

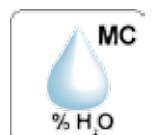
ELECTRONIC MOISTURE METER FOR WOOD CHIPS/BIO FUELS FMG-3000

The moisture-meter **FMG-3000** is designed to quickly determine the percentage of the moisture content in wood chips. The moisture determines the heat value of the fuel and thus the price to which wood chips is accounted for.

The conventional method, dry weight method (Gravimetric Method) for determination of moisture content is very time consuming. With the FMG-3000 the moisture content in wood chips can be determined in a simple and quick manor.

Fill the bucket with wood chips and have the Moisture Content value ***within a few seconds***.

The robust construction has been designed for heavy-duty use like in heating plants.



A Moisture Content of 40% in Bio Fuels reduce the heat value with 50% compared to 18% of Moisture Content

Test method

With the moisture-meter FMG 3000, the water content measured by determining the capacitance. The meter-container represents a capacitor. The external electrode is the metal sheet of the sample bucket, the internal electrode is isolated and located in the middle of the device.

The measuring principle is based on the frequency deviation of an oscillator by the moist wood chips. The water content is indicated immediately after the quick-measuring electronic evaluation in percent. The measuring method is very accurate for the simple reason that the two materials to be measured (water and wood) have highly different dielectric constants. Wood has a dielectric constant of about 1 to 7, water of about 81. Since the dielectric constants are so much different, species of wood do not essentially influence the measuring.

Measurements of Moisture Content with FMG 3000

The moisture-meter FMG 3000 is designed for a mixture between fine and medium wood chips which is mostly delivered in rural areas. Extremely coarse material could lead to cavities and, therefore, distort the results.

When filling the meter-container, make sure that it is evenly packed. Having filled half of the meter-container, it is normally sufficient to shake on or two times to compact it properly. Fill the meter-container up until the cross-rip is reached.

Definition

The definition of both terms wood moisture on the one hand and water content also known as moisture content.

Moisture

Wood moisture (u) equals the quotient of contained water mass and the dry matter of a wood test: According to this definition, a wood moisture of more than 100% is possible.

$$u = \frac{m(\text{water})}{m(\text{wood})}$$

Water content in percent

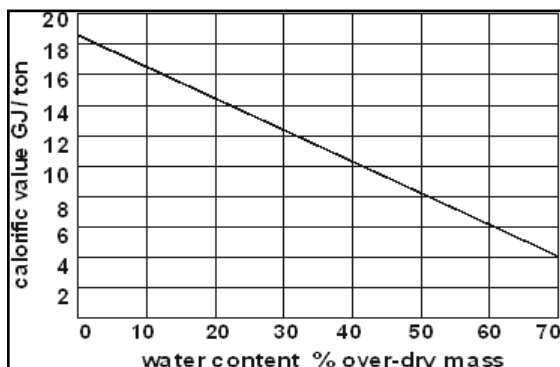
The water content is defined through:

$$\text{water content \%} = \frac{\text{original mass} - \text{oven-dry mass}}{\text{original mass}} \times 100$$

Calorific value depending on

Water content

The graph depicts the function of heat value and water content. As a conclusion, a water content of about 40% halves the heat value.



TECHNICAL SPECIFICATION	FMG-3000
METHOD OF MEASUREMENT	Capacitance type
SAMPLE BUCKET CONTAINS (APPROX.)	60 litres
MEASURING RANGE	0-55 % Water content
DIMENSIONS (H X W)	640 x 500 mm
WEIGHT (APPROX.)	12 kg
ELECTRONIC CONTROLLED	
BATTERY POWERED (BATTERY CHARGER INCLUDED)	