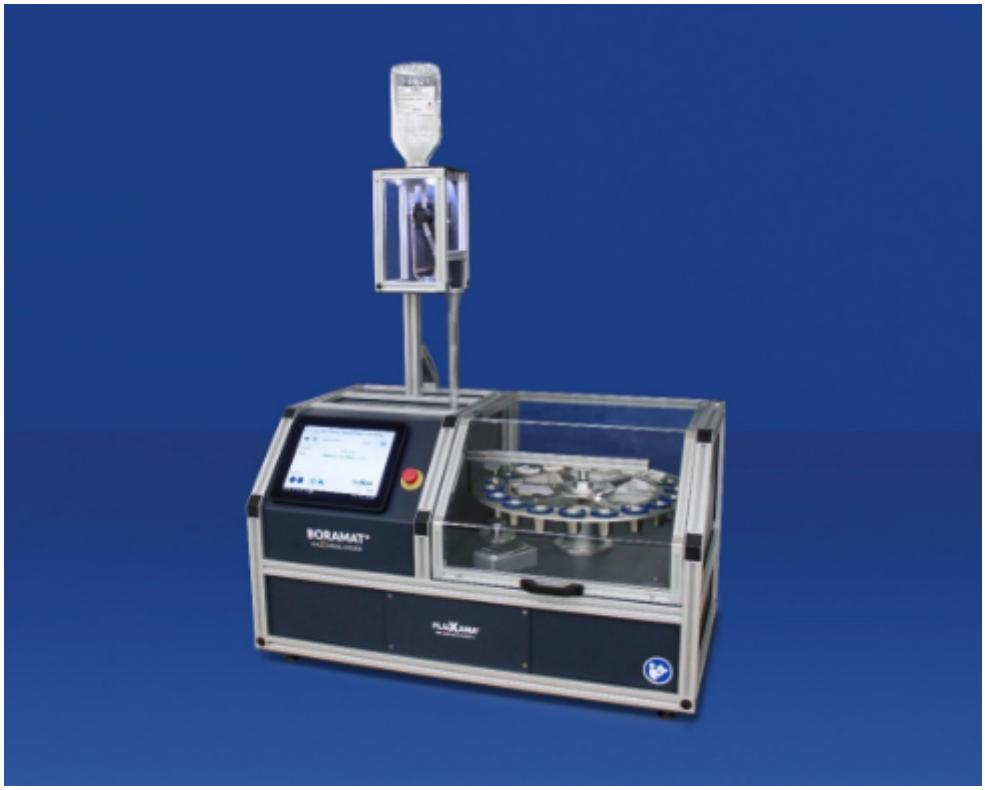
The BORAMAT® 18 “Catch-Weight” Function



- **Introduction:**

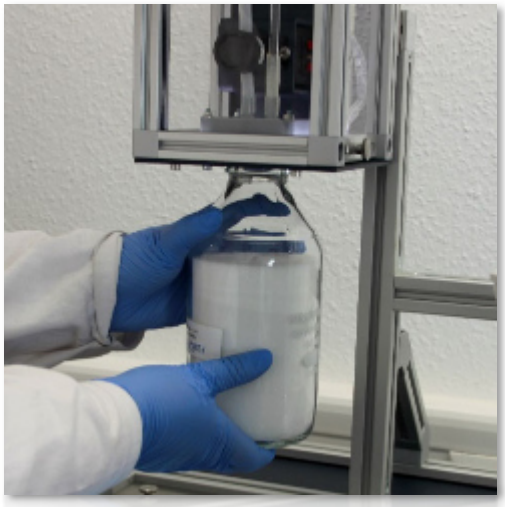
When working with fusions, it is not the exact weight of the sample that plays the deciding roll, rather the ratio of sample to flux.

The BORAMAT® 18’s Catch Weight function uses this by enabling the rough weighing in of the sample material directly at the doser, without having to remove the weighing container from the device. The exact ratio of sample to flux is achieved by accurately weighing the sample with the BORAMAT® 18 and then automatically calculating the amount of flux that must be added to achieve the given target.

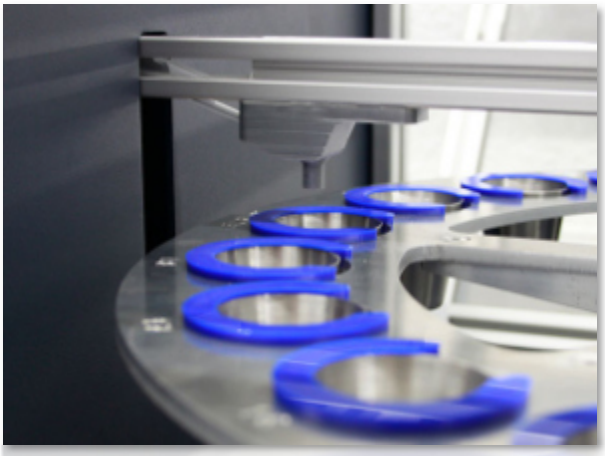
The purpose of this Whitepaper is to describe the Catch Weight function and, using an example, to show that this method not only saves time, but is also extremely effective and precise.

- **Procedure:**

- To begin, a bottle with flux with a GL45 connection is attached to the BORAMAT® 18. The flux, for example, FX-X65P, has been specifically developed for the BORAMAT® to ensure precise dosing.



1) Attach the bottle of flux

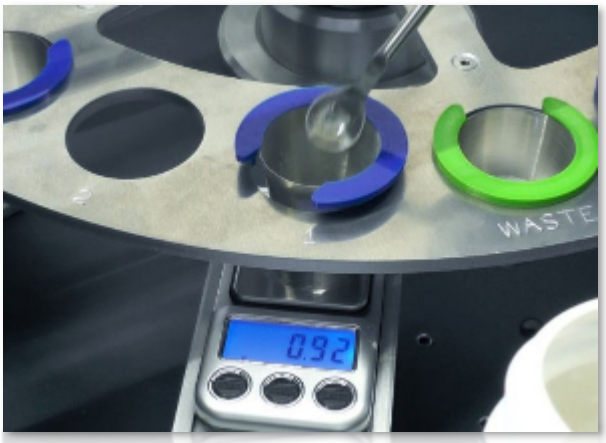


2) Beakers with adapters in the carousel

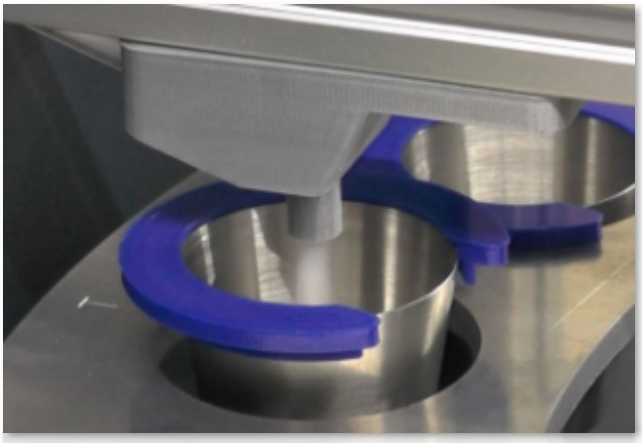
- The dosing carousel can be equipped with different containers. Various adapters are available for this purpose.

- Select the "Catch Weight" function in the software and start the dosing. The BORAMAT® weighs in a previously determined amount of flux for all positions. In this way, the sample is sandwiched between two layers of flux and can later be transferred without residue into the fusion crucible.

- When the pre-dosing of flux is complete, the user manually weighs approximately 1 g (+/-0.1 g) of sample into the crucible using the additional scales in the BORAMAT. After pressing a button, the sample is precisely weighed on the BORAMAT's internal scales. This procedure is repeated for all samples to be weighed.



3) Weighing the sample



4) Dosing head dosing flux

- In the software, the second dosing step is then started and the BORAMAT® 18 automatically weighs the remaining amount of flux into all crucibles until the specified ration is reached.

Example weighing of 12 cement samples with FX-X65P in the ratio of 1:8 with the BORAMAT® 18:

Pos.	Flux / g*	Sample / g	Ratio
1	8.1184	1.0148	8.0000
2	8.1189	1.0148	8.0005
3	7.8583	0.9823	7.9999
4	8.0551	1.0069	7.9999
5	7.9025	0.9878	8.0001
6	7.9229	0.9904	7.9997
7	7.9044	0.9881	7.9996
8	7.8748	0.9844	7.9996
9	7.9743	0.9968	7.9999
10	7.9909	0.9988	8.0005
11	8.0014	1.0002	7.9998
12	7.8436	0.9804	8.0004

*Sum of both flux weighing operations

- **Conclusion:**

The values in the dosing example show that the BORAMAT® 18 enables precise, automatic dosing. The uncertainty (P = 95%) of 0.0020 set for the device is, with a precision of 0.0005, clearly surpassed in practice.

Not only automatic dosing of the flux is a deciding factor for the saving of time when working with the BORAMAT® 18, but also the fact that it is not necessary for the user to remove the crucible from the device to weigh the sample, significantly reduces the time required for sample preparation.

Therefore, taken as a whole, the BORAMAT® 18 represents a reliable and effective instrument for optimizing laboratory processes.

Distributed by:

www.r5outcomes.com
Contact:
info@r5outcomes.com
Ph: +61 2 4072 1672

Address: PO BOX 6236 Kincumber 2251 NSW Australia