

User manual Carbide Measurement²

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Safety:

The humidity measurement according to the calcium carbide method is based on a chemical reaction.

Working with this method requires special care; this is partly because, during the reaction, combustible gases occur. When the measurement has been taken and the pressure bottle is to be opened, it is important you do this in an open or well-ventilated area, and definitely do not open it near an electrical installation or near an open fire. Smoking is also forbidden. The gases released upon opening the pressure bottle are flammable. Should a fire start for whatever reason, do not extinguish it with water, stifle it with a blanket or sand. It is also important to always point the bottle away from you when you open it.

Follow the steps below for a good measurement:

1. Take sample.

Using the hammer and chisel supplied, take a sample from the lowest layer of the material to be measured.

2. Crush it to a fine powder.

Place the sample in the supplied dish and use the hammer and sledgehammer to crush it.

3. Weighing.

Hang one of the clean and dry weighing cups on the pull scale and turn it to zero.

Fill the cup with the crushed sample using the supplied spoon. Avoid contact with the hands, this can affect the measurement result. Then read the weight, and write it down if necessary. (Tip: For sand cement 20 gram, for Anhydrite 50-100 gram).

4. Mixing.

After measuring the weight, immediately pour the sample into the clean, dry pressure bottle supplied. Then add all 4 of the supplied ball bearings (Note: The bottle volume is only correct when it contains all four bearings). Slide the calcium carbide ampoule carefully into the bottle. Hold the bottle at an angle so the ampoule does not break. The bottle can now be carefully sealed.

5. The measurement.

Shake the bottle vigorously to shatter the ampoule and further crush the sample. Next, make rotary movements to mix the contents of the bottle thoroughly for at least 1 minute; repeat every 5 minutes. The measurement is only ready after 15 minutes if the pressure remains constant. Then read the moisture content from the supplied pressure gauge.

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6. Cleaning the bottle.

Open the bottle carefully so the pressure can escape slowly. Clean the ball bearings and put them back in the holder immediately. Then empty the bottle by knocking it above a waste bin; clean it DRY with the supplied brush.



The scale of the pressure gauge runs from 0 to 2.5 Bar. The moisture percentage in the material to be measured is shown in [M%]. By accurately weighing the material to be measured at, for example, 50 grams, the exact pressure can be read from the green scale division, making it easy to determine whether the material meets the required moisture content. When the pointer turns to the red shaded area on the pressure gauge, the material to be measured is too moist to take a good measurement. You must then repeat the measurement at a later time so the material has had more time to dry.

Temperature and measurement at multiple locations:

If you want to carry out multiple measurements, one after another at the same location, make sure you always do this under the same temperature conditions, and carry out each measurement in exactly the same way. The temperature is extremely important because this can influence the pressure in the pressure bottle and, therefore, give a false reading of the moisture content. Therefore, never expose the bottle to direct sunlight or other heat sources during the measurement. Multiple measurements at the same location must also always be performed with the same sample weight. For example, if a sample weight of 20 grams has been chosen, the other measurements must also be carried out at the same weight. The same weight and temperature also apply to a measurement that is repeated after a time period.

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Bijlard International

Conversion table:

* The values in the conversion table below have been realised at a temperature of 20 °C

Pressure gauge (bar)	Sample weight			
	10 gr. Black	20 gr. Red	50 gr. Green	100 gr. Blue
	Moisture			
0.2	1.9	0.9	0.38	0.19
0.3	2.9	1.5	0.58	0.28
0.4	3.9	2.0	0.78	0.38
0.5	4.9	2.5	0.98	0.47
0.6	5.9	3.0	1.18	0.57
0.7	6.9	3.5	1.37	0.66
0.8	7.9	4.0	1.57	0.76
0.9	8.9	4.5	1.76	0.85
1.0	10	5.0	1.96	0.95
1.1	11	5.5	2.16	1.05
1.2	12	6.0	2.35	1.14
1.3	13	6.5	2.55	1.23
1.4	14	7.0	2.74	1.33
1.5	15	7.5	2.94	1.42

The maximum allowable moisture content:

* Source: BEB (Bundesfachgruppe Estrich und Belag) and ZPF (Zentralverband Parkett und Fussbodentechnik)

	Sand cement	Anhydrite
Stone and tiled floors Elastic floors (PVC/Rubber) Linoleum Parquet	Less than: 1.8	Less than: 0.3
Vapor-permeable Textile floors	Less than: 1.8	Less than: 0.3
Vapor-inhibiting Textile floors	Less than: 1.8	Less than: 0.3

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Measurement report CM-measurement	Bijlard International
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Date:	
Client:	
Company/Property:	
Address:	
Place:	
Space:	
Location in the space:	
Material type:	

Measurement:			
Measurement number:	1	2	3
Date:			

Temperature of the space:		°C		°C		°C
Humidity of the space:		%		%		%
Temperature of the material:		°C		°C		°C
Weight:		gr.		gr.		gr.
Pressure gauge pressure:		BAR		Bar		Bar
Moisture content:		M-%		M-%		M-%

Required M-% achieved?	YES	NO	YES	NO	YES	NO
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If the required moisture content (M-%) has not been achieved during the initial measurement, carry out the measurement at a later time and fill in the data in the following table (2). Repeat until the required result has been achieved. Use one measurement report per space to avoid confusion.

Client data:

Place:

Date:

Name in block letters:

Signature:

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User manual scribe¹

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Description and application:

The scribe is used to assess the hardness of the underfloor in accordance with DIN 18365 "Installing floor coverings", Part 3.1.1. The scratch test is required to provide the floor layer/upholsterer with clarity regarding the treatment of the floor.

How does the scribe work?

You can adjust the spring pressure of the carbide pen using the set screw on the pen. There are 3 settings (spring strengths) possible.

Setting 1: Basic setting of the spring. The set screw is in the upper position below the black button. The load on the carbide point is approx. 1 kg, which corresponds to approximately 9 Newtons (N). Application: For normal substrates in homes.

Setting 2: Middle setting. The load on the carbide point is approx. 2 kg, which corresponds to approximately 18 Newtons (N). Application: Average load for floors in public buildings and offices.

Setting 3: Set screw in the lowest position. The load on the carbide point is approx. 3 kg, which corresponds to approximately 27 Newtons (N). Application: Industrial floors and heavily loaded floors in public buildings.

Application:

Before the test, decide upon the desired spring load and tighten with the screw. Then place the scribe with carbide point in the supplied template and press against the spring pressure with sufficient power for the scribe to touch the template.

Important:

Hold the scribe by the tube. The ball end must not be touched during the test. Hold the template firmly with one hand and the scribe with the other and draw straight parallel lines in the template using the carbide point. Now turn the template by 40 to 60° and draw parallel lines in the template once more. A network of lines will emerge. It is now possible to draw a conclusion about the hardness of the floor from the lines scratched into the floor and the accumulated particles at the end of the lines.

Review:

The result is a pass if the floor surface cannot be scratched. If it is possible to scratch the surface, the substrate must be pre-treated. You must report this and suggest the necessary measures that may be required. While the scribe is not in use, always return it to position 1 and tighten.