

NIR- Laboratory measurement device
for solid and pasty products

particuLAB



Harrer & Kassen GmbH
Am Heschen 4 - 6
D - 75328 Schömberg - Langenbrand
Tel.: +49 (0)7084/9248-0
Fax: +49 (0)7084/9248-29
www.harrerkassen.com
info@harrerkassen.com



Description:

The particuLAB is an NIR- (Near- Infrared) laboratory measurement device with state- of- the- art technology. Which can measure all organic components in solid, pasty and powdery products.

With one measurement you can measure simultaneously all valuable components like fat, protein, collagen, water, etc.

Through the simple sample preparation, the light and compact construction, is the particuLAB suitable for laboratory measurements and AT– Line measurements.

With the easy to use calibration function, our customer can take spectra's at the device and read the internal stored spectra with the calibration software.

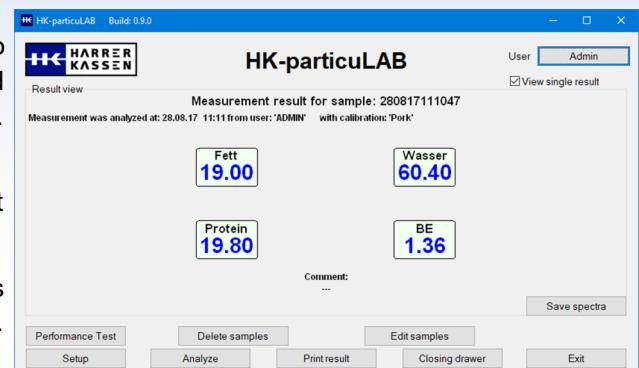
Through this function, our customer can expand independent or with our help an existing calibrations or create new calibrations.

Operating software

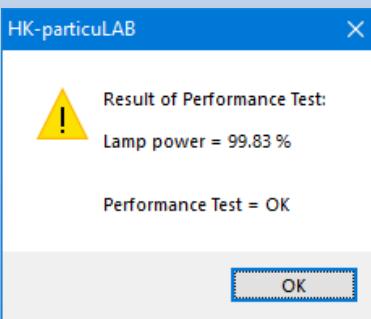
With the operating software HK- particuLAB, it is possible to measure simultaneously up to **10 organic components** and calculate **5 further** out of the measured components e.g. **protein content without connective tissue**.

It is possible to display the measurements as a single result (right picture) or all results listed (lower picture).

You can print the measurements as last result, today's results or weekly results. All measurements are also stored in a csv. file, which can be opened with Excel.



Date	Time	ID	Calib	Fett	Wasser	Protein	User
31.03.17	13:31	310317133003	čajna maksi nadjev 2	33.35	52.44	13.87	ivanad
31.03.17	13:33	310317133213	čajna maksi nadjev 2	32.21	54.80	13.92	ivanad
31.03.17	13:35	310317133341	čajna maksi nadjev 2	33.70	51.31	14.43	ivanad
31.03.17	13:36	310317133532	čajna maksi nadjev 2	36.04	48.08	14.35	ivanad
31.03.17	13:41	310317133913	čajna maksi nadjev 2	37.52	46.50	15.18	ivanad
31.03.17	13:43	310317134201	čajna maksi nadjev 2	19.26	59.01	15.50	ivanad
14.04.17	08:24	140417082318	Sudzuk	34.98	51.66	13.57	ivanad
14.04.17	08:26	140417082522	Sudzuk	30.07	53.3	15.80	ivanad
14.04.17	08:28	140417082728	Sudzuk	29.69	53.93	14.80	ivanad
14.04.17	08:29	140417082863	Sudzuk	30.78	53.97	14.78	ivanad
14.04.17	08:31	140417083013	Sudzuk	31.30	52.67	14.57	ivanad
14.04.17	08:32	140417083128	Sudzuk	29.31	53.75	15.73	ivanad
24.04.17	07:54	240417075314	čajna maksi nadjev 2	15.68	66.97	18.09	ivanad
24.04.17	07:56	240417075528	čajna maksi nadjev 2	16.84	65.39	17.29	ivanad
24.04.17	07:57	240417075632	čajna maksi nadjev 2	14.69	67.68	17.53	ivanad
24.04.17	08:05	240417080441	čajna maksi nadjev 2	21.56	65.28	15.48	ivanad
24.04.17	08:07	240417080608	čajna maksi nadjev 2	16.62	64.47	17.49	ivanad
24.04.17	08:19	240417081753	čajna maksi nadjev 2	18.30	76.04	16.19	ivanad
24.04.17	08:30	240417083000	čajna maksi nadjev 2	30.62	60.10	13.59	ivanad
24.04.17	08:32	240417083134	čajna maksi nadjev 2	29.06	60.68	15.03	ivanad
24.04.17	10:32	240417103146	čajna maksi nadjev 2	24.81	64.83	16.19	ivanad
17.05.17	10:49	170517104834	čajna maksi nadjev 2	10.79	70.29	18.27	ivanad
07.07.17	13:26	070717132622	čajna maksi nadjev 2	48.64	38.7	11.60	ivanad
07.07.17	13:30	070717132869	čajna maksi nadjev 2	45.14	40.46	11.66	ivanad
07.07.17	13:36	070717133315	čajna maksi nadjev 2	22.82	40.27	11.43	ivanad
10.07.17	07:37	100717073538	čajna maksi nadjev 2	43.73	31.22	10.49	ivanad
10.07.17	07:38	100717073731	čajna maksi nadjev 2	44.66	32.27	9.20	ivanad
10.07.17	07:40	100717073922	čajna maksi nadjev 2	37.94	35.45	10.32	ivanad
10.07.17	07:46	100717074537	čajna maksi nadjev 2	36.49	35.14	11.47	ivanad
20.07.17	10:42	200717104130	čajna maksi nadjev 2	19.12	49.08	16.85	ivanad
20.07.17	10:46	200717104522	čajna maksi nadjev 2	16.88	48.94	17.26	ivanad

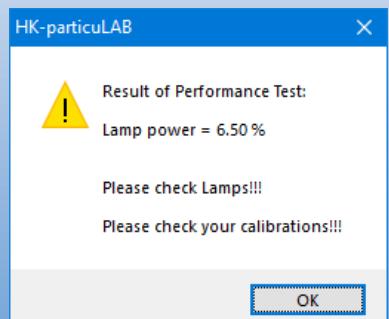


To check the performance of the particuLAB, it is possible to make a performance test with a reference plate.

As long as everything working properly, the performance test show the **Lamp power** and **Performance Test** (left picture).

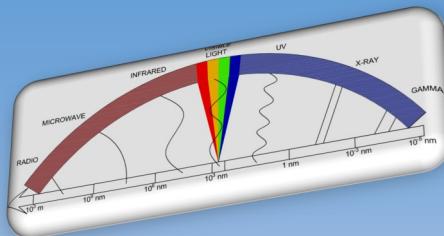
If something does not working properly, the performance test show the **Lamp power**, **Please check Lamps!** and **Please check your calibration!** (right picture).

If this happens, please contact your contact person.



No moving parts in the optic:

The Harrer & Kassen GmbH uses in his laboratory measurement devices an NIR (Near- Infrared) Diode- Array detector (Spectrometer) with thermoelectrically cooling, this is necessary for an optimum Signal-to-Noise ration, even under rugged application conditions.

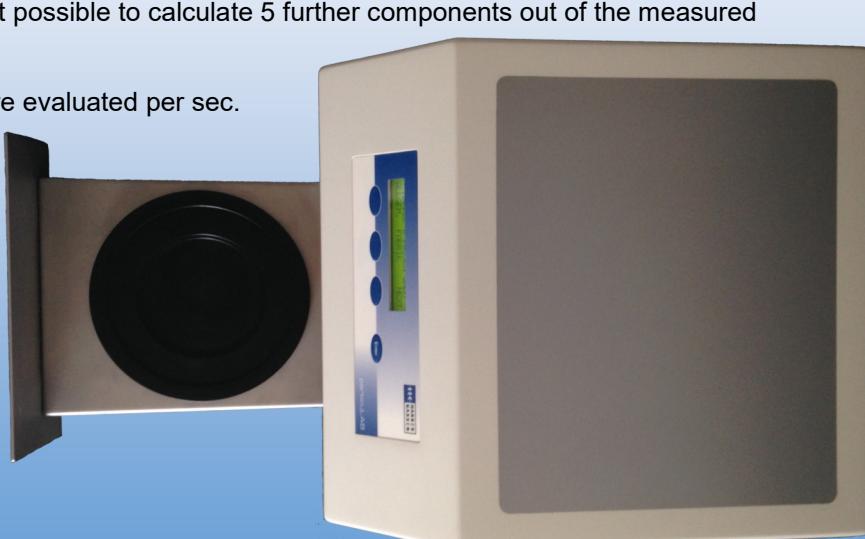


The product will be irradiated with a special developed Halogen lamp. The resulting diffuse reflection (the diffuse reflection contains the necessary information of the constituents) is transmitted via a fibre optic to the spectrometer. The spectrometer split the spectra in 256 support points.

Through the splitting of the spectrums, can we select with our calibration software the optimum wavelength rang for each component.

Advantage:

- Stat- of- the- art NIR- Technology
- No moving parts in the optic, like filter wheel
- No expensive cleaning agents
- Archiving of the measured values in a csv file (can be opened with Excel)
- With 9,5kg is the particuLAB a lightweight under the laboratory devices
- Easy to use software:
 - for laboratory operation
 - for calibrations
- Open system:
 - existing calibration can be expanded
 - new calibrations can be created independent
- Fast result (approx. 36sec.)
- Can be connected to an existing laboratory PC
- Simultaneous measurement of up to 10 organic components
- Additionally is it possible to calculate 5 further components out of the measured components
- 10 Spectra's are evaluated per sec.



Measurement data:

Analysis time:	approx. 36 sec. (adjustable)
Sample temperature:	+4°C for Meat (Others production temperature dependent)
Measuring equipment:	Petri dishes (90, 100, 145mm)
Sample volumes:	dependent of petri dishes size
Cleaning:	only glass petri dishes
Reference measurement:	Reference plate

PC- requirement:

- 300 MHz clock speed (at least) recommended Pentium III- Processor (or faster)
- Windows 7 (32 und 64 Bit) or higher
- 512 MB RAM (or higher)
- USB interface

Technical data:

Housing:	ABS plastic / Aluminum
Size:	H x W x D 340 x 375 x 255 mm
Weight:	approx. 9,5 kg
Protection Type:	IP32
Power supply:	100 - 240 V/AC – 50/60 Hz – max. 200mA
Environmental temperature:	-20°C - +30°C
Operation:	4 in membrane keypad integrated soft keys
Display:	2x24 Sign LCD, LED– backlight
PC– Interface:	USB

Scope of supply:

The particuLAB is supplied with software, cable and is connected to an existing PC or laptop.

At the commissioning, the operating personal gets a device instruction / training.

Directives:

The particuLAB is CE- conform, according to the followings directives:

- EMC directives 2014/30/EU:
 - generic standards EN 61000-6-2
 - generic standards EN 61000-6-4
- Low- voltage directives 2014/35/EU
- RoHS directives 2011/65/EU