

For archiving about double the minimum required sample amount is preferred.

Archiving is not a requirement but is highly recommended.

A Short Explanation of
Accelerator Mass Spectrometry (AMS)
C-14 Dating.

In AMS C-14 dating the Laboratory must determine the C-14 amount of a sample and the rate at which this material was synthesized. This rate is indicated by the $\delta^{13}C$ value and expressed in parts per thousand (per mil). Individual species and types of material have their own $\delta^{13}C$ value.

The atmosphere is believed to be the source for all C-14 in organic tissue and the C-14 content of the atmosphere is given as a value of 1. Since organic tissue has a lower C-14 content than the atmosphere, $\delta^{13}C$ is negative and material C-14 content is given a decimal of 1. The older the material the lower the decimal.

The sample C-14 amount at its $\delta^{13}C$ rate is converted into wood ($\delta^{13}C$ at -25 per mil) so that we can read historical dates from the Tree-rings. Trees grow by synthesizing wood into concentric layers throughout the lifespan of the tree. Each year the tree adds another layer. These layers are called Tree-rings and they take us from the present to many millennia before the present. Throughout this time span they give the C-14 content of the wood. When the C-14 content of a sample is converted into that of wood, the historical date may be ascertained.

For example, if we measure a sample and determine that its C-14 content is .7500 with a $\delta^{13}C$ of -10 per mil when we convert this into wood the C-14 content is now considered to be .7386. Organic tissue synthesizes with its C-14 content being less than 1 and expressed as a decimal of 1. So we know our sample had an initial C-14 content of