

# Analytical & preparative chemistry

Labware and reagents for the inorganic and organic practical training



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# Laboratory Equipment for qualitative analysis



## Sample Preparation

### Glass beakers

#### Low form

Material DURAN® DURAN GROUP

Volume (ml)	Outside Ø (mm)	Height (mm)	Art. No.	Pack Qty.
25	34	50	C110.1	10
50	42	60	C111.1	10
100	50	70	C112.1	10
150	60	80	C113.1	10
250	70	95	C114.1	10
400	80	110	C115.1	10
600	90	125	C116.1	10
1000	105	145	C118.1	1
2000	132	185	C119.1	1
3000	152	210	C120.1	1
5000	170	270	C121.1	1
10000**	217	350	C122.1	1



DURAN GROUP

Material DURAN®



### Test tubes

#### Straight rim

Volume (ml)	Outside Ø (mm)	Length (mm)	Wall thickness (mm)	Art. No.	Pack Qty.
8	12	100	0,8-1,0	C186.1	100
9	13	100	0,8-1,0	PY93.1	100
16	14	130	0,8-1,0	C187.1	100
17	16	130	1,0-1,2	C188.1	100
21	16	160	1,0-1,2	C189.1	100
32	18	180	1,0-1,2	C190.1	100



### Rotilabo®-test tube clamps

Wooden. Length 180 mm. For test tubes with Ø 12-20 mm.

Art. No.	Pack Qty.
0645.1	12

### Laboratory Bunsen burners

Acc. to DIN, DVGW approved. Suitable for propane gas or natural gas. Connection for hose with 9,5 mm internal Ø. Made of die-cast zinc.

#### ① Basic version with air control

For gas type	Overall height (mm)	Weight (g)	Art. No.	Pack Qty.
Propane gas	145	240	Y561.1	1
Natural gas	145	240	Y562.1	1

#### ② With needle valve and air control

For gas type	Overall height (mm)	Weight (g)	Art. No.	Pack Qty.
Propane gas	145	250	Y563.1	1
Natural gas	145	250	Y564.1	1

#### ③ With needle valve, pilot flame and air control

For gas type	Overall height (mm)	Weight (g)	Art. No.	Pack Qty.
Propane gas	145	250	CHT2.1	1
Natural gas	145	250	CHT3.1	1

#### ④ With stopcock, pilot flame and air control

For gas type	Overall height (mm)	Weight (g)	Art. No.	Pack Qty.
Propane gas	150	280	CHT4.1	1
Natural gas	150	280	CHT5.1	1

### Rotilabo®-safety gas tubes

For supplying Bunsen burners in accordance with DIN 30665. With non-buckling, elastic coupling sleeve.

Length (cm)	Art. No.	Pack Qty.
100	1718.1	1
125	A269.1	1
150	1719.1	1

### a) Lab quadruped stands

DURAN GROUP

For glass ceramic protective tiles.

Size (mm)	Height (mm)	Art. No.	Pack Qty.
135 x 135	210	HH18.1	1
155 x 155	210	HH19.1	1
175 x 175	220	HH20.1	1

### b) Tile holders

Material DURAN®

For glass ceramic protective tiles.

Size (mm)	Art. No.	Pack Qty.
135 x 135	HH21.1	1
155 x 155	HH22.1	1
175 x 175	HH23.1	1

### Glass ceramic protective tiles

Temperature resistant from -200 to +700 °C. 4 mm thick.

Size (mm)	Art. No.	Pack Qty.
135 x 135	A385.1	1
155 x 155	0619.1	1
175 x 175	A386.1	1

# Laboratory Equipment for qualitative analysis



## Preliminary tests

### Magnesia scoops

For annealing and incineration of samples, as well as for the production of oxygen melts for the detection of chromium, manganese etc. and for bead tests. W 9 x L 100 mm.

Art. No.	Pack Qty.
6537.1	25

### Magnesia rods

Ideal for flame analysis of sodium, etc. For borax-bead analysis of cobalt. For bead tests. Ø 1,5 x L 140 mm.

Art. No.	Pack Qty.
6543.1	25

### Platinum wire

99,9 %  
Ø 0,3 mm

Art. No.	Length (mm)	Material
8415.1	100 mm	plastic
8415.2	500 mm	plastic

### Spot test plates

By Haldenwanger. Made of glazed porcelain. Autoclavable.



No. of moulds	L x W x H (mm)	Ø of moulds (mm)	Depth of moulds (mm)	Art. No.	Pack Qty.
6	115 x 80 x 12	36	11	C765.1	1
12	119 x 85 x 6	20	3	C767.1	1
12	127 x 97 x 12	25	6	C768.1	1

### Flame colours of some metals



Metal	without Co-glass	with Co-glass
Barium (Ba)	yellow green	blue green
Calcium (Ca)	brick red	light green
Caesium (Cs)	blue	-
Potassium (K)	violet	crimson
Copper (Cu)	green	-
Lithium (Li)	red	-
Sodium (Na)	yellow	-
Rubidium (Rb)	violet	-
Strontium (Sr)	crimson	violet

### Rotilabo®-evaporating dishes

Made of porcelain, glazed inner surface. Semi-deep form with round bottom. Temperature stable up to +1000 °C. Autoclavable.

Volume (ml)	Height (mm)	Top dia. (mm)	Art. No.	Pack Qty.
41	26	72	XX26.1	5
62	27	83	XX27.1	5
110	30	96	XX28.1	5
160	37	110	XX29.1	5
215	41	117	XX30.1	5
240	42	127	XX31.1	5
325	46	142	XX32.1	5
420	50	154	XX33.1	5
558	55	170	XX34.1	5



### ① Rotilabo®-fermentation tube

Made of soda-lime glass. With 2 spheres and extension. Overall length 200 mm, tube Ø approx. 10-11 mm. Autoclavable.

Art. No.	Pack Qty.
CKY8.1	1

### ② Rotilabo®-fermentation tube

Made of borosilicate glass 3.3. With NS 29/32 ground glass joint. Height 200 mm. Autoclavable.

Art. No.	Pack Qty.
ACL2.1	1

# Laboratory Equipment for qualitative analysis



## Dose and Storage

### Dropper bottles

Made of **LDPE**, transparent. Supplied with dropping closure.

Volume (ml)	Thread	Art. No.	Pack Qty.
50	GL 18	<b>6541.1</b>	6
100	GL 18	<b>6542.1</b>	6
250	GL 25	<b>6544.1</b>	4

### Rotilabo®-wash bottles

Made of **LDPE**. Natural coloured.

Volume (ml)	Height without suction (mm)	Ø (mm)	Art. No.	Pack Qty.
250	145	60	<b>5330.1</b>	1
500	180	75	<b>5331.1</b>	1
1000	230	100	<b>5332.1</b>	1

### Mortars 55, coarse

By Haldenwanger.

Made of glazed porcelain, **coarse grind surface (unglazed)**. Suitable for use with liquid nitrogen. Temperature stable up to +1000 °C. Autoclavable.



Volume (ml)	Size	Height (mm)	Inside Ø (mm)	Art. No.	Pack Qty.
20	00	32	50	<b>XL89.1</b>	1
70	0a	40	65	<b>1567.1</b>	1
75	1	45	70	<b>3773.1</b>	1
100	2	50	80	<b>3782.1</b>	1
170	3	55	90	<b>1568.1</b>	1
300	4	63	115	<b>3820.1</b>	1
400	5	65	130	<b>3823.1</b>	1
700	6a	70	150	<b>3824.1</b>	1
1000	8	80	180	<b>3826.1</b>	1
2600	11	100	240	<b>XL90.1</b>	1
6000	15	140	330	<b>XL91.1</b>	1

### Pestles 56, coarse

By Haldenwanger.

Made of glazed porcelain, **coarse grind surface (unglazed)**. Temperature stable up to +1000 °C. Autoclavable.



Ø Head (mm)	Size	Height (mm)	Art. No.	Pack Qty.
24	00	115	<b>1570.1</b>	1
28	0a	125	<b>3831.1</b>	1
30	1	135	<b>1571.1</b>	1
36	2	150	<b>3832.1</b>	1
42	3	175	<b>3836.1</b>	1
45	4	180	<b>XL92.1</b>	1
48	5	185	<b>3839.1</b>	1
55	6a	210	<b>3841.1</b>	1
60	8	215	<b>XL93.1</b>	1
74	13	262	<b>XL94.1</b>	1
85	15	280	<b>XL95.1</b>	1

### Glass vials with snap cap neck

Made of soda-lime glass.

**Delivery incl.** LDPE snap-on lids.

#### Low form

Volume (ml)	Ø x H (mm)	Art. No.	Pack Qty.
2	11,5 x 36	<b>CLA0.1</b>	690
5	24 x 24	<b>CLA1.1</b>	154
10	24 x 41	<b>CLA3.1</b>	154
20	26 x 60	<b>CLA5.1</b>	130
30	28 x 72	<b>CLA6.1</b>	108
60	32 x 106	<b>CLA7.1</b>	84

### Wide neck storage bottles

Made of soda-lime glass. With conical ground glass joint and standard ground joint glass stopper, solid glass (NS 24) or semi-hollow (NS 29 or larger). Acc. to ISO 4796-2.



#### Wide neck, clear glass

Volume (ml)	Conical ground joint (NS)	Largest outer Ø (mm)	Height without stopper (mm)	Art. No.	Pack Qty.
50	24/20	44	79	<b>H044.1</b>	10
100	29/22	52	97	<b>H045.1</b>	10
250	34/24	71	129	<b>H046.1</b>	1
500	45/40	86	164	<b>H047.1</b>	1
1000	60/46	107	200	<b>H048.1</b>	1



### Double spatulas

Remanit 4301 (18/10) high-grade steel, flexible. Autoclavable.

Length (mm)	Blade width (mm)	Art. No.	Pack Qty.
185	9	<b>3298.1</b>	1
210	11	<b>3311.1</b>	1
250	11	<b>3318.1</b>	1



### Micro powder spatulas

Made of Remanit 4024 stainless steel, flexible. Autoclavable.



Length (mm)	Blade width (mm)	Blade length (mm)	Stem Ø (mm)	Art. No.	Pack Qty.
130	6	40	2,5	<b>YL50.1</b>	1
150	3	40	1,8	<b>YL51.1</b>	1
150	6	40	2,5	<b>YL52.1</b>	1



# Chemicals for qualitative analysis



## Acids and Alkalis

Product	Purity	Art. No.	Pack Qty.	Pack.
Acetic acid	100 %, p.a.	3738.1	1 l	glass
		3738.4	1 l	plastic
		3738.2	2,5 l	glass
		3738.5	2,5 l	plastic
		3738.6	5 l	plastic
		3738.3	10 l	plastic
Ammonia solution	30 %, p.a., ACS	CP17.1	1 l	glass
		CP17.2	2,5 l	glass
		CP17.3	5 l	PE/steel
		CP17.4	10 l	PE/steel
Hydrochloric acid	37 %, p.a., ACS, ISO, fuming	4625.1	1 l	glass
		4625.2	2,5 l	glass
		4625.3	10 l	plastic
	37 %, extra pure	9277.1	1 l	glass
		9277.2	2,5 l	glass
9277.3	10 l	plastic		

Product	Purity	Art. No.	Pack Qty.	Pack.
Nitric acid	≥65 %, p.a., ISO	4989.3	250 ml	glass
		4989.1	1 l	glass
		4989.2	2,5 l	glass
	65 %, pure	X898.1	1 l	glass
		X898.2	2,5 l	glass
Sodium hydroxide	≥99 %, p.a., ISO, in pellets	6771.3	500 g	plastic
		6771.1	1 kg	plastic
		6771.2	5 kg	plastic
Sulphuric acid	96 %, p.a., ISO	4623.3	250 ml	glass
		4623.1	1 l	glass
		4623.4	1 l	plastic
		4623.2	2,5 l	glass
		4623.5	2,5 l	plastic
	96 %, pure	4623.6	10 l	plastic
		9316.1	1 l	glass
		9316.2	2,5 l	glass
		9316.3	10 l	plastic

For additional product data and safety information, see chapter Chemicals A-Z.

## Salts

Product	Purity	Art. No.	Pack Qty.	Pack.
Ammonium acetate	≥97 %, p.a., ACS	7869.2	500 g	plastic
		7869.1	1 kg	plastic
		7869.3	2,5 kg	plastic
Ammonium carbonate	≥30 %, NH <sub>3</sub> , p.a., ACS	CP98.1	500 g	plastic
		CP98.2	1 kg	plastic
		CP98.4	2,5 kg	plastic
		CP98.3	5 kg	plastic
Ammonium chloride	≥99,7 %, p.a., ultra quality	K298.1	500 g	plastic
		K298.2	1 kg	plastic
		K298.3	2,5 kg	plastic
		K298.4	5 kg	plastic
		K298.6	10 kg	plastic
Ammonium heptamolybdate tetrahydrate	≥99 %, p.a.	K298.5	25 kg	plastic
		3666.1	250 g	plastic
		3666.2	500 g	plastic
di-Ammonium oxalate monohydrate	≥99,5 %, p.a., ACS	3666.3	1 kg	plastic
		P737.1	500 g	plastic
		P737.2	1 kg	plastic
Ammonium thiocyanate	≥99 %, p.a., ACS, ISO	P737.3	2,5 kg	plastic
		4477.1	100 g	plastic
		4477.2	250 g	plastic
		4477.3	500 g	plastic
Barium chloride dihydrate	≥99 %, p.a., ACS, ISO	4477.4	1 kg	plastic
		4453.1	250 g	plastic
		4453.2	500 g	plastic
		4453.3	1 kg	plastic
		4453.4	2,5 kg	plastic

Product	Purity	Art. No.	Pack Qty.	Pack.
Barium hydroxide octahydrate	≥98 %, p.a., ISO	P009.2	250 g	plastic
		P009.1	500 g	plastic
		P009.3	1 kg	plastic
Calcium chloride dihydrate	≥99 %, p.a., ACS	5239.2	500 g	plastic
		5239.1	1 kg	plastic
		5239.3	2,5 kg	plastic
Calcium oxalate monohydrate	≥98 %	6145.1	1 kg	plastic
Cobalt(II) nitrate hexahydrate	≥98 %, p.a., ACS	HN16.1	50 g	plastic
		HN16.2	100 g	plastic
		HN16.3	250 g	plastic
Copper(I) chloride	≥98 %, p.a., ACS	4391.1	100 g	plastic
		4391.2	250 g	plastic
		4391.3	500 g	plastic
		4391.4	1 kg	plastic
Iron(III) chloride hexahydrate	≥99 %, p.a.	P742.1	250 g	plastic
		P742.2	1 kg	plastic
Iron(II) sulphate heptahydrate	≥99 %, p.a., ACS	P015.1	500 g	plastic
		P015.2	1 kg	plastic
		P015.3	2,5 kg	plastic
Lead(II) acetate trihydrate	≥99,5 %, p.a., ACS, ISO	P739.1	500 g	plastic
		P739.2	1 kg	plastic
		P739.3	2,5 kg	plastic
Lead(IV) oxide	≥97 %, p.a.	4479.1	100 g	plastic
Manganese(II) sulphate monohydrate	≥99 %, p.a., ACS	4487.1	250 g	plastic
		4487.2	500 g	plastic
		P743.1	500 g	plastic
Potassium carbonate	≥99 %, p.a., ACS	P743.2	1 kg	plastic
		P743.3	2,5 kg	plastic

# Chemicals for qualitative analysis



## Salts

Product	Purity	Art. No.	Pack Qty.	Pack.
Potassium chromate	≥99 %, p.a., ACS	HN33.1	100 g	plastic
		HN33.2	250 g	plastic
		HN33.3	500 g	plastic
		HN33.4	1 kg	plastic
Potassium dichromate	≥99,5 %, p.a., ACS, ISO	P744.3	100 g	plastic
		P744.1	500 g	plastic
		P744.2	1 kg	plastic
		P745.1	500 g	plastic
Potassium hexacyanoferrate(II) trihydrate	≥99 %, p.a., ACS, ISO	P745.2	1 kg	plastic
		P745.3	2,5 kg	plastic
Potassium hexacyanoferrate(III)	≥99 %, p.a., ACS	P746.3	100 g	plastic
		P746.1	500 g	plastic
		P746.2	1 kg	plastic
Potassium hydrogen sulphate	≥98 %, p.a.	P020.1	500 g	plastic
		P020.2	1 kg	plastic
		P020.3	2,5 kg	plastic
Potassium iodide	≥99,5 %, p.a., ISO	6750.1	250 g	glass
		6750.3	500 g	glass
		6750.2	1 kg	glass
Potassium nitrate	≥99 %, p.a., ISO	P021.1	500 g	plastic
		P021.2	1 kg	plastic
		P021.3	2,5 kg	plastic
Potassium permanganate	≥99 %, p.a., ACS	P752.1	500 g	plastic
		P752.2	1 kg	plastic
		P752.3	2,5 kg	plastic
		P753.1	500 g	plastic
Potassium thiocyanate	≥98,5 %, p.a., ACS	P753.2	1 kg	plastic
		P753.3	2,5 kg	plastic
		P753.3	2,5 kg	plastic
Silver nitrate	≥99,9 %, p.a.	7908.1	50 g	plastic
		7908.2	250 g	plastic
		7908.3	1 kg	plastic
Sodium acetate	≥99 %, p.a., ACS, anhydrous	6773.1	250 g	plastic
		6773.2	1 kg	plastic
		6773.3	2,5 kg	plastic
Sodium ammonium hydrogen phosphate tetrahydrate	≥99 %, p.a.	T882.1	500 g	plastic
		T882.2	1 kg	plastic
		T882.3	2,5 kg	plastic
Sodium carbonate decahydrate	≥99 %, p.a., ISO	K303.2	500 g	plastic
		K303.1	1 kg	plastic
		K303.3	2,5 kg	plastic
di-Sodium hydrogen phosphate dodecahydrate	≥99 %, p.a., ISO	T106.1	500 g	plastic
		T106.2	1 kg	plastic
		T106.3	2,5 kg	plastic
Sodium sulphide hydrate	60 %, in flakes	8634.1	1 kg	plastic
		8634.2	5 kg	plastic

Product	Purity	Art. No.	Pack Qty.	Pack.
di-Sodium tetraborate decahydrate	≥99,5 %, p.a., ACS, ISO	T880.1	500 g	plastic
		T880.2	1 kg	plastic
		T880.3	2,5 kg	plastic
Sodium thiosulphate pentahydrate	≥99,5 %, p.a., ACS	P034.1	500 g	plastic
		P034.2	1 kg	plastic
		P034.3	2,5 kg	plastic
Thiourea	≥99 % p.a., ACS	HN37.1	100 g	plastic
		HN37.2	250 g	plastic
		HN37.3	1 kg	plastic

For further package sizes, safety information and additional data, see our current catalogue or at [www.carlroth.com](http://www.carlroth.com)

## Tracing Reagents

Product	Purity	Art. No.	Pack Qty.
Chloramine T trihydrate	≥98 %, p.a.	0271.1	250 g
		0271.2	500 g
		0271.3	1 kg
Dimethylglyoxim	≥99 %, p.a., ACS	2677.1	50 g
		2677.2	100 g
8-Hydroxyquinoline	≥99,5 %, p.a., ACS	2677.3	500 g
		2557.1	50 g
		2557.2	100 g
Morin hydrate	for microscopy	2557.3	250 g
		6459.1	5 g
Sodium nitroprusside dihydrate	≥99 %, p.a., ACS	6459.2	50 g
		HN34.1	25 g
Sulphamic acid	≥99,3 %, p.a., ACS	HN34.2	100 g
		HN34.3	500 g
		P725.1	500 g
Sulphanilic acid	≥98 %, p.a., ACS	P725.2	1 kg
		P725.3	2,5 kg
Thioacetamide	≥99 %, p.a.	4496.1	100 g
		4496.2	500 g
		8646.1	50 g
		8646.2	100 g
		8646.3	250 g
		8646.4	500 g

For additional product data and safety information, see chapter Chemicals A-Z.

# Chemicals for qualitative analysis



## Ready-to-use Solutions

### Iron(III) chloride solution 40 %

**Danger** H302-H315-H317-H318

#### Type analysis:

Assay (as FeCl<sub>3</sub>) ..... 39,0-41,0 %  
Density ..... 1,39-1,45

Product No.	Pack Qty.	Packaging
7750.1	1 l	plastic
7750.2	5 l	plastic
7750.3	10 l	plastic
7750.4	25 l	plastic

### Potassium permanganate solution (0,1 N)

0,02 mol/l - 0,1 N volumetric standard solution

**H411**

#### Type analysis:

Amount-of-substance conc. (20 °C) ..... 0,02 mol/l ±0,2 %  
Titer ..... 0,998-1,002

Product No.	Pack Qty.	Packaging
K019.1	1 l	glass

### Silver nitrate solution (5 %)

5 %

**Danger** H314-H410

Product No.	Pack Qty.	Packaging
N053.1	250 ml	plastic
N053.2	500 ml	plastic

## Solvents

Product	Purity	Art. No.	Pack Qty.	Packaging		
Acetic acid ethyl ester	≥99,5 % , p.a., ACS, ISO	6784.1	1 l	glass		
		6784.3	1 l	plastic		
		6784.2	2,5 l	glass		
		6784.4	2,5 l	plastic		
		6784.5	5 l	plastic		
	>99,5 % , for synthesis	7338.1	1 l	glass		
		7338.3	2,5 l	glass		
		7338.5	5 l	plastic		
		7338.2	10 l	tinplate		
		7338.4	25 l	tinplate		
Diethyl ether	≥99,5 % , p.a., stab.	3942.1	1 l	glass		
		3942.2	2 l	glass		
		3942.6	2,5 l	glass		
		3942.4	5 l	aluminium		
		3942.5	25 l	tinplate		
	≥99,5 % , for synthesis, stab.	5920.2	1 l	glass		
		5920.3	5 l	aluminium		
		5920.4	25 l	tinplate		
		Ethanol denatured	≥99,8 % , with ~1 % MEK	K928.5	1 l	plastic
				K928.1	2,5 l	glass
K928.3	2,5 l			plastic		
K928.4	5 l			plastic		
K928.6	10 l			tinplate		
≥96 % , with 1 % MEK	K928.2		25 l	tinplate		
	T171.5		1 l	plastic		
	T171.1		2,5 l	glass		
	T171.3		2,5 l	plastic		
	T171.4		5 l	plastic		
Isoamyl alcohol	≥98,5 % , p.a., ACS	T171.2	25 l	tinplate		
		T870.1	500 ml	glass		
		T870.2	1 l	glass		
		T870.3	2,5 l	glass		
		8930.1	1 l	glass		
	≥98,5 % , for synthesis	8930.2	2,5 l	glass		
		Methanol	≥99,9 % , p.a., ACS, ISO	4627.1	1 l	glass
				4627.4	1 l	plastic
				4627.2	2,5 l	glass
				4627.5	2,5 l	plastic
4627.6	5 l			plastic		
≥99 % , for synthesis	4627.3		25 l	tinplate		
	8388.1		1 l	glass		
	8388.2		2,5 l	glass		
	8388.5		2,5 l	plastic		
	8388.6		5 l	plastic		
8388.3	10 l	tinplate				
8388.4	25 l	tinplate				

For safety information and additional data, see our current catalogue or at [www.carlroth.com](http://www.carlroth.com).

# Chemicals for qualitative analysis



## Elements

### Copper wool

~99 %

Fibre length Ø 60 cm; fibre cross section: 0,05 x 0,2 mm<sup>2</sup>

9597.1	100 g	plastic
9597.2	250 g	plastic
9597.3	500 g	plastic
9597.4	1 kg	plastic

### Iron, reduced

≥96 %, powdered, extra pure

9454.1	250 g	plastic
9454.2	1 kg	plastic
9454.3	2,5 kg	plastic

### Iron wool

~97 %

Steel wool

9588.1	100 g	plastic
9588.2	250 g	plastic

### Sodium

≥99 %, rods, in paraffin oil

Na

**Danger** H260-H314-EUH014

Rods: Length approx. 20 cm, Ø approx. 2,5 cm

4469.1	250 g	plastic
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### Platinum wire

99,9 %

Ø 0,3 mm

8415.1	100 mm	plastic
8415.2	500 mm	plastic

### Sulphur

≥99,5 %, ground

Sulfur, Sulphur flowers

**Warning** H315

9304.1	1 kg	plastic
9304.2	5 kg	carton
9304.5	25 kg	plastic

### Zinc dust

≥98 %, particle size <63 µm, stab.

**Warning** H400-H410

9524.2	500 g	glass
9524.3	1 kg	glass
9524.1	2,5 kg	glass

### Zinc granule

≥99,99 %, p.a., particle size: 5-15 mm

Reducing agent, Arsenic detection

AE99.1	250 g	plastic
AE99.2	500 g	plastic
AE99.3	1 kg	plastic

## Indicators and Dyes

Product	Purity	Art. No.	Pack Qty.	Packaging
Alizarin red S (C.I. 58005)	-	0348.1	10 g	glass
		0348.2	25 g	glass
		0348.3	100 g	glass
Fuchsin basic (C.I. 42510)	for microscopy	3256.2	25 g	glass
		3256.1	50 g	glass
		3256.3	100 g	glass
Malachite green hydrochloride	p.a.	7710.1	5 g	glass
		7710.2	25 g	glass
		7710.3	100 g	glass
Malachite green oxalate (C.I. 42000)	for microscopy	5895.2	25 g	glass
		5895.1	100 g	glass
		5895.3	250 g	glass
Starch 1 % indicator solution	in water, stabilized	T133.1	500 ml	plastic
Titan yellow (C.I. 19540)	extra pure	7739.1	5 g	glass
		7739.2	25 g	glass
		7739.3	100 g	glass

For additional product data and safety information, see chapter Chemicals A-Z.



# Laboratory Equipment for quantitative analysis



## Titration

### Burettes with Schellbach stripes

By Hirschmann. Made of DURAN®. With line graduations. Scale length 500 mm. **Blue graduations.**

Material  
DURAN®

① **With straight glass stopcock NS 12.5/28.** Acc. to DIN EN ISO 385.

Volume (ml)	Graduations (ml)	Limit of error (±ml)	Art. No.	Pack Qty.
10	0,02	0,03	ET57.1	2
25	0,05	0,045	ET58.1	2
50	0,1	0,075	ET59.1	2

② **With straight valve spout and PTFE-spindle.** Acc. to DIN EN ISO 385.

Volume (ml)	Graduations (ml)	Limit of error (±ml)	Art. No.	Pack Qty.
10	0,02	0,03	ET60.1	2
25	0,05	0,045	ET61.1	2
50	0,1	0,075	ET62.1	2

③ **With glass stopcock on the side NS 12.5/28.** Acc. to DIN EN ISO 385.

Volume (ml)	Graduations (ml)	Limit of error (±ml)	Art. No.	Pack Qty.
10	0,02	0,03	ET78.1	2
25	0,05	0,045	ET79.1	2
50	0,1	0,075	ET80.1	2

④ **With valve spout on the side and PTFE-spindle.** Acc. to DIN EN ISO 385.

Volume (ml)	Graduations (ml)	Limit of error (±ml)	Art. No.	Pack Qty.
10	0,02	0,03	ET81.1	2
25	0,05	0,045	ET82.1	2
50	0,1	0,075	ET83.1	2

### Burette clamps

Made of PP. With stand clamp for attaching to rods with Ø 8-14 mm. Burette stays fully readable.

Type	Art. No.	Pack Qty.
For 1 burette	PY63.1	1
For 2 burettes	PY64.1	1

### Retort stand, bases

Acc. to DIN 12892. Made of powder coated steel. With threaded bore hole M 10 in the centre of the front side. **Delivery without stand rod, please order separately.**

Length (mm)	Width (mm)	Weight (g)	Art. No.	Pack Qty.
210	130	1300	2369.1	1
250	160	2000	2375.1	1
300	150	2200	2376.1	1
315	200	3000	2377.1	1

### Rotilabo®-stand rods

Made of stainless steel (material 1.4305), solid. With thread M 10.

Length (mm)	Ø (mm)	Art. No.	Pack Qty.
1000	12	2380.1	1
1250	12	2381.1	1
1500	16	2382.1	1

### Wide-neck Erlenmeyer flasks

Made of DURAN®. With labelling field. Acc. to DIN ISO 24450. With Retrace-Code. Autoclavable.

Material  
DURAN®



DURAN GROUP

\* Not acc. to DIN. \*\* Not graduated

Volume (ml)	Outer neck Ø (mm)	Flask outer Ø (mm)	Height (mm)	Art. No.	Pack Qty.
100	34	64	105	C146.1	10
250	50	85	140	C148.1	10
500	50	105	175	C150.1	10
1000	50	131	220	C151.2	1

### Rotilabo®-mini magnetic stirrer M 3

- For stirring volumes up to 3 l
- Continuously adjustable speed range
- ABS housing

#### Technical specifications:

Max. speed	1100 rpm
Mounting surface	130 x 150 mm
Dimensions (W x D x H)	130 x 150 x 50 mm
Power supply	100 to 240 V, 50/60 Hz

Art. No.	Pack Qty.
AAN1.1	1



### Rotilabo® Economy magnetic stirring bars

PTFE coated.

Ø (mm)	Length (mm)	Art. No.	Pack Qty.
3	12	XA17.1	10
8	25	XA18.1	10
8	40	XA19.1	10
8	50	XA20.1	10

### Rotilabo®-universal indicator papers

For fast and exact measurement of coloured or cloudy and aqueous solutions. Plastic tin with colour scale. On rolls, 5 m long, 7 mm wide.

pH-measuring range	pH graduation	Art. No.	Pack Qty.
0,0-10,0	1,0	AP99.1	1
1,0-11,0	1,0	AX00.1	1
1,0-14,0	1,0/2,0	AX01.1	1
0,5-5,0	0,5	AX02.1	1
5,0-9,0	0,5	AX03.1	1
6,5-10,0	0,5	AX04.1	1
9,0-13,0	0,5	AX05.1	1
12,0-14,0	0,5	AX06.1	1

# Laboratory Equipment for quantitative analysis



## Gravimetry

### Filter crucibles

DURAN GROUP Material DURAN®

Made of DURAN®. Autoclavable. Temperature stable up to 450 °C.

Volume (ml)	Porosity	Plate Ø (mm)	Art. No.	Pack Qty.
30	1	30	E556.1	1
30	2	30	E557.1	1
30	3	30	E558.1	1
30	4	30	E559.1	1
30	5	30	E560.1	1
50	1	40	E561.1	1
50	2	40	E562.1	1
50	3	40	E563.1	1
50	4	40	E564.1	1
50	5	40	E565.1	1

### Crucible adapters

Made of DURAN®. For filter crucibles. Outer-Ø funnel 10 mm. Autoclavable.

Top inside Ø (mm)	Length (mm)	For filter crucibles (ml)	Art. No.	Pack Qty.
41	125	30	E572.1	1
50	132	50	E573.1	1

### Rubber adapters

Made of EPDM. For vacuum-tight connection of crucibles and adapters. Temperature stable from -45 to +150 °C. Autoclavable.

Outside Ø (mm)	For filter crucibles (ml)	Art. No.	Pack Qty.
41	30	E568.1	10
49	50	E569.1	10



### Watch glasses

Made of soda-lime glass. With fused edges.

Ø (mm)	Art. No.	Pack Qty.
60	C081.1	10
70	C082.1	10
80	C083.1	10
90	C084.1	10
100	C085.1	10

### Rotilabo®-melting crucibles, medium-high form

Made of glazed porcelain. Temperature stable up to +1000 °C. Acc. to DIN 12904. Autoclavable.

\*Not acc. to DIN

Volume (ml)	Top dia. (mm)	Height (mm)	Art. No.	Pack Qty.
10*	30	25	XX79.1	5
12	35	28	XX80.1	5
20	40	32	XX81.1	5
30	45	36	XX82.1	5
45	50	40	XX83.1	5
80	60	48	XX84.1	5
120	70	56	XX85.1	5
200*	80	62	XX86.1	5

### Lids for Rotilabo®-melting crucibles

Made of glazed porcelain. Temperature stable up to +1000 °C. Autoclavable.

For crucible-Ø (mm)	Lid Ø (mm)	Art. No.	Pack Qty.
30	34	XX87.1	5
35	39	XX88.1	5
40	44	XX89.1	5
45	49	XX90.1	5
50	54	XX91.1	5
60	64	XX92.1	5
70	74	XX93.1	5
80	84	XX94.1	5

### Rotilabo®-tongs for crucibles

Bent twice. Made of Remanit 4301. Electropolished. Autoclavable.

Riveted

Length (mm)	Art. No.	Pack Qty.
200	3214.1	1
220	3221.1	1
250	3228.1	1
300	3231.1	1
400	3232.1	1
500	3236.1	1
600	3237.1	1

### Rotilabo®-triangles for melting crucibles

Made of galvanised steel with smooth clay pipes.

Clay pipe length (mm)	Max. ring Ø of tripod (mm)	Art. No.	Pack Qty.
40	120	KN11.1	5
50	130	KN12.1	5
60	140	KN13.1	5
80	160	KN15.1	5
100	180	KN16.1	

# Laboratory Equipment for quantitative analysis



## Gravimetry

### Semi-micro balances and analytical balances, GR-series

By A & D.

#### Application:

- Percent, counting
- Selectable weight units: g, mg, ct

#### Features:

- With internal automatic calibration function which adapts to changes of temperature
- Automatic adaptation to ambient conditions
- **Door opening system** allows the user to open the left or right hand side of the weighing chamber from the front of the balance. For easy access with only one hand free.
- Full-sized draft shield (internal height 215 mm)
- Data storage function for storing 200 units of weighing data for output to PC. Windows-compatible software (for direct readout of data, e.g. in Excel), available for download free of charge.
- Interval storage mode (measuring cycle: 2 s, 5 s., 10 s, 30 s., 1 min, 2 min, 5 min or 10 min)
- With RS 232 data port
- Spirit level on the front
- Five-year warranty

#### Technical specifications:

Models	Weighing range (g)	Resolution (g)	Reproducibility/linearity (±g)	Weighing pan Ø (mm)
GR-202 (W)	42 210	0.00001/ 0.0001	0.00002 / 0.00003 0.0001 / 0.0001	85
GR-120 (W)	120	0.0001	0.0001 / 0.0002	85
GR-200 (W)	210	0.0001	0.0001 / 0.0002	85
GR-300 (W)	310	0.0001	0.0002 / 0.0003	85

(W) = incl. draft shield

#### Delivery incl. AC-adapter.

Model	Weighing range (g)	Pack Qty.	Internal calibration Art. No.
GR-202 (W)	42/210	1	CTH0.1
GR-120 (W)	120	1	CTH1.1
GR-200 (W)	210	1	CTH2.1
GR-300 (W)	310	1	CTH3.1

Delivery times may apply to these products. Please ask our sales staff.

## Sample Drying

### Desiccator sets

Made of DURAN®. Designed for use up to the maximum technically possible vacuum (0 mbar).

Material  
DURAN®  
DURAN GROUP

**Delivery without porcelain dessicator plate.** Please order separately.

#### Type Novus with tube (NS 24/29) and stopcock in lid

For faster drying or degassing of samples, vacuum can be applied via the stopcock.

DN	approx. volume (l)	Height (mm)	Flange ID (mm)	Flange OD (mm)	Art. No.	Pack Qty.
100	0,7	174	118,5	153 ±2	AHL3.1	1
150	2,4	239	172	215 ±2	AHL4.1	1
200	5,8	296	222	270 ±2	AHL5.1	1
250	10,5	344	272	320 ±2	AHL6.1	1
300	18,5	420	332	380 ±2	AHL7.1	1

### Desiccator plates

Made of porcelain acc. to DIN 12911 and metal acc. to DIN EN 10142. For all desiccators listed above with equivalent nominal diameter (DN).

DN = Nominal diameter

DN	Ø (mm)	Art. No.	Pack Qty.
100	90	H403.1	1
150	140	H404.1	1
200	185	H405.1	1
250	235	H406.1	1
300	280	H407.1	1

### Desiccator grease white

Pharmacy quality.

Art. No.	Pack Qty. (kg)
1477.1	1 kg

### Rotilabo®-diaphragm vacuum pump CR-MV100

For conveying and compressing neutral and aggressive gases and vapours in accordance with the resistance of the given materials. Continuous manual vacuum adjustment.

#### Technical specifications:

Delivery rate	10 l/min
End vacuum (abs.)	100 mbar
Connections for hose ID	6 mm
Measurement range / scaling	1000 to 1 bar / 100 mbar
Power supply	90-260 V; 50/60 Hz

#### Materials of pump parts in contact with media:

EPDM, PP, FKM, PTFE-coated, PVC, Ryton

**Delivery incl.** vacuum metering block with pressure gauge and exhaust silencer.

Art. No.	Pack Qty.
ECK4.1	1



### Rotilabo®-weighing bottles

Made of borosilicate glass. Tall, with ground glass joint stoppers.

Volume (ml)	Ground glass joint	Weight without stopper (g)	Height without lid (mm)	Outside Ø (mm)	Art. No.	Pack Qty.
1	14/22	3	20	17	1368.1	1
4	19/26	6	30	23	1367.1	1
10	24/29	12	40	28	1366.1	1
20	29/32	17	50	34	1365.1	1
50	34/35	29	70	39	1364.1	1

# Laboratory Equipment for quantitative analysis



## Volumenbestimmung

### Volumetric flasks

Material  
DURAN®

By Hirschmann. Made of DURAN®. **Class A.** Comes with durably printed batch identification. With standard ground joint and PE stopper. Adjusted to IN. Acc. to DIN EN ISO 1042.

**Transparent glass.** Graduated with blue markings.

\*Wide neck

Volume (ml)	Error (±ml)	Standard ground joint	Art. No.	Pack Qty.
10	0,04	10/19*	Y233.1	2
20	0,04	10/19	C163.1	2
25	0,06	12/21*	Y234.1	2
50	0,08	14/23*	Y235.1	2
100	0,1	14/23*	Y236.1	2
250	0,15	14/23	C168.1	2
500	0,25	19/26	C169.1	2
1000	0,6	29/32*	Y237.1	2

### Class A measuring cylinders, amber markings

Material  
DURAN®

By Hirschmann. **Tall form.** Made of DURAN®. Acc. to DIN EN ISO 4788. Certificate of conformity can be requested. Adjusted to IN. With hexagonal base and spout. Autoclavable.

Volume (ml)	Graduations (ml)	Limit of error (±ml)	Height (mm)	Ø (mm)	Art. No.	Pack Qty.
10	0,2	0,10	140	14	AN02.1	2
50	1,0	0,50	200	25	AN04.1	2
100	1,0	0,50	260	29	AN05.1	2
500	5,0	2,50	390	53	AN07.1	2
1000	10,0	5,00	470	65	AN08.1	1



### Pasteur pipettes

Made of lime soda clear glass.

Overall length (mm)	Length of tip (mm)	Tip outer Ø (mm)	Art. No.	Pack Qty.
150	60	1,3	4518.1	1000
230	140	1,3	4522.1	1000
270	160	1,3	HX77.1	1000
300	195	1,5	HX78.1	500
350	230	1,5	HX79.1	1000

### Suction cup

Suction capacity (ml)	Hole Ø (mm)	Colour	Material	Art. No.	Pack Qty.
1,8	5*	transparent	Natural rubber	8404.1	100
2	5*	red	Natural rubber/SBR	YX53.1	100



121°C

### Volumetric pipettes class AS

By Hirschmann. Made of AR®-glass. With dated charge identification. **Certificate of conformity included. With blue graduation.** Autoclavable. EX-adjusted acc. to DIN EN ISO 648. With a ring mark.

\*In supplementation to DIN.

Volume (ml)	Limit of error (±ml)	Total length ±10 (mm)	Art. No.	Pack Qty.
1	0,008	325	E972.1	12
2	0,01	350	E973.1	12
3*	0,01	350	E974.1	6
5	0,015	410	E976.1	6
10	0,02	450	E977.1	6
15*	0,03	520	E978.1	6
20	0,03	520	E979.1	6
25	0,03	530	E980.1	6
50	0,05	550	E983.1	6
100	0,08	600	E984.1	6

### Graduated pipettes class AS

By Hirschmann. Made of AR®-glass. Type 3. EX-adjusted. **Certified of conformity.** With principal point ring division. Zero point at the top. Graduated to tip. With dated charge identification. **With blue graduations.** Autoclavable. Acc. to DIN EN ISO 835. From 5 ml comes with cotton stopper ends.

\*In supplementation to DIN.

Volume (ml)	Graduations (ml)	Limit of error (±ml)	Total length ±5 (mm)	Art. No.	Pack Qty.
0,5	0,01	0,005	360	E950.1	12
1	0,01	0,007	360	E951.1	12
2	0,02	0,01	360	E952.1	12
5	0,05	0,03	360	E953.1	12
5*	0,1	0,03	360	E954.1	12
10	0,1	0,05	360	E955.1	12
20*	0,1	0,1	360	E956.1	6
25	0,1	0,1	450	E957.1	6
50*	0,2	0,2	450	E958.1	6

### Rotilabo®-safety pipette bulbs

Made of natural rubber. For volumetric and graduated pipettes. Glass ball valve is opened by pressing marked point.

#### Standard model

For pipettes up to 10 ml. Total length 125 mm.

Art. No.	Pack Qty.
0251.1	1

#### Universal model

For pipettes up to 100 ml, with Ø up to 9 mm. Total length 152 mm.

Art. No.	Pack Qty.
PC78.1	1



# Chemicals for quantitative analysis



## Acids and Alkalis

Product	Purity	Art. No.	Pack Qty.	Packaging
Ammonia solution	30 %, p.a., ACS	CP17.1	1 l	glass
		CP17.2	2,5 l	glass
		CP17.3	5 l	PE/steel
		CP17.4	10 l	PE/steel
	≥25 %, p.a.	6774.1	1 l	glass
		6774.2	2,5 l	glass
		6774.3	5 l	plastic
	10 %, pure	6756.1	1 l	plastic
		6756.5	2,5 l	plastic
		6756.2	5 l	plastic
Acetic acid	100 %, p.a.	6756.3	10 l	plastic
		3738.1	1 l	glass
		3738.4	1 l	plastic
		3738.2	2,5 l	glass
		3738.5	2,5 l	plastic
		3738.6	5 l	plastic
	≥95,9 %, p.a.	3738.3	10 l	plastic
		T179.1	1 l	plastic
		T179.2	2,5 l	plastic
		T179.3	10 l	plastic
Hydrochloric acid fuming	37 %, p.a., ACS, ISO, fuming	4625.1	1 l	glass
		4625.2	2,5 l	glass
		4625.3	10 l	plastic
	≥32 %, p.a., ISO	P074.1	1 l	glass
		P074.3	1 l	plastic
		P074.2	2,5 l	glass
		P074.4	2,5 l	plastic
	~10 %, techn.	0710.1	2,5 l	plastic
		0710.2	5 l	plastic
		0710.3	10 l	plastic
Sulphuric acid	96 %, p.a., ISO	4623.3	250 ml	glass
		4623.1	1 l	glass
		4623.4	1 l	plastic
		4623.2	2,5 l	glass
		4623.5	2,5 l	plastic
		4623.6	10 l	plastic
	20 %, pure	4300.4	1 l	plastic
		4300.1	2,5 l	plastic
		4300.5	5 l	plastic
		4300.2	10 l	plastic
Sulphurous acid	~6 % SO <sub>2</sub> in H <sub>2</sub> O	9328.1	1 l	glass
		9328.2	10 l	tinplate

## Salts

Product	Purity	Art. No.	Pack Qty.	Packaging
Aluminium sulphate octadecahydrate	extra pure	9507.1	500 g	plastic
		9507.2	1 kg	plastic
		9507.3	2,5 kg	plastic
Ammonium chloride	≥99,7 %, p.a., ultra quality	K298.1	500 g	plastic
		K298.2	1 kg	plastic
		K298.3	2,5 kg	plastic
		K298.4	5 kg	plastic
		K298.6	10 kg	plastic
		P728.1	500 g	plastic
Ammonium iron(II) sulphate hexahydrate	≥99 %, p.a., ISO	P728.2	1 kg	plastic
		P728.3	2,5 kg	plastic

Product	Purity	Art. No.	Pack Qty.	Packaging
Ammonium iron(III) sulphate dodecahydrate	≥98,5 %, p.a., ACS, ISO	P734.1	500 g	plastic
		P734.2	1 kg	plastic
		P734.3	2,5 kg	plastic
Ammonium sulphate	≥99,5 %, p.a., ACS, ISO	3746.2	250 g	plastic
		3746.1	1 kg	plastic
		3746.3	2,5 kg	plastic
		3746.4	5 kg	plastic
		3746.6	10 kg	plastic
		4477.1	100 g	plastic
Ammonium thiocyanate	≥99 %, p.a., ACS, ISO	4477.2	250 g	plastic
		4477.3	500 g	plastic
		4477.4	1 kg	plastic
Barium chloride dihydrate	≥99 %, p.a., ACS, ISO	4453.1	250 g	plastic
		4453.2	500 g	plastic
		4453.3	1 kg	plastic
		4453.4	2,5 kg	plastic
Iron(III) chloride hexahydrate	≥99 %, p.a.	P742.1	250 g	plastic
		P742.2	1 kg	plastic
Manganese(II) chloride tetrahydrate	≥99 %, p.a.	T881.3	100 g	plastic
		T881.1	500 g	plastic
Manganese(II) sulphate monohydrate	≥99 %, p.a., ACS	T881.2	1 kg	plastic
		4487.1	250 g	plastic
Mercury(II) chloride	≥99,5 %, p.a., ACS	4487.2	500 g	plastic
		KK04.1	50 g	glass
Nickel(II) chloride hexahydrate	≥98 %, p.a.	KK04.2	100 g	glass
		4489.1	100 g	plastic
Nickel(II) sulphate hexahydrate	≥99 %, p.a., ACS	4489.2	250 g	plastic
		T111.1	250 g	plastic
Potassium dichromate	≥99,5 %, p.a., ACS, ISO	T111.2	1 kg	plastic
		P744.3	100 g	plastic
		P744.1	500 g	plastic
Potassium iodide	≥99,5 %, p.a., ISO	P744.2	1 kg	plastic
		6750.1	250 g	glass
		6750.3	500 g	glass
di-Potassium oxalate monohydrate	≥98,5 %, p.a., ACS	6750.2	1 kg	glass
		HN38.1	250 g	plastic
		HN38.2	500 g	plastic
Potassium sulphate	≥99 %, p.a., ACS, ISO	HN38.3	1 kg	plastic
		P022.1	500 g	plastic
		P022.2	1 kg	plastic
Potassium thiocyanate	≥98,5 %, p.a., ACS	P022.3	2,5 kg	plastic
		P753.1	500 g	plastic
		P753.2	1 kg	plastic
Sodium acetate	≥99 %, p.a., ACS, anhydrous	P753.3	2,5 kg	plastic
		6773.1	250 g	plastic
		6773.2	1 kg	plastic
Sodium acetate trihydrate	≥99,5 %, p.a., ACS, ISO	6773.3	2,5 kg	plastic
		6779.2	500 g	plastic
		6779.1	1 kg	plastic
Tin(II) chloride dihydrate	≥98 %, p.a., ACS	6779.3	5 kg	plastic
		4977.3	100 g	glass
		4977.1	250 g	glass
		4977.2	1 kg	glass

For further package sizes, safety information and additional data, see our current catalogue or at [www.carlroth.com](http://www.carlroth.com).

# Chemicals for quantitative analysis



## Indicator buffer tablets

for determination of water hardness with EDTA

⚠ Warning H317

Dissolve one tablet in 100 ml water sample and bring to pH 11 with approx. 1 ml ammonia solution 30 % (art. CP17). Titrate with EDTA disodium salt volumetric solution (art. T136 or T137) from red to green.

### Type analysis:

Suitability as indicator: ..... complies  
Disintegration time (25 °C): ..... 100 s

7649.1	100 pieces	plastic	
7649.2	500 pieces	plastic	

## Indicators and Dyes

Product	Purity	Art. No.	Pack Qty.	Packaging
Bromocresol green	ACS	T115.1	1 g	glass
		T115.2	5 g	glass
		T115.3	10 g	glass
		T115.4	25 g	glass
Bromocresol green sodium salt	ACS	KK18.1	1 g	glass
		KK18.2	5 g	glass
		KK18.3	25 g	glass
Bromothymol blue	p.a., ACS	T117.1	5 g	glass
		T117.2	25 g	glass
		T117.3	50 g	glass
Bromothymol blue sodium salt	p.a.	KK19.1	5 g	glass
		KK19.2	10 g	glass
		KK19.3	25 g	glass
Calconcarboxylic acid	p.a.	2676.1	5 g	glass
		2676.2	10 g	glass
		2676.3	50 g	glass
Eriochrome® black T (C.I. 14645)	Indicator 1 % in NaCl	K860.2	25 g	plastic
		K860.1	50 g	plastic
		K860.3	100 g	plastic
		5283.3	25 g	plastic
Fluorescein disodium salt (C.I. 45350)	extra concentrated	5283.1	100 g	plastic
		5283.2	500 g	plastic
		T125.1	250 ml	glass
Mixed indicator 5	for ammonia titration	T124.1	5 g	glass
Murexide (C.I. 56085)	ACS, for complexometry	T124.2	25 g	glass
		T124.3	50 g	glass
		T126.2	50 g	plastic
Phenolphthalein (C.I. 764)	≥99 %, p.a.	T126.1	100 g	plastic
		T126.3	500 g	plastic
		K034.1	250 ml	glass
Phenolphthalein indicator solution	1 % in ethanol 90 %, denatured	K034.2	500 ml	glass
		K034.3	1 l	glass
		T130.1	25 g	glass
Thymolphthalein	p.a., ACS	HN97.1	5 g	glass
		HN97.2	10 g	glass
		HN97.3	50 g	glass

For the whole Indicators and Dyes range, see chapter Inorganic & analytical reagents in our current catalogue or at [www.carlroth.com](http://www.carlroth.com)

## Volumetric Solutions ready-to-use



Product	Purity	Art. No.	Pack Qty.	Packaging
EDTA disodium salt solution	0,1 mol/l - 0,1 N	K714.1	1 l	glass
		K714.2	5 l	plastic
		K714.3	5 l	ROTI®CUBE
		K714.4	10 l	ROTI®CUBE
Hydrochloric acid	2 mol/l - 2 N	T134.1	1 l	plastic
		T134.2	5 l	plastic
		T134.3	5 l	ROTI®CUBE
Potassium bromide solution	0,1 mol/l - 0,1 N	8130.1	1 l	plastic
Potassium permanganate solution	0,02 mol/l - 0,1 N	K019.1	1 l	glass
Sodium hydroxide solution	0,2 mol/l - 0,2 N	N074.1	1 l	plastic
		N074.2	5 l	ROTI®CUBE
		N074.3	10 l	ROTI®CUBE
Sodium thiosulphate solution	0,1 mol/l - 0,1 N	K022.1	1 l	glass
		K022.2	5 l	plastic
		K022.3	5 l	ROTI®CUBE
		K022.4	10 l	ROTI®CUBE
Silver nitrate solution	0,1 mol/l - 0,1 N	K713.2	250 ml	plastic
		K713.4	500 ml	plastic
		K713.1	1 l	plastic
		K713.3	2,5 l	plastic

For the whole Volumetric Solutions range, see chapter Inorganic & analytical reagents in our current catalogue or at [www.carlroth.com](http://www.carlroth.com)

## Roti®VOLUM, volumetric solutions in ampoules

- Standard solutions are prepared through dilution to a final volume of exactly one litre.
- Exactly defined molar concentration (±0,2%) according to the preparation

Type	Purity	Art. No.	Pack Qty.
EDTA disodium salt solution	0,01 mol/l - 0,01 N	CN52.1	1
	0,1 mol/l - 0,1 N	CN51.1	1
Hydrochloric acid	0,1 mol/l - 0,1 N	CN61.1	1
	0,5 mol/l - 0,5 N	CN62.1	1
	1 mol/l - 1 N	CN63.1	1
	1 mol/l - 1 N	CN60.1	1
Nitric acid	1 mol/l - 1 N	CN60.1	1
Potassium hydroxide solution	0,1 mol/l - 0,1 N	CN53.1	1
Sodium thiosulfate solution	0,1 mol/l - 0,1 N	CN55.1	1
Sodiumhydroxide solution	0,1 mol/l - 0,1 N	CN56.1	1
	0,5 mol/l - 0,5 N	CN57.1	1
	1 mol/l - 1 N	CN58.1	1
Sulfuric acid	0,05 mol/l - 0,1 N	CN64.1	1
	0,5 mol/l - 1 N	CN65.1	1
Silver nitrate solution	0,1 mol/l - 0,1 N	CN66.1	1

For additional product data and safety information, see chapter Chemicals A-Z.

# Chemicals for quantitative analysis



## Solvents

Product	Purity	Art. No.	Pack Qty.	Packaging
Acetone	≥99,8 %, p.a., ACS, ISO	9372.1	1 l	glass
		9372.4	1 l	plastic
		9372.2	2,5 l	glass
		9372.5	2,5 l	plastic
		9372.6	5 l	plastic
	9372.3	25 l	tinplate	
	≥99,5 %, for synthesis	5025.1	1 l	glass
		5025.2	2,5 l	glass
		5025.5	2,5 l	plastic
		5025.6	5 l	plastic
5025.3		10 l	tinplate	
Methanol	≥99,9 %, p.a., ACS, ISO	4627.1	1 l	glass
		4627.4	1 l	plastic
		4627.2	2,5 l	glass
		4627.5	2,5 l	plastic
		4627.6	5 l	plastic
		4627.3	25 l	tinplate
		≥99 %, for synthesis	8388.1	1 l
	8388.2		2,5 l	glass
	8388.5		2,5 l	plastic
	8388.6		5 l	plastic
	8388.3		10 l	tinplate
	8388.4		25 l	tinplate

## Fehling's Solutions

### Fehling's solution I

for sugar determination, reag. Ph.Eur.

Cupric sulphate solution, Copper(II) sulphate solution

⚠ H410

N055.1	1 l	glass
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### Fehling's solution II

for sugar determination, reag. Ph.Eur.

Alkaline potassium sodium tartrate solution

Potassium sodium tartrate solution

⚠ Danger H290-H314

N056.1	1 l	glass
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## Tracing Reagents

Product	Purity	Art. No.	Pack Qty.	Packaging
Dimethylglyoxim	≥99 %, p.a., ACS	2677.1	50 g	plastic
		2677.2	100 g	plastic
		2677.3	500 g	plastic
Hydrazinium sulphate	≥99 %, p.a., ACS	HN96.1	100 g	plastic
		HN96.2	500 g	plastic
D(-)-Mannitol	≥98 %, Ph.Eur., USP, BP, for biochemistry	4175.1	1 kg	plastic
		4175.2	5 kg	plastic
Resorcinol	≥99 %, for biochemistry	5727.1	100 g	plastic
		5727.2	500 g	plastic
		5727.3	1 kg	plastic
		5727.4	2,5 kg	plastic
Starch, soluble	soluble	4701.1	1 kg	plastic
		4701.2	5 kg	plastic

## Additional chemicals

Product	Purity	Art. No.	Pack Qty.	Packaging
Acetyl acetone	≥98 %, for synthesis	6716.1	100 ml	plastic
		6716.2	500 ml	plastic
		6716.3	1 l	plastic
		6716.4	2,5 l	plastic
Hydrogen peroxide	30 %, for synthesis, stab.	CP26.5	500 ml	plastic
		CP26.1	1 l	plastic
		CP26.4	2,5 l	plastic
		CP26.2	10 l	plastic
		CP26.3	25 l	plastic

## Auxiliaries

Product	Purity	Art. No.	Pack Qty.	Packaging
Glass wool	chemically pure, of borosilicate glass	7377.2	500 g	plastic
		7377.1	1 kg	plastic
		for normal laboratory work, chemically resistant glass according to DIN 1259-1	6574.1	500 g
Ion exchange resin Roti®change 50 W x 4	100-200 mesh, analytical grade, H <sup>+</sup> -form	6864.1	100 g	plastic
		6864.2	250 g	plastic
		6864.3	500 g	plastic
Ion exchange resin Roti®change 50 W x 8	100-200 mesh, analytical grade, H <sup>+</sup> -form	6866.1	100 g	plastic
		6866.2	250 g	plastic
		6866.3	500 g	plastic

For additional product data and safety information, see chapter Chemicals A-Z.

# Laboratory Equipment for organic synthesis



## Distillation

### Distillation bridges

Material  
DURAN®

Made of DURAN®. Liebig condenser with straight outlet and ground glass joints 14/23. For distillation thermometers with 55 mm built-in length.

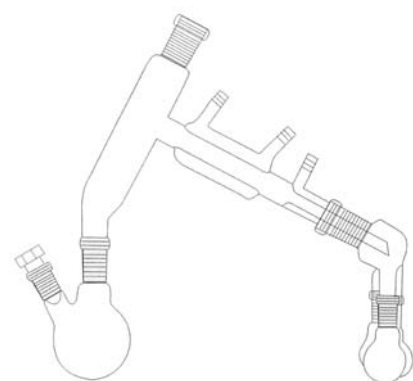
Jacket length (mm)	Cone (ground glass)	Art. No.	Pack Qty.
160	14/23	KX72.1	1
250	29/32	KX73.1	1

### Distillation bridges acc. to Claisen

Material  
DURAN®

Made of DURAN®. Liebig condenser with straight outlet, and ground glass joints 14/23. For distillation thermometers with 55 mm built-in length.

Jacket length (mm)	Cone (ground glass)	Art. No.	Pack Qty.
160	14/23	KX70.1	1
250	29/32	KX71.1	1



### Micro distillation apparatus

Made of borosilicate glass 3.3. Compact design for loss-free condensate flow. Short-flow distilling link with socket and two ground glass cones 14/23, Liebig condenser, jacket length 70 mm and vacuum receiver. Please order ground joint clamps and thermometer separately.

**Delivery incl.** distillation udder, 3 5 ml round bottom flasks, 50 ml double-neck flask and NS 14/23 hollow glass stopper.

Art. No.	Pack Qty.
AAN5.1	1

### Boiling pebbles

Prevent delayed boiling. Ensure uniform distillation of low-viscosity liquids.

**Type A:** for standard distillation. Natural stone product mainly made of quartz. Contains small amounts of iron. Granules are approx. 5-8 mm. Suitable for vacuum distillation.

Art. No.	Pack Qty.
1691.1	75 g = about 1000 pebbles

**Type B:** for analysis. Natural, alkaic aluminosilicates, without ceolite. Granules are approx. 5 mm.

Art. No.	Pack Qty.
1692.1	80 g = about 1700 pebbles

### Vacuum adapters

Material  
DURAN®

Made of DURAN®. With olive, outer-Ø 7-8 mm. With drain tip.

#### ① Straight

Socket/cone (ground glass)	Art. No.	Pack Qty.
14/23	LK62.1	1
19/26	LK63.1	1
24/29	LK64.1	1
29/32	LK65.1	1

#### ② Bent 105°

Socket/cone (ground glass)	Art. No.	Pack Qty.
14/23	Y341.1	1
19/26	LK70.1	1
24/29	LK71.1	1
29/32	Y342.1	1

### Round flasks

Material  
DURAN®

Made of DURAN®. With ground glass joints. Acc. to DIN 12348. Autoclavable.

\* Not acc. to DIN.



#### Transparent glass

Volume (ml)	Conical ground joint (NS)	Flask outer Ø (mm)	Height (mm)	Art. No.	Pack Qty.
5*	14/23	30	58	HY49.1	1
10*	14/23	35	70	HY50.1	1
25*	14/23	41	85	E588.1	1
50	14/23	51	90	E589.1	1
50	29/32	51	90	E590.1	1
100	14/23	64	105	E591.1	1
100	29/32	64	105	E592.1	1
250*	14/23	85	140	KY26.1	1
250	29/32	85	145	E593.1	1
250	45/40	85	145	E594.1	1
500	29/32	105	175	E595.1	1
500	45/40	105	175	E596.1	1
1000	29/32	131	200	E597.1	1
1000	45/40	131	200	E598.1	1
2000	29/32	166	260	E599.1	1

### Hollow glass stoppers

Material  
DURAN®



Made of DURAN®. Hexagonal with ground glass joint. Autoclavable.

DURAN GROUP

Standard taper (NS)	Art. No.	Pack Qty.
7/16	X782.1	10
10/19	X783.1	10
12/21	X784.1	10
14/23	X785.1	10
19/26	X786.1	10
24/29	X787.1	10
29/32	X788.1	10
34/35	X789.1	1
45/40	X790.1	1



# Laboratory Equipment for organic synthesis



## Ground glass joint equipment

### Dimroth condensers

Made of DURAN®. With two ground glass joints and two removable plastic hose connections thread GL 14. Acc. to DIN 12591.

Material  
DURAN®

\* Not acc. to DIN.

Jacket length (mm)	Socket (ground glass)	Cone (ground glass)	Art. No.	Pack Qty.
160*	14/23	14/23	E637.1	1
250	29/32	29/32	E638.1	1
400	29/32	29/32	E639.1	1

### Three-necked round-bottom flasks

Made of DURAN®. Middle neck with ground glass joints 29/32 (models KY18.1 and KY19.1 with ground glass joints 14/23). Acc. to DIN 12392. Autoclavable.

Material  
DURAN®

\* Acc. to DIN

#### ① Side necks parallel

Volume (ml)	Side neck with ground glass joints	Flask outer Ø (mm)	Height (mm)	Art. No.	Pack Qty.
100*	14/23	64	105	KY15.1	1
100*	29/32	64	105	KY16.1	1
250*	14/23	85	140	E615.1	1
250*	29/32	85	140	KY17.1	1
500*	14/23	105	163	E616.1	1
500*	29/32	105	163	E617.1	1
1000*	14/23	131	200	E618.1	1
1000	29/32	131	200	E619.1	1
2000*	14/23	166	240	E620.1	1
2000	29/32	166	240	E621.1	1

#### ② Side necks angled

Volume (ml)	Side neck with ground glass joints	Flask outer Ø (mm)	Height (mm)	Art. No.	Pack Qty.
50*	14/23	51	90	KY18.1	1
100*	14/23	64	105	KY19.1	1
100*	14/23	64	105	E611.1	1
250	14/23	85	140	E612.1	1
250*	29/32	85	140	KY20.1	1
500	14/23	105	163	E613.1	1
500*	29/32	105	163	KY21.1	1
1000	14/23	131	200	E614.1	1
1000*	29/32	131	200	KY22.1	1
2000*	29/32	166	240	KY23.1	1

### Dropper funnel with pressure compensation

Made of borosilicate glass 3.3. Graduated and cylindrical. With pressure compensation tube, NS-core, NS-sleeve and stopcock plug with threaded safety device. Acc. to DIN 12567, ISO 4800.

#### ② With PTFE-plug

Volume (ml)	Graduations (ml)	Socket/cone (ground glass)	Stopcock NS	Hole Ø (mm)	Art. No.	Pack Qty.
50	1	14/23	12,5	2,5	KL65.1	1
50	1	29/32	12,5	2,5	KL76.1	1
100	2	14/23	12,5	2,5	KL77.1	1
100	2	29/32	12,5	2,5	KL78.1	1
250	5	29/32	14,5	4,0	KL79.1	1
500	10	29/32	14,5	4,0	KL80.1	1
1000	20	29/32	18,8	6,0	KL81.1	1

### Thermometer adapters

Made of DURAN®. Ground glass joint, plastic screw cap, silicone seal with PTFE-sleeve.

Material  
DURAN®

Thread	for thermometers-Ø (mm)	Cone (ground glass)	Art. No.	Pack Qty.
14	5,5-6,5	14/23	AK92.1	1
14	5,5-6,5	19/26	TE98.1	1
14	5,5-6,5	24/29	TE99.1	1
14	5,5-6,5	29/32	AK93.1	1
18	7,5-9,0	14/23	AK94.1	1
18	7,5-9,0	19/26	TH00.1	1
18	7,5-9,0	29/32	AK95.1	1
25	9,0-11,0	29/32	TH01.1	1
32	13,0-15,0	29/32	TH02.1	1

### Standard glass thermometers

Rod-shaped for daily laboratory operations. Ø 5.5 to 7.0 mm. Accuracy ±3 to 200 °C. Graduated by 1 °C.

#### Special filling of mineral basis, red (E745.1 - blue)

Measuring range (°C)	Length (mm)	Art. No.	Pack Qty.
-35 to +50	300	E740.1	1
-10 to +60	200	E741.1	1
-20 to +110	300	E742.1	1
-20 to +150	300	E743.1	1
-10 to +200	300	E744.1	1
-10 to +250	300	E745.1	1



### Rotilabo®-wire joint clamps

Made of nickel chromium spring steel. For conical ground glass joints. Autoclavable.

Ground glass joint	Art. No.	Pack Qty.
14/23	CE96.1	1
29/32	CE99.1	1
45/40	CH00.1	1

### KORASILON®-pastes

For use as joint grease, sealing paste, lubricant and protective paste. Moisture repellent. Temperature resistant in the range -50 to +200 °C.

Type	Art. No.	Pack Qty.
low viscosity	0855.1	35 g
medium viscosity	0856.1	35 g
high viscosity	0857.1	35 g

# Laboratory Equipment for organic synthesis



## Extraction

### Dimroth condensers

Made of DURAN®.

For Soxhlet extractors, with two screwed-on plastic olives.

Material  
DURAN®

Cone (ground glass)	Extractor-capacity (ml)	Art. No.	Pack Qty.
45/40	100-250	AA60.1	1
60/46	300-500	AA61.1	1
71/51	1000	AA62.1	1

### Soxhlet extractors

Made of DURAN®. Cone NS 29/32. Acc. to DIN 12602.

Material  
DURAN®

Sockets (NS)	Volume (ml)	Art. No.	Pack Qty.
29/32	30	TE05.1	1
45/40	100	Y685.1	1
45/40	150	Y686.1	1
45/40	250	Y687.1	1
60/46	500	Y688.1	1
71/51	1000	Y689.1	1

### Round flasks

Made of DURAN®.

With ground glass joints. Acc. to DIN 12348. Autoclavable.



Material  
DURAN®

Volume (ml)	Conical ground joint (NS)	Flask outer Ø (mm)	Height (mm)	Art. No.	Pack Qty.
250	29/32	85	145	E593.1	1
500	29/32	105	175	E595.1	1
1000	29/32	131	200	E597.1	1

### Extraction thimbles, cellulose

By Macherey-Nagel. For Soxhlet and other extractions. Also suitable for extracting solid or liquid particles from the air and from gases.

\* (Extraction thimbles as per DIN 12449 are suitable for extractors according to DIN 12602 and 12604)

Outside Ø (mm)	Inside Ø (mm)	Height (mm)	Art. No.	Pack Qty.
25*	22	80	H203.1	25
36*	33	94	H209.1	25
33	30	100	H210.1	25
36*	33	205	L867.1	25
52*	48	230	L868.1	25
61*	57	315	L869.1	25

#### Selection list for extraction thimbles

Extraction thimble (Art. No.)	Outer Ø x H (mm)	For extractors acc. to DIN with volume (ml)
H203.1	25 x 80	30
H209.1	36 x 94	100
H210.1	33 x 100	150
L867.1	36 x 205	250
L868.1	52 x 230	500
L869.1	62 x 315	1000

### Separating funnels

**Conical form.** Made of Borosilicate glass 3.3. With ground glass joint, glass or PTFE, stopcock, and plastic stopper. Acc. to DIN 12451.

#### a) With glass stopcock

Volume (ml)	Standard ground joint	Stopcock NS	Hole Ø (mm)	Art. No.	Pack Qty.
50	19/26	12,5	2,5	E646.1	1
250	29/32	14,5	4,0	E648.1	1
1000	29/32	18,8	6,0	E650.1	1

#### b) With PTFE stopcock

Volume (ml)	Standard ground joint	Stopcock NS	Hole Ø (mm)	Art. No.	Pack Qty.
50	19/26	12,5	2,5	KT70.1	1
50	29/32	14,5	4,0	KT72.1	1
250	29/32	18,8	6,0	KT74.1	1

### Separating funnel holder

Made of PP. For separating funnels from 125-500 ml. With clamp for attaching to stand rods with Ø 8-14 mm.

Art. No.	Pack Qty.
PY61.1	1



### Gas washing bottles

Made of borosilicate glass 3.3.

Standard ground joint 29/32, acc. to DIN 12463.

Height of bottle: 200 mm. Autoclavable.

**Delivery incl.** top made of DURAN® with two olives (outer-Ø approx. 10 mm).

Type	Volume (ml)	Bottle Ø (mm)	Art. No.	Pack Qty.
① Without filter plate	250	55	KX62.1	1
① Without filter plate	500	75	KX63.1	1
② With filter plate, porosity 1	250	55	KX65.1	1
② With filter plate, porosity 1	500	75	KX66.1	1

# Laboratory Equipment for organic synthesis



## Stirring & Heating

### AREC.T heater and magnetic stirrer with timer

- Digital display of heating plate setpoint temperature
- Hotplate made of white ceramic
- With elevated control panel to protect against leaking liquids
- Safety warning lamp comes on at temperatures over 50 °C
- Powerful motor keeps stirring speeds constant even when viscosity changes
- **Timer - switches the stirring and heating function off on expiration of the preset countdown**

#### Technical specifications:

Magnetic stirrer drive	
Max. stirring capacity (H <sub>2</sub> O)	15 l
Max. speed	50 to 1500 rpm
Heating function	
Heating capacity	800 W
Temperature range	Room temperature to 550 °C
Setting accuracy	±5 K
Control accuracy	±10 K
Mounting surface	180 x 180 mm
Countdown function	
Timer function	1 to 999 min in 1-min increments
Other	
Dimensions (W x D x H)	203 x 344 x 94 mm
Art. No.	Pack Qty.
CKK2.1	1

### Rotilabo®-stirring magnets bars - set II

PTFE-coated, cylindrical magnets. **18 rods assorted** in practical storage box, dimensions: L 187 x W 97 x D 32 mm.

Assortment of most widely used stirring magnets.

#### Contents:

Length (mm)	∅ (mm)	number
10	6	2
15	6	2
20	7	2
25	8	2
30	8	2
40	8	2
50	8	2
60	10	2
80	10	2

Art. No.	Qty. (set)
X171.1	1

### Rotilabo®-stirring magnets - removers

Different types and lengths available. With powerful magnet. Ideal for retrieving lost magnetic rods or "fishing" them out of liquid.

Material	∅ (mm)	Length (mm)	Art. No.	Pack Qty.
PTFE	10	250	E449.1	1
PTFE	10	350	E450.1	1
PTFE	10	450	E451.1	1

### Rotitherm® heating and cooling media

For filling water baths, cooling chests, thermostats, etc.

#### Technical specifications:

Rotitherm®	H 250	M 220	M 150	K + H
Density at 0 °C	1.05 g cm <sup>-3</sup>	1.00 g cm <sup>-3</sup>	1.00 g cm <sup>-3</sup>	-
Density at 23 °C	0.90 g cm <sup>-3</sup>	0.85 g cm <sup>-3</sup>	0.85 g cm <sup>-3</sup>	1.15 g cm <sup>-3</sup>
Density at +180 °C				1.034 g cm <sup>-3</sup>
Thermal stability	+250 °C	+220 °C	+150 °C	+170 °C
Coefficient of thermal conductivity W/ (m x K)	0.131	0.170	0.163	approx. 0.176
Combustion point	>360 °C	>360 °C	>370 °C	-
Pour point	-65 °C	<-50 °C	<-50 °C	<-39 °C
Flashpoint	>300 °C	>320 °C	>310 °C	>290 °C

#### Rotitherm® H 250

Silicone oil for heating baths.

Type	Art. No.	Pack Qty.
Rotitherm® H 250	1670.1	1 l
Rotitherm® H 250	1670.2	10 l

#### Rotitherm® M 220

Silicone oil for heating baths. Brown.

Type	Art. No.	Pack Qty.
Rotitherm® M 220	0991.1	1 l

#### Rotitherm® M 150

Silicone oil for heating baths.

Type	Art. No.	Pack Qty.
Rotitherm® M 150	0990.1	1 l
Rotitherm® M 150	0990.2	5 l

#### Rotitherm® K + H

Heat transfer fluid for cooling and heating baths. Due to the low pour point, Rotitherm® K+H can also be used as a coolant. Mixes with water in any ratio, non-sensitive to water hardness. Mixtures with 10-30 % proportion of water can be used up to -55 °C. Does not form build-up even when heated and can easily be removed using water.

Type	Art. No.	Pack Qty.
Rotitherm® K + H	7143.1	1 l
Rotitherm® K + H	7143.2	5 l

### Laboratory pots

Made of aluminium. For use as water or oil bath, can be used in conjunction with hotplates or magnetic stirrers. Max. usage temperature 280 °C.

**Delivery incl. cover.**

Capacity (l)	Height (mm)	∅ (mm)	Wall thickness (mm)	Art. No.	Pack Qty.
1,5	100	160	1,2	AEN7.1	1
3,0	120	200	1,5	AEN8.1	1
5,2	140	240	1,3	AEN9.1	1



# Laboratory Equipment for organic synthesis



## Filtration & Recrystallization

### Rotilabo®-analytical funnels

Made of type 3.3 borosilicate glass. According to ISO 4798. Stem  $\varnothing$  8 mm. Length 150 mm. For quick filtration. Autoclavable.



Inner rim $\varnothing$ (mm)	For paper filter $\varnothing$ (mm)	Art. No.	Pack Qty.
55	70-90	NT85.1	1
75	110-125	NT86.1	1
100	150-185	NT87.1	1

### Rotilabo®-filter stand

For 2 funnels, made of white PP, can be sterilized, with adaptors for various funnel sizes, outer handle  $\varnothing$  max. 17 mm. Upper funnel bar can be adjusted in height. Foot plate W 140 x H 480 x L 300 mm. Weight 600 g.



Art. No.	Pack Qty.
1109.1	1

### Rotilabo®-folded filters

Filter paper for **qualitative analysis**. Made of 100 % cellulose.

#### Type 113P

**Medium filtration speed**, retention range: 5-8  $\mu$ m

Membrane $\varnothing$ (mm)	Type	Thickness (mm)	Art. No.	Pack Qty.
70	113P	0,16	CA05.1	100
90	113P	0,16	CA06.1	100
110	113P	0,16	CA07.1	100
125	113P	0,16	CA08.1	100
150	113P	0,16	CA09.1	100
185	113P	0,16	CA10.1	100
210	113P	0,16	CA11.1	100
240	113P	0,16	CA12.1	100
270	113P	0,16	CA13.1	100
320	113P	0,16	CA14.1	100

### Rotilabo®-crystallizing dishes

Made of type 3.3 borosilicate glass. Autoclavable.



**With spout.** Compliant with DIN 12338.

Volume (ml)	Outside $\varnothing$ (mm)	Height (mm)	Art. No.	Pack Qty.
20	40	25	AYE1.1	10
40	50	30	AYE2.1	10
60	60	35	AYE3.1	10
100	70	40	AYE4.1	10
150	80	45	AYE5.1	10
300	95	55	AYE6.1	10
500	115	65	AYE7.1	10
900	140	75	AYE8.1	10
2000	190	90	AYE9.1	1
3500	230	100	AYH0.1	1

### Rotilabo®-Büchner funnels

Made of glazed porcelain. Excellent resistance to acids and bases. Temperature stable up to 1000 °C.

Volume (ml)	for filter paper $\varnothing$ (mm)	$\varnothing$ Filter plate (mm)	Height (mm)	Tube length (mm)	Art. No.	Pack Qty.
70	55	62	30	64	XX45.1	1
120	70	77	35	64	XX46.1	1
240	90	97	40	71	XX47.1	1
400	110	116	49	83	XX48.1	1
600	125	130	52	85	XX49.1	1

### Rotilabo®-round filters

Filter paper for **qualitative analysis**. Made of 100 % cellulose. Ash content 0.007 %.

#### Type 13A

**Equivalent white band.**

**Medium-fast filtration time**, retention range: 5-8  $\mu$ m

Membrane $\varnothing$ (mm)	Type	Thickness (mm)	Art. No.	Pack Qty.
55	13A	0,16	AP34.1	100
70	13A	0,16	AP35.1	100
90	13A	0,16	AP36.1	100
110	13A	0,16	AP37.1	100
125	13A	0,16	AP38.1	100

### Filtering flasks

Made of DURAN®. With KECK™-connector set, consisting of plastic tubing connector made of PP, plastic-tubulature made of PP and silicone rubber seal. Heavy walled for vacuum use, fulfils the regulations of the "equipment and product safety regulations". Acc. to DIN 12 476, ISO 6556. Autoclavable.



DURAN GROUP

#### Erlenmeyer shape

Volume (ml)	Largest outer $\varnothing$ (mm)	Height (mm)	Neck inner $\varnothing$ (mm)	Art. No.	Pack Qty.
100	64	105	24	E575.1	1
250	85	155	34	E576.1	1
500	105	185	34	E577.1	1
1000	135	230	45	E578.1	1
2000	166	255	60	E579.1	1

### GUKO set

Made of EPDM. Conical rubber seals for suction bottles. Temperature resistant in the range -45 to +150 °C. Autoclavable. **Delivery incl.** 8 Gukos, size 22, 29, 36, 44, 53, 63, 73, 84 mm.

DURAN GROUP



Art. No.	Qty. (set)
PK84.1	1

### Rotilabo®-rubber tubes

Temperature range -10 to +50 °C. Red, made of natural rubber, not pressure resistant. Hardness: 45 Shore A.

#### Vacuum tubes

Inside $\varnothing$ (mm)	Outside $\varnothing$ (mm)	Wall thickness (mm)	Art. No.	Pack Qty. (m)
8	18	5,0	0680.1	5
8	18	5,0	0680.2	25



# Chemicals for organic synthesis



## Melting point determination

### Thiele melting point measuring apparatus

Material  
DURAN®

Made of DURAN®.

#### Usage:

Fill apparatus with silicone oil. Insert a melting point capillary (outer- $\varnothing$  max. 2 mm) into one of the side tubes so that the molten end touches the ball of the thermometer. The other side tube is for ventilation purposes. If the apparatus does not have side tubes, a long capillary must be inserted from above. This apparatus also has to be ventilated from above. The apparatus should be heated at the elbow to ensure a uniform rise in temperature.

Type	Art. No.	Pack Qty.
Without side tubes	TH23.1	1
With side tubes	TH24.1	1

### Rotilabo®-capillary tubes

Made of AR®-glass. Thin-walled, open on one side.  
Length 80 mm, outer- $\varnothing$  1.35 mm, inner- $\varnothing$  0.95 mm.

Art. No.	Pack Qty.
0820.1	100



### CFS battery capillary filling device

To quickly and safely fill melting-point determination capillaries. Suitable for capillaries with a diameter of 1 to 1.5 mm and a length of 60 to 100 mm.

- Lengthy stoking and tapping are no longer required, the capillaries are cleanly and repeatedly filled to the bottom
- No direct contact with dangerous substances
- Clear housing protects against glass breakage

#### Usage:

The capillaries are carefully inserted into the filling funnel until their open side matches the lowest point of the funnel. Insert the funnel containing the capillaries into the unit. By turning the funnel guide, the height is adjusted until the capillaries touch the bottom and the funnel overlaps the guide by a few millimetres (see figure). The funnel is filled with a spatula tip's worth of the sample, and the unit switches on. The capillaries are filled using powerful vibrations. The unit switches off automatically after 10 seconds. The filling process can be repeated as often as required.

**Note:** The samples must be dry and finely powdered.  
Unit dimensions: Diameter 80 x height 140 mm. **Delivery incl.** AC-adapter.

Art. No.	Pack Qty.
YT60.1	1

### ROTI®CALIPURE melting point standards

#### Usage:

The melting point of a substance is the temperature at which the transition from a solid phase to a liquid phase occurs. The determination of melting point is a quick and easy method of determining the basic purity of substances. As the melting point is a characteristic variable for pure substances, it is also used for the identification of organic compounds. ROTH offers a selected range of melting point standards. To allow easy handling and ensure maximum safety, the standards are filled in small quantities protected from light and are ready to use straight away.

#### Features:

- Suitable for checking purity
- Max. measurement uncertainty  $\pm 0,3$  °C
- Suitable for use independent of instrument type
- Ready-to-use



Product	Melting point range	Art. No.	Pack Qty.	Packaging
Benzophenone	47-49 °C	9709.1	1 g	glass
p-Nitrotoluene	52-54 °C	9712.1	1 g	glass
Vanillin	81-83 °C	9714.1	1 g	glass
Benzoic acid	121-123 °C	9722.1	1 g	glass
Phenacetin	133-135 °C	9728.1	1 g	glass
Salicylic acid	158-160 °C	9731.1	1 g	glass
Sulphanilamide	164-166 °C	9734.1	1 g	glass
Caffeine, anhydrous	235-237 °C	9739.1	1 g	glass
Carbazole	243-247 °C	9752.1	1 g	glass
Anthraquinone	283-286 °C	9754.1	1 g	glass

For safety information and additional data, see our current catalogue or at [www.carlroth.com](http://www.carlroth.com)

# Chemicals for organic synthesis



## NMR-tubes

### Rotilabo®-NMR-tubes

Made of borosilicate glass 3.3. With lenticular-shaped based. Ideal for applications with high operational capacity.

#### Technical specifications:

Length (mm)	178 ±0.5
∅ outer (mm)	4.95 ±0.05
∅ inner (mm)	4.15 ±0.05
Straightness (mm)	±0.07
Wall thickness (mm)	0.38
MHz	100-300

Delivery without cap, please order separately.

Type	Art. No.	Pack Qty.
Rotilabo®-NMR-tubes	HX58.1	50

#### Accessories:

Caps made of EVA	HX59.1	1000
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### Rotilabo®-NMR-tube, brown

Made of type 3.3 borosilicate glass. Tinted brown with resistant silver diffusion dye. Specially designed for light-sensitive samples. With lenticular base, fire polished rim.

#### Technical specifications:

Length	178 mm ±0.5
Outer ∅	4.97 mm +0.02, 4.97 mm -0.05
Inner ∅	4.15 mm ±0.05
Straightness	±0.07 mm
Wall thickness	0.38 mm
Megahertz	100-300 MHz

Delivery incl. sealing plug made of EVA.

Art. No.	Pack Qty.
ATP0.1	1

### Rack for NMR-tubes

Made of PP. With 72 slots and 2 side handles for easy transportation. Dimensions: L 210 x W 110 x H 220 mm. Autoclavable.

Art. No.	Pack Qty.
YA94.1	1

### Standard pasteur pipettes

Made of transparent polyethylene (LDPE).

Filling capacity (ml)	Drop size (µl)	Drops per ml	Length (mm)	Art. No.	Pack Qty.
3,0	34	29	155	E306.1	500
2,3	40	25	225	EA56.1	400
0,9	40	25	87	EA57.1	500

## Reagent for NMR-calibration

### Tetramethylsilane

≥99,9 %, for NMR-spectroscopy

For the calibration of NMR spectra; calibration substance.

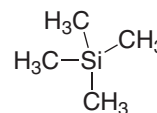
TMS

C<sub>4</sub>H<sub>12</sub>Si

M 88,22 g/mol

Storage temp.: +4 °C

Danger H224



#### Type analysis:

Assay (GC) ..... ≥99,9 %  
 Aptitude for NMR-spectroscopy ..... complies

CP18.1	25 ml	glass
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CP18.2	100 ml	glass
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## Deuterated Compounds

Product	Purity	Art. No.	Pack Qty.	Packaging
Acetone D6	99,8 Atom%D	AE51.1	10 ml	glass
		AE51.4	10 ml	septum bottle
		AE51.2	50 ml	glass
		AE51.3	10 x 0,75 ml	glass ampoule
Deuterium oxide	99,8 Atom%D	6672.1	10 ml	glass
		6672.5	10 ml	septum bottle
		6672.2	25 ml	glass
		6672.3	100 ml	glass
		6672.4	500 ml	glass
		6672.6	10 x 0,75 ml	glass ampoule
Dimethyl sulphoxide D6	99,8 Atom%D	AE56.1	10 ml	glass
		AE56.4	10 ml	septum bottle
		AE56.2	50 ml	glass
		AE56.5	100 ml	glass
		AE56.3	10 x 0,75 ml	glass ampoule
Methanol D4	99,8 Atom%D	AE57.1	10 ml	glass
		AE57.4	10 ml	septum bottle
		AE57.5	25 ml	glass
		AE57.2	50 ml	glass
		AE57.3	10 x 0,75 ml	glass ampoule
Trichloromethane/ Chloroform D1	99,8 Atom%D, stab. with Ag	AE54.4	25 ml	glass
		AE54.1	100 ml	glass
		AE54.3	100 ml	septum bottle
		AE54.2	500 ml	glass

The whole Deuterated Compounds range, see chapter Inorganic & analytical reagents in our current catalogue or at [www.carlroth.com](http://www.carlroth.com)

# Chemicals for organic synthesis



## Solvents

Product	Purity	Art. No.	Pack Qty.	Packaging
Acetic acid ethyl ester	>99,5 %, for synthesis	7338.1	1 l	glass
		7338.3	2,5 l	glass
		7338.5	5 l	plastic
		7338.2	10 l	tinplate
		7338.4	25 l	tinplate
Acetone	≥99,5 %, for synthesis	5025.1	1 l	glass
		5025.2	2,5 l	glass
		5025.5	2,5 l	plastic
		5025.6	5 l	plastic
		5025.3	10 l	tinplate
		5025.4	25 l	tinplate
Cyclohexane	≥99,5 %, for synthesis	6570.1	1 l	glass
		6570.3	2,5 l	glass
		6570.2	10 l	tinplate
		6570.4	25 l	tinplate
Cyclohexene	≥99 %, for synthesis	3451.1	500 ml	glass
Dichloromethane	>99,5 %, for synthesis	8424.4	100 ml	glass
		8424.1	1 l	glass
		8424.2	2,5 l	glass
		8424.3	10 l	tinplate
		8424.5	25 l	tinplate
Diethyl ether	≥99,5 %, for synthesis, stab.	5920.2	1 l	glass
		5920.3	5 l	aluminium
		5920.4	25 l	tinplate
N,N-Dimethylformamide (DMF)	≥99,5 %, for synthesis	6251.1	1 l	glass
		6251.2	2,5 l	glass
		6251.3	2,5 l	plastic
		6251.5	10 l	plastic
		6251.4	25 l	plastic
Ethanol denatured	≥99,8 %, with ~1 % MEK	K928.5	1 l	plastic
		K928.1	2,5 l	glass
		K928.3	2,5 l	plastic
		K928.4	5 l	plastic
		K928.6	10 l	tinplate
	K928.2	25 l	tinplate	
	≥96 %, with 1 % MEK	T171.5	1 l	plastic
		T171.1	2,5 l	glass
		T171.3	2,5 l	plastic
		T171.4	5 l	plastic
T171.2		25 l	tinplate	
Methanol	≥99 %, for synthesis	8388.1	1 l	glass
		8388.2	2,5 l	glass
		8388.5	2,5 l	plastic
		8388.6	5 l	plastic
		8388.3	10 l	tinplate
		8388.4	25 l	tinplate
m-Xylene	≥99 %, for synthesis	3791.3	100 ml	glass
		3791.4	500 ml	glass
		3791.1	1 l	glass
		3791.2	2,5 l	glass
N-Methyl-2-pyrrolidone (NMP)	≥99,8 %, for synthesis	4306.1	500 ml	glass
		4306.3	1 l	glass
		4306.2	2,5 l	glass
		4306.5	25 l	tinplate

For additional product data and safety information, see chapter Chemicals A-Z.

Product	Purity	Art. No.	Pack Qty.	Packaging
1-Octanol	≥99 %, for synthesis	4439.1	100 ml	glass
		4439.2	500 ml	glass
		4439.3	1 l	glass
Petroleum benzine 30-50	extra pure	3523.1	1 l	glass
		3523.3	2,5 l	glass
		3523.4	5 l	aluminium
		3523.2	10 l	tinplate
		9735.1	1 l	glass
Petroleum benzine 60-70	extra pure	9735.4	2,5 l	glass
		9735.5	5 l	aluminium
		9735.2	10 l	tinplate
		9735.3	20 l	tinplate
		A122.1	200 ml	glass
		A122.2	500 ml	glass
Piperidine	≥99,5 %, for peptide synthesis	A122.3	1 l	glass
		CP07.1	500 ml	glass
		CP07.2	1 l	glass
Pyridine	≥99 %, for synthesis	CP07.3	2,5 l	glass
		9558.1	1 l	glass
		9558.3	2,5 l	glass
Toluene	≥99,5 %, for synthesis	9558.2	10 l	tinplate
		9558.4	25 l	tinplate
		Y015.1	1 l	glass
		Y015.2	2,5 l	glass
		Y015.3	10 l	tinplate
Trichloromethane/ Chloroform	≥99 %, for synthesis	Y015.4	25 l	tinplate
		3478.1	1 l	plastic
		3478.4	5 l	plastic
Water	redistilled	3478.2	10 l	plastic
		3478.3	30 l	plastic
		8749.1	100 ml	glass
		8749.2	500 ml	glass
o-Xylene	≥98 %, for synthesis	8749.3	1 l	glass
		8749.4	2,5 l	glass
		8817.1	100 ml	glass
p-Xylene	≥99 %, for synthesis	8817.2	500 ml	glass
		8817.3	1 l	glass
		8817.4	2,5 l	glass
		CN80.1	1 l	glass
Xylene (isomers)	≥98,5 %, Ph.Helv., extra pure	CN80.2	2,5 l	glass
		CN80.5	5 l	aluminium
		CN80.3	10 l	tinplate
		CN80.4	25 l	tinplate

## Synthesis Reagents

Product	Purity	Art. No.	Pack Qty.	Packaging
Bromide bromate solution	0,05 mol Br <sub>2</sub> /l - 0,1 N	8131.1	1 l	plastic
N-Bromosuccinimide	≥98 %, for synthesis	3261.1	100 g	glass
		3261.2	500 g	glass
Magnesium filings	≥99,9 %, acc. to Grignard, for synthesis	AE61.1	250 g	tin
		AE61.2	500 g	tin
		AE61.3	1 kg	tin
Sodium borohydride	≥97 %	4051.1	25 g	tin
		4051.2	100 g	tin
Thionyl chloride	≥98 %, for synthesis	4024.2	100 ml	glass
		4024.1	500 ml	glass

# Chemicals for organic synthesis



## Acids/Alkalis

Product	Purity	Art. No.	Pack Qty.	Packaging
Hydrochloric acid	37 %, p.a., ACS, ISO, fuming	4625.1	1 l	glass
		4625.2	2,5 l	glass
		4625.3	10 l	plastic
	37 %, extra pure	9277.1	1 l	glass
		9277.2	2,5 l	glass
		9277.3	10 l	plastic
	32 %, extra pure	X896.1	1 l	plastic
		X896.2	2,5 l	plastic
		X896.3	10 l	plastic
Magnesium hydroxide	≥95 %, Ph.Eur.	9453.1	100 g	plastic
		9453.2	500 g	plastic
		9453.3	1 kg	plastic
Potassium hydroxide	≥85 %, p.a., pellets	6751.3	250 g	plastic
		6751.1	1 kg	plastic
		6751.2	5 kg	plastic
		6751.5	25 kg	plastic
		7986.1	1 kg	plastic
	≥85 %, in flakes	7986.3	2,5 kg	plastic
		7986.2	10 kg	plastic
		7986.5	25 kg	plastic
		6771.3	500 g	plastic
Sodium hydroxide	≥99 %, p.a., ISO, in pellets	6771.1	1 kg	plastic
		6771.2	5 kg	plastic
		6771.5	25 kg	plastic
		9356.1	1 kg	plastic
	≥99 %	9356.3	5 kg	plastic
		9356.2	10 kg	plastic
		9356.5	25 kg	plastic
		4623.3	250 ml	glass
		4623.1	1 l	glass
Sulphuric acid	96 %, p.a., ISO	4623.4	1 l	plastic
		4623.2	2,5 l	glass
		4623.5	2,5 l	plastic
		4623.6	10 l	plastic
		9316.1	1 l	glass
		9316.2	2,5 l	glass
	96 %, pure	9316.3	10 l	plastic

## Salts

Product	Purity	Art. No.	Pack Qty.	Packaging
Caesium carbonate	≥99,9 %, p.a.	6873.1	5 g	plastic
		6873.2	25 g	plastic
		6873.3	100 g	plastic
		6873.4	500 g	plastic
		0261.1	500 g	plastic
Magnesium sulphate hydrate	≥99 %, dried, extra pure, DAC	0261.2	1 kg	plastic
		0261.3	2,5 kg	plastic
		3904.2	250 g	plastic
Potassium dihydrogen phosphate	≥99 %, p.a., ACS	3904.1	1 kg	plastic
		3904.3	5 kg	plastic
		3904.5	25 kg	plastic
		A135.1	500 g	plastic
		A135.2	1 kg	plastic
Sodium carbonate	≥99,5 %, p.a., ACS, anhydrous	A135.3	5 kg	plastic
		8563.1	1 kg	plastic
		8563.2	10 kg	plastic
	≥99 %, anhydrous	8563.5	25 kg	plastic
		6885.2	500 g	plastic
Sodium hydrogen carbonate	≥99,5 %, p.a., ACS, ISO	6885.1	1 kg	plastic
		6885.3	5 kg	plastic
		6885.5	25 kg	plastic
		0965.1	500 g	plastic
		0965.2	1 kg	plastic
	≥99 %	0965.3	5 kg	plastic
		4984.2	500 g	plastic
		4984.1	1 kg	plastic
		4984.3	2,5 kg	plastic
di-Sodium hydrogen phosphate dihydrate	≥99,5 %, p.a.	8560.3	500 g	plastic
		8560.1	1 kg	plastic
		8560.2	5 kg	plastic
		8560.5	25 kg	plastic
		0966.1	500 g	plastic
Sodium sulphate	≥99 %, p.a., ACS, ISO, powdered, anhydrous	0966.2	1 kg	plastic
		0966.3	5 kg	plastic
		T887.1	500 g	plastic
	≥99 %, p.a., ACS, granules, anhydrous	T887.2	1 kg	plastic
		3533.1	1 kg	plastic
3533.3		2,5 kg	plastic	
Zinc chloride	≥97 %, p.a.	3533.2	10 kg	plastic
		3533.1	1 kg	plastic
		3533.3	2,5 kg	plastic
Zinc chloride	≥97 % cryst.	3533.2	10 kg	plastic

For further product information and safety guidelines, refer to Chemicals A-Z.

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