LABORATORY EQUIPMENT

Acid purification

The purest acids always to hand

BERGHOF

Modern analytic laboratories need to conduct high-quality ultratrace analysis while at the same time keeping the cost of chemicals and consumables to a minimum. The Berghof sub-boiling apparatus is an assurance of quality: users benefit from acids that are guaranteed pure at very low operating costs.

1. High purity constructing materials

To minimize corrosion risk and to guarantee high quality of purified acids the corrosion risk has to be minimized. Therefore, the only materials used are plastics (PP, TFM™-PTFE, PTFE, PFA), ensuring that the possibility of corrosion is completely excluded even during long term operation. The distillate comes into contact solely with ultrapure PFA.

2. Sub-boiling principle

The sub-boiling apparatus is used for the production of high-purity acids for ultratrace analysis. Heating is carried out contact-free with an infrared lamp whose output is adjusted so that without additional temperature regulation for HF, HNO_3, HCl or H_2O a maximum temperature of around 10°C-20°C under the boiling point of the acid is achieved. This results in an equilibrium between the absorbed infrared radiation and the heat of vaporisation of the liquid. The mild heating prevents the production of droplets and thus the conveyance of impurities. All low boiling substances, especially salts, remain in the residue. Users benefit from the high degree of purification.

3. Cost effectiveness

The equipment is quickly amortised due to the use of reasonably priced commercially available acids of a quality suitable for analysis (p.a.).

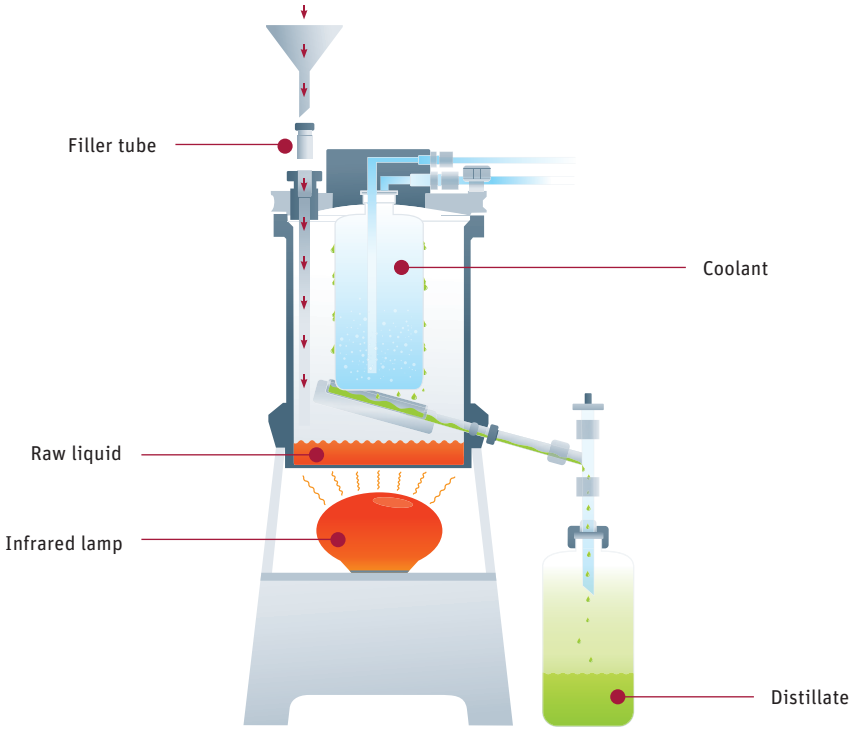
4. Fields of application

All low boiling acids are suitable for distillation. It is also possible to produce high purity water very easily.
→ HNO_3
→ HCl
→ HF
→ H_2O

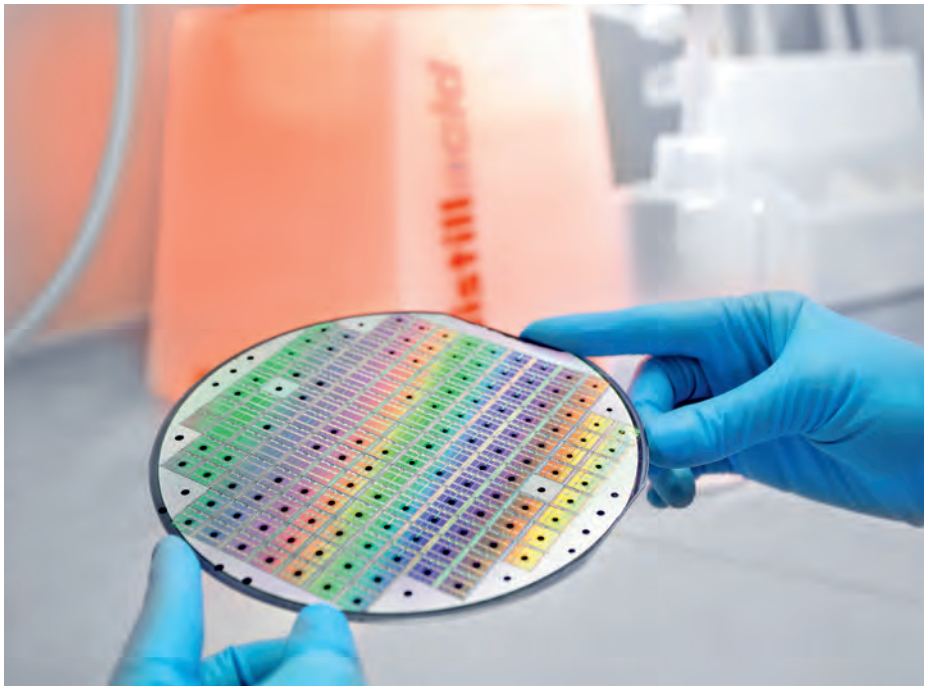
5. Distillation quantities

Within 24 hours the following distillation quantities can be obtained:
→ HNO_3 1.2 L
→ HCl 1.1 L
→ HF 1.0 L
→ H_2O 1.8 L

Sub-boiling principle



Distillacid
Degrees of purity



Durable constructing materials
Only isostatically pressed TFM™-PTFE, PTFE, PFA and polypropylene are used as constructing materials. Even where highly aggressive acids such as HF are used a long service life is achieved.

Purity - with HF as an example
Since the substances to be purified only come into contact PFA Distillacid is particularly suitable for the purification of HF. The risk of contamination is very low. The indicated degrees of purity of HF for analysis were measured after purification with the BSB-939-IR sub-boiling apparatus.

Concentrations in ng/g (=ppb)	
Ag	< 0.05
Al	0.2
As	<0.05
Au	<0.05
Ba	<0.05
Be	<0.1
Bi	<0.05
Ca	0.1
Cd	<0.05
Co	<0.05
Cr	<0.05
Cu	<0.05
Fe	0.25
Ga	<0.05
Ge	0.4

Concentrations in ng/g (=ppb)	
In	<0.05
K	0.6
Li	<0.05
Mg	0.08
Mn	<0.05
Mo	<0.05
Na	0.6
Ni	0.3
Pb	<0.05
Sb	<0.05
Sn	<0.05
Sr	<0.05
Ti	<0.1
V	<0.05
Zn	<0.05

Distillacid

Technical specifications

distillacid	
Voltage	230 V
Frequency	50 / 60 Hz
Power consumption	250 W
Weight	7 kg (without vessel)
Materials	TFM™-PTFE / PTFE / PFA / PP
Operating temperature	10°C – 20°C below the boiling point of the used acid
Max. operating temperature	150°C
Cooling water	0.3 liter/min
Max. recommended cooling water temperature	15°C

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