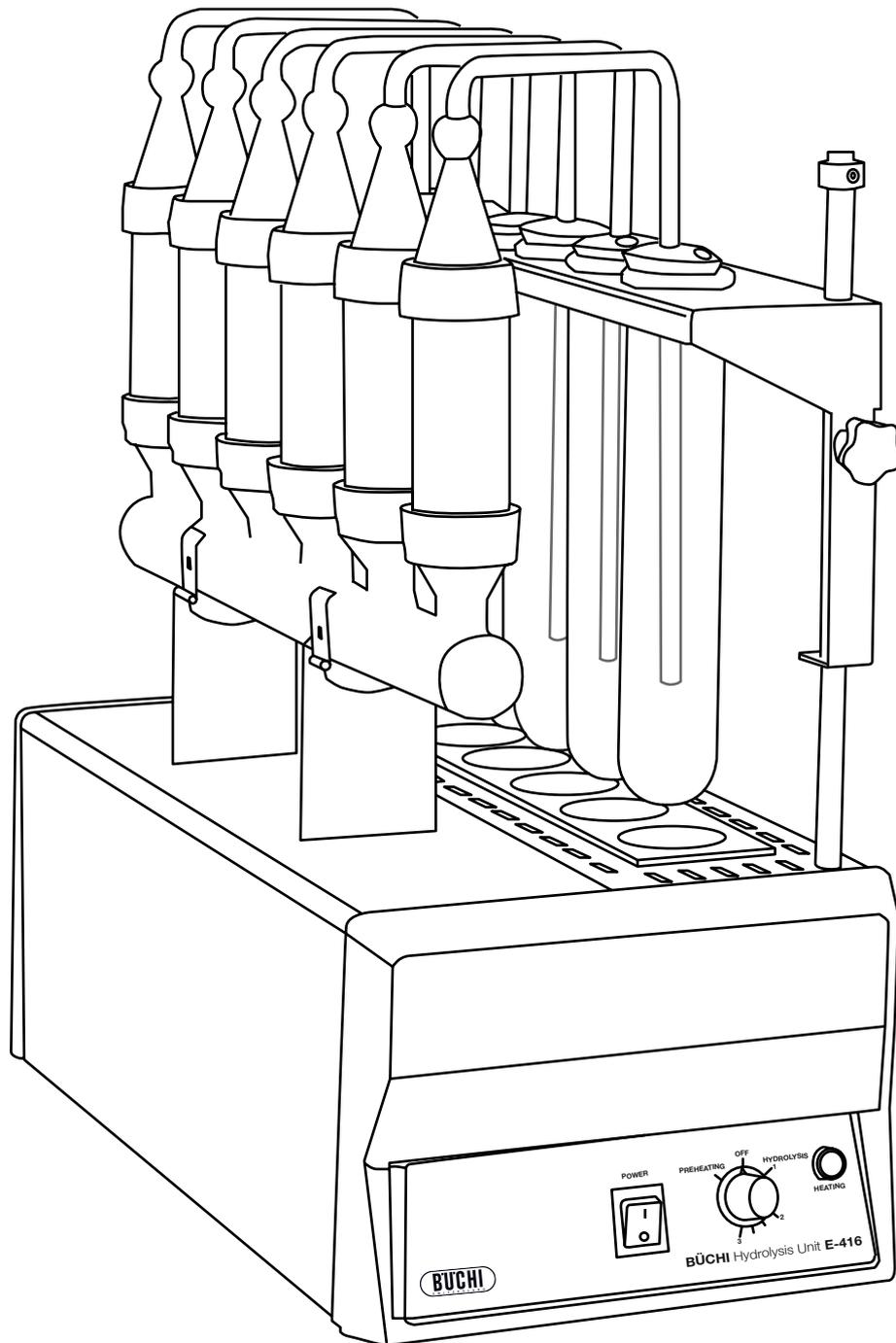




# Hydrolysis Unit B-411 / E-416

## Technical data sheet

The Hydrolysis Unit B-411 and E-416 ensure safe and fast acid hydrolysis for total fat content determination handling four or six samples simultaneously. The method complies with the standardized methods (Weibull Stoldt, AOAC). The B-411 (4 position) works with the B-811 extraction unit while the E-416 (6 position) is compatible with the E-816 extraction unit.



## Scope of delivery

All models are delivered ready to use and are packaged with:

Components	E-416	B-411
Sample tubes	8	4
Sample aspiration tubes	6	4
Rubber coupling, EPDM	6	4
Rubber coupling, Viton		4
Suction tube for E-416	1	
Suction tube for B-411		1
Cap for rinsing sample tube	6	4
Stoppers, blind plug	8	4
Bottle of 2.5 kg quartz sand	1	1

## Order code

Choose the configuration according to your needs:

**0 4 2 8 7**  

Hydrolysis Unit E-416: Supply voltage

0 230 V ±10 % 50/60 Hz

1 120V ±10 % 50/60 Hz

**0 4 4 4 6**  

Hydrolysis Unit E-416: Sealing modification

8 230 V ±10 % 50/60 Hz / Viton

**0 3 7 4**    

Hydrolysis Unit B-411: Supply voltage, sealing material

5 5 230 V ±10 % 50/60 Hz, EPDM

5 6 120 V ±10 % 50/60 Hz, EPDM

6 1 230 V ±10 % 50/60 Hz, Viton

## Dimensions and weight

	Dimensions (WxHxD)	Weight
E-416	275 x 600 x 570 mm	14.5 kg
B-411	275 x 600 x 570 mm	13.5 kg

## Technical data

	B-411	E-416
Volume of glass sample tubes	130 mL	115 mL
Height of glass sample tubes	117 mL	105 mL
Volume of sample tubes	300 mL	
Maximum sample weight	10g	
Recommended particle size of quartz sand	0.3 - 0.9 mm	
Recommended diatomaceous earth	Celite 535	
Recommended concentration of hydrochloric acid	4 mol/L	
Mains voltage	230 V ± 10 % or 120 V ± 10 %	
Frequency	50/60 Hz	
Power consumption	1100W	
Overvoltage category	II	
Pollution degree	2	

## Ambient conditions

For indoor use only, altitude up to 2000 m above sea level, maximum relative humidity 80 % for temperatures up to 30 °C, ambient temperature 10 - 40 °C

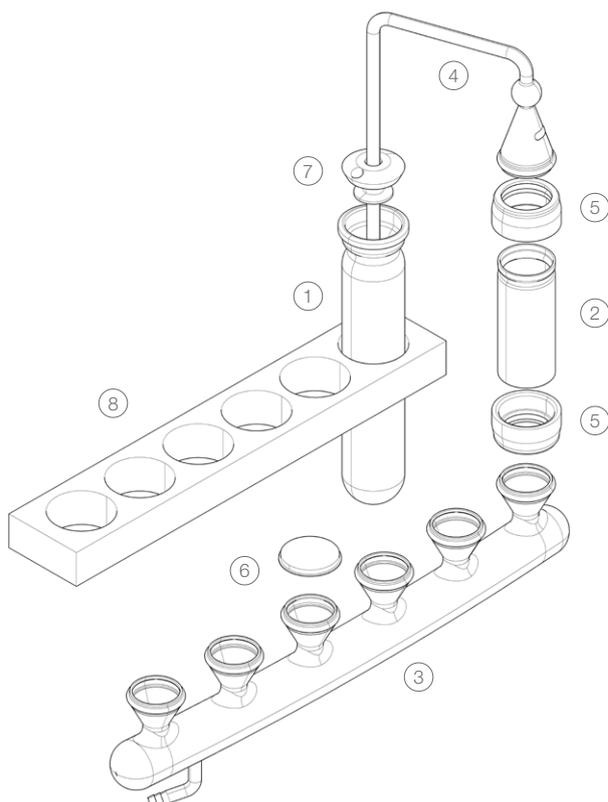
## Accessories

Glass parts	Qty	Order number	Picture
Sample tubes	4	037377	
Glass sample tubes with frit for B-811	4	037281	
Glass sample tubes with frit for E-812/816	2	049430	
Glass sample tubes with frit for E-812/816	12	11055738	
Suction tube for B-411	1	037387	
Suction tube for E-416	1	042868	
Sample aspiration tube	1	037380	

Additional parts	Qty	Order number	Picture
Rubber coupling, EPMD	1	037381	
Rubber coupling, Viton	4	044422	
Rubber coupling, Viton	6	044491	

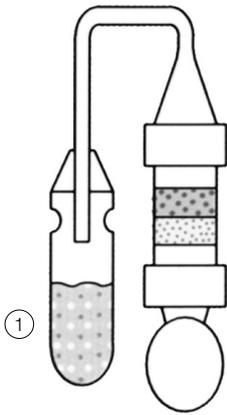
Additional parts	Qty	Order number	Picture
Stoppers ø 45 mm, blind plug	4	037725	⑥
Cap for sample tube	4	037463	⑦
Upper insulation plate B-411	1	037416	
Upper insulation plate E-416	1	026736	⑧
Pair of glass tongs	1	02004	
Holder for sample tubes (6 pos.)	1	043039	
Holder for sample tubes (12 pos.)	1	043041	
Holder for glass sample tubes, PTFE, microwavable (6 pos.)	1	051903	
Holder for glass sample tubes, PP (4 pos.)	1	037462	
Water jet pump, plastic	1	02913	
Vacuum hose Ø 10/20	1	004125	
Quartz sand, 2.5 kg Special sand to be used for extraction and hydrolysis, fat free, fire dried, 0.3 - 0.9 mm	1	037689	
Quartz sand, 25 kg Special sand to be used for extraction and hydrolysis, fat free, fire dried, 0.3 - 0.9 mm	1	034925	
IQ/OQ package for B-411/E-416	1	045659	
Repeating OQ for B-411/E-416	1	11055026	

## Accessories pictures

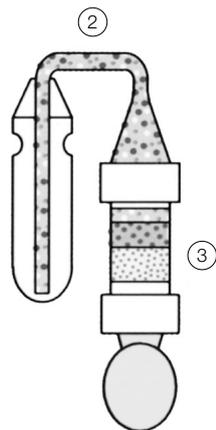


## Functional principle

For the Weibull-Stoldt fat determination in food and animal feed, the sample must be hydrolyzed to make the fat accessible for extraction, as solvents are not capable of breaking lipids bound as lipoproteins, liposaccharides or sterol esters. Therefore hydrolysis is used to transform these lipids into extractable forms, allowing reproducible fat determination.



The sample is boiled ① in dilute hydrochloric acid (typically 4 mol/L) to break down proteins and high molecular weight carbohydrates into acid soluble constituents. The powerful IR-heating enables fast heat transfer to the sample vessels. The hydrolysis normally takes 30 min.



Then the sample is filtered ② over a glass sample tube filled with sand and celite ③. The filter residue containing the fat is rinsed with water to become neutralized. Finally the filter residue is dried ready for extraction. The celite distributes the hydrolysate evenly in the tube, preventing any clumping and helps facilitate the extraction process. The glass sample tube is designed to be used directly in the Extraction units E-812/816 or B-811 without manual transfer of the sample.