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An accurate and fast method for moisture content determination.

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Moisture content (MC) is an important quality parameter of wood chips, strongly influencing the lower heating value and, consequently the price of fuel chips. The oven method, the current reference for determining MC, is slow. It may sometimes not be concluded before the sampled load is combusted, increasing the risk of inoptimal combustion and decreasing the value of MC determination. Thus, a fast and reliable method for MC determination would be valuable. Skogforsk compared the Metso MR Moisture Analyzer, (Metso) which measures MC by means of magnetic resonance, with the oven drying method. MC measurements were made on stemwood and logging residue chips, which had MC ranging from 17 % to 65 % wet basis. On average the Metso overestimated the MC by 0.15 %-units for wood chips and 0.11 %-units for residue chips. A linear regression with reference MC as dependent variable and Metso MC as independent explains 98.8 % of the variation for stem wood chips and 99.1 % for residue chips. In both cases a 95% confidence interval covers less than ± 2.5 %-units. The standard deviation of repeated measurements on a sample with the Metso was 1.0 and 0.6 %-units for wood and residue chips, respectively. The measurement takes place in standardized containers of 0.8 liters, which limits the length of the chips that can be measured, without further sample preparation. The Metso is easy to use. As a measurement takes 120 seconds users can quickly estimate MC of a load, even if multiple samples are needed.