

# Technical Bulletin M1405

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## Phloroglucinol Increment Core Dye Instructions

No. 63485

Phloroglucinol, 25g Bottle



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### Phloroglucinol Increment Core Dye Instructions

Distinguishing annual rings in diffuse porous species has been simplified through procedures outlined by Professor Archie E. Patterson, School of Forestry, University of Georgia, and published in The Journal of Forestry.

Professor Patterson's writings are extremely useful in defining the use of Phloroglucinol.

"Foresters making growth studies in diffuse porous species such as black gum (*Nyssa sylvatica*, Marsh.), tupelo gum (*Nyssa aquatica*, L), red gum (*Liquidamar styraciflua*, L), yellow poplar (*Liriodendron tulipifera*, L), and others, have been faced with the almost impossible task of counting or measuring annual rings which cannot be clearly distinguished in these species.

One procedure for making growth rings more distinct involves the use of a phloroglucinol solution which stains the lignin of the wood a red color, leaves the cellulose unstained, and makes the growth rings much more evident. At the risk of repeating a standard, or well known, procedure, it may be of value to the field forester to outline the steps involved in this method.

Two solutions are needed. The first is a one percent solution of phloroglucinol in 95% ethyl alcohol, and the second is 50% HCL. This phloroglucinol solution is made by dissolving one gram of phloroglucinol crystals in 100cc of 95% ethyl alcohol.

First, soak the increment cores in the phloroglucinol solution for approximately one minute. Second, remove the cores from the phloroglucinol solution and let excess solution drip off. Third, place them in the 50% HCL acid solution until they begin to turn red. And finally, wash cores in water and let dry.

The growth rings will become more evident as the cores dry, and if they are examined in the light from a fluorescent lamp, no difficulty in distinguishing annual rings will be encountered.

Since two solutions are used in the process, one of which is an acid, and since the increment cores can be treated in either a wet or dry condition, the field man may wish to collect the cores during the day and treat them and count the rings at some other time. In such case they can be placed in large-size soda straws and properly labeled for future examination. This, of course, also allows for examination under the fluorescent light which has been found to be a major factor in distinguishing the rings by this method."