

Proposed AWWPA Method For
DETERMINATION OF THE PRESENCE OF HEXAVALENT CHROMIUM
IN TREATED WOOD

by

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Scope:

When chromotropic acid is complexed with chromium (VI), a pink to purple color is formed. Such visible color does not occur with chromium (III). This method indicates, by the absence of the colored chromotropic acid complex, the presence of 15 ppm or less chromium (VI).

Reagent:

Dissolve 0.5 grams of chromotropic acid (4,5-dihydroxy-2,7-naphthalene disulfonic acid) or its di-sodium salt in 100 ml. of 1N (approx. 5 wgt.%) sulfuric acid. This solution should have a shelf life of at least 2 months.

Procedure:

Borings for testing should be taken by hand, split and the bit thoroughly rinsed in water between borings. Borings should be allowed to come to room temperature before testing.

Place the freshly cut boring on a white blotter paper surface, such as filter paper or a white index card. With a medicine dropper, apply several drops of the chromotropic acid solution to wet the core. Usually 5 to 7 drops per a one-inch length of core is sufficient for a core still wet from treatment. If the core is dry, it is helpful to apply 2 or 3 drops of the solution carefully and allow the surface of the core to become saturated before applying the remaining drops.

Allow the reaction to continue for at least 10 minutes. Then remove the core and observe the colored complex that has leached onto the blotter; if the blotter is not wet, insufficient solution was applied and the test must be repeated. Any pink to purple color on the blotter indicates the incomplete conversion of chromium (VI) to chromium (III).

Sensitivity for Color:

The minimum detection limit for the method is 15 ppm chromium (VI).