and place on pipettes or a staining rack.
7. Rinse with acidulated water, blot dry, and then flood with developer, one slide at a time using:

A glass or plastic transfer pipette. Allow sections to develop for approximately 15 minutes.
8. Rinse with tap water (56°C), 6-7 changes. Check positive control under the microscope. Spirochetes should be black and the background clear.
9. Dehydrate with 2 changes of 95% ethanol, and 3 changes of 100% ethanol.
10. Clear with 3 changes of Xylene (not Xylene Substitute) and coverslip with Permount (M-18).

RESULTS:

Spirochetes.....black
Background.....clear

***NOTE: Use chemically clean glassware. All glassware must be heated to 60°C**

REFERENCES:

Margeson, L.S. Chapman CM: Use of Zinc Formalin as a sensitizer in Silver Stains for Spirochetes. Journal of Histotechnology, 19:2 p. 135-138, 6-96.