

Calibration and Control Standards



Carl ROTH offers an extensive range of calibration and control standards. These products are manufactured from highly pure starting material and are specially tested for each application. The corresponding batch-specific certificate of analysis is available online. Each product series offers excellent value for money.



Content

pH-Measurement/pH-Meters	p.	2–4	Melting point measurement	p.	12–13
Redox-Measurement	p.	5	Colour Standards	p.	14–17
Conductivity-Messung	p.	6–7	Freezing point standards	p.	18
Density/Viscosity Measurement	p.	8–9	Standards for Total Acid Number and Total Base Number	p.	19
Refractive index measurement	p.	10–11	Electrolytes, Titration and Solvents	p.	20

pH-Measurement

pH-Buffer Solutions, ROTI®Calipure, ready-to-use



Properties:

- Manufactured from high purity buffer substances
- No need for time-consuming drying and weighing of reagents
- The buffer solutions are adjusted to their respective pH values by comparison with standard buffer solutions (according to DIN 19266 and based on primary reference materials of the NIST)
- Quick and precise calibration of measuring equipment
- Stabilised against algae and bacterial action
- The batch specific Certificates of Analysis are available online

Product name	Version	Pack.	Art. No.	Pack Qty.
Buffer solution pH 1.00 ±0.05 (20 °C)	colourless	plastic	T180.2	500 ml
			T180.1	1 l
Buffer solution pH 1.679 ±0.03 (25 °C)	colourless	plastic	8112.1	1 l
Buffer solution pH 2.00 ±0.02 (20 °C)	colourless	plastic	P715.2	500 ml
			P715.1	1 l
Buffer solution pH 3.00 ±0.02 (20 °C)	colourless	plastic	T181.2	500 ml
			T181.1	1 l
Buffer solution pH 3.776 ±0.012 (25 °C)	colourless	plastic	4280.1	500 ml
			4280.2	1 l
Buffer solution pH 4.00 ±0.02 (20 °C)	colourless	plastic	P712.3	500 ml
			P712.1	1 l
			P712.2	10 l
	red	twin neck bottle	A517.3	250 ml
		plastic	A517.2	500 ml
		twin neck bottle	A517.4	500 ml
		plastic	A517.1	1 l
		plastic	A517.5	10 l
Buffer solution pH 4.005 ±0.02 (25 °C)	colourless	plastic	4281.1	500 ml
			4281.2	1 l
Buffer solution pH 4.62 ±0.02 (20 °C)	colourless	plastic	T182.1	1 l
Buffer solution pH 5.00 ±0.02 (20 °C)	colourless	plastic	T183.2	500 ml
			T183.1	1 l
Buffer solution pH 6.00 ±0.02 (20 °C)	colourless	plastic	T184.2	500 ml
Buffer solution pH 6.865 ±0.02 (25 °C)	colourless	plastic	T184.1	1 l
			4284.1	500 ml
			4284.2	1 l
Buffer solution pH 6.88 ±0.02 (20 °C)	colourless	plastic	T185.1	1 l
Buffer solution pH 7.00 ±0.02 (20 °C)	colourless	plastic	A518.3	500 ml
			A518.1	1 l
			A518.2	10 l
	green	twin neck bottle	P713.3	250 ml
		plastic	P713.2	500 ml
		twin neck bottle	P713.4	500 ml
		plastic	P713.1	1 l
		plastic	P713.5	10 l

Product name	Version	Pack.	Art. No.	Pack Qty.
Buffer solution pH 7.413 ±0.02 (25 °C)	colourless	plastic	4285.1	500 ml
			4285.2	1 l
Buffer solution pH 8.00 ±0.02 (20 °C)	colourless	plastic	T186.2	500 ml
			T186.1	1 l
Buffer solution pH 9.00 ±0.02 (20 °C)	colourless	plastic	A519.3	500 ml
			A519.1	1 l
	colourless, borate free	plastic	1LP5.1	500 ml
			1LP5.2	1 l
	blue	twin neck bottle	P714.3	250 ml
		plastic	P714.2	500 ml
		plastic	P714.1	1 l
Buffer solution pH 9.180 ±0.02 (25 °C)	colourless	plastic	4294.1	500 ml
			4294.2	1 l
Buffer solution pH 9.22 ±0.02 (20 °C)	colourless	plastic	0466.1	500 ml
Buffer solution pH 10.00 ±0.02 (20 °C)	colourless	plastic	P716.2	500 ml
			P716.1	1 l
	colourless, borate free	plastic	1LP6.1	500 ml
			1LP6.2	1 l
	blue	twin neck bottle	8086.1	250 ml
		plastic	8086.2	500 ml
		twin neck bottle	8086.3	500 ml
		plastic	8086.4	1 l
		plastic	8086.5	10 l
Buffer solution pH 10.00 for complexometry	colourless	plastic	T188.1	1 l
Buffer solution pH 11.00 ±0.05 (20 °C)	colourless	plastic	T187.2	500 ml
			T187.1	1 l
Buffer solution pH 12.00 ±0.05 (20 °C)	colourless	plastic	T189.2	500 ml
Buffer solution pH 13.00 ±0.05 (20 °C)	colourless	plastic	T189.1	1 l
			0762.1	500 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

pH-Measurement

Buffer solutions ROTI®Star, ready to use

- Tested in an accredited laboratory in accordance with **ISO 17025**
- Can be traced back to standard reference materials by **NIST**
- Certificate of analysis complete with information on measuring accuracy available online
- Produced according to a special recipe for maximum shelf life



pH 4.00 ± 0.01 (20 °C)

ROTI®Star

Potassium hydrogen phthalate

WGK 1

Art. No.	Pack Qty.	Pack.
9974.1	500 ml	plastic

pH 7.00 ± 0.01 (20 °C)

ROTI®Star

Potassium dihydrogen phosphate, di-sodium hydrogen phosphate

Art. No.	Pack Qty.	Pack.
9977.1	500 ml	plastic

pH 10.00 ± 0.01 (20 °C)

ROTI®Star

di-Sodium tetraborate, sodium hydroxide

WGK 1

Art. No.	Pack Qty.	Pack.
9983.1	500 ml	plastic



pH buffer solution ROTILABO® in sachets

ROTH SELECTION.

The quantity of reagent contained in a sachet (25 ml) is sufficient for a single calibration.

- Traceable thanks to comparison with standard references from the National Institute of Standards and Technology (NIST) and the National Metrology Institute of Germany (PTB)
- With certificate of analysis for documenting the quality, traceability and accuracy

pH 4,01 in sachets

pH value	pH accuracy	Art. No.	Pack Qty.
4,01	± 0.01	KAY0.1	20 unit(s)

pH 7,00 in sachets

pH value	pH accuracy	Art. No.	Pack Qty.
7,00	± 0.01	KAY1.1	20 unit(s)

pH 10,01 in sachets

pH value	pH accuracy	Art. No.	Pack Qty.
10,01	± 0.02	KAY2.1	20 unit(s)



pH buffer tablets

ROTH SELECTION.

For pH tester.

Application:

Dissolve one pH buffer tablet in 20 ml of deionised/distilled water.



pH buffer tablets pH 4

pH value	pH accuracy	Art. No.	Pack Qty.
4	± 0.05	YT50.1	100 unit(s)

pH buffer tablets pH 7

pH value	pH accuracy	Art. No.	Pack Qty.
7	± 0.05	YT51.1	100 unit(s)

pH buffer tablets pH 10

pH value	pH accuracy	Art. No.	Pack Qty.
10	± 0.05	YT52.1	100 unit(s)

pH-Measurement



pH testers CHECK series

Dostmann.

Handy digital-pH tester for measuring the pH value of small liquid quantities in narrow vessels.

- Fixed rod electrode
- Automatic calibration and temperature compensation
- HOLD function
- Battery status display

Technical specifications:

Art. No.	HPC7.1	KLH9.1
Parameters	pH, temperature	
pH measuring range	0 to 14	
pH resolution	0,01	
pH accuracy	±0.1	
pH temp. compensation	yes	
Temperature measuring range	0 to +50 °C	
Temperature resolution	0.5 °C	
Temperature accuracy	±1 °C	
Calibration points	1/2/3 (pH)	
IP rating	65	
Replaceable electrode	no	
Storage solution	3 M KCl	
Shaft length	120 mm	
Ø Shaft	12 mm	
Shaft material	plastic	glass
Weight	70 g	
Power supply	2 x button CR 2032 (3 V)	

Delivery incl. batteries.

Without storage solution and buffer solutions, please order separately.

pH testers pH CHECK

With standard electrode for aqueous solutions.

Type	Art. No.	Pack Qty.
pH CHECK	HPC7.1	1 unit(s)

pH testers pH CHECK G

With glass electrode for measuring in aggressive media.

Type	Art. No.	Pack Qty.
pH CHECK G	KLH9.1	1 unit(s)



Benchtop pH meters pH 50 VioLab

Dostmann.

- Large screen with simultaneous display of pH or mV value and temperature
- Automatic or manual temperature compensation
- Automatic calibration
- Saves the current calibration
- Confirmation when a stable measured value is reached

Technical specifications:

Art. No.	HAE3.1
Type	pH 50 VioLab set
Parameters	pH, redox, temperature
pH measuring range	0 to 14
pH resolution	0,01 pH
pH accuracy	±0.01
Voltage measuring range	-1999 to +1999 mV
Voltage resolution	1 mV
Voltage accuracy	±1 mV
Temperature measuring range	0 to +100 °C
Temperature resolution	0.1 °C
Temperature accuracy	±0.5 °C (+5 to +60 °C), ±1 °C (outside)
Temperature sensor	NTC 30 kΩ
Calibration points	1/2/3 (pH)
Calibration memory	Current calibration
Data memory	25 measurements
Port	without
Connection	BNC (pH), Cinch (°C)
L x W x H	160 x 190 x 70 mm
Power supply	Mains adapter
Mains connection	100–240 V, 50/60 Hz

For common aqueous samples.

201T pH single-rod measuring cell with integrated temperature gauge. pH range: 0 to 14. Operating temperature: 0 to +60 °C, ceramic diaphragms, gel electrolyte, plastic shaft. Shaft length/Ø: 120/12 mm.

Delivery incl. 201T pH single-rod measuring cell, buffer solutions (pH 4.01 and 7.00, each 50 ml), electrode holder and mains adapter.

Type	Art. No.	Pack Qty.
pH 50 VioLab set	HAE3.1	1 unit(s)

Redox-Measurement

Redox Standards ROTI®Calipure

Carl ROTH offers you a comprehensive portfolio of redox standards, which are produced from high-quality reagents and tested with an Ag/AgCl (3 M KCl) reference electrode. They can be used as control standards and thus check the functionality of the electrodes and measuring instruments. The standards are temperature-dependent, so it is important to ensure the correct temperature for the control. The corresponding temperature/redox table can be found on the labels and the batch-specific Certificates of Analysis available online. The batch values are within a very small deviation from the nominal value (± 5 mV).

Purity	Pack.	Art. No.	Pack Qty.
124 mV (25 °C)	plastic	1C5X.1	500 ml
200 mV (25 °C)	plastic	1C5Y.1	500 ml
220 mV (25 °C)	plastic	1C60.1	500 ml
250 mV (25 °C)	plastic	1C61.1	500 ml
300 mV (25 °C)	plastic	1C62.1	500 ml
358 mV (25 °C)	plastic	1C63.1	500 ml
400 mV (25 °C)	plastic	1C64.1	500 ml
440 mV (25 °C)	plastic	1C65.1	500 ml
465 mV (25 °C)	plastic	1C66.1	500 ml
468 mV (25 °C)	plastic	1C67.1	500 ml
475 mV (25 °C)	plastic	1C68.1	500 ml
600 mV (25 °C)	plastic	1C69.1	500 ml
650 mV (25 °C)	plastic	1C6A.1	500 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com



The redox potential can be measured with a pH meter, which can display mV values.

A redox probe is needed for this.

Metal single-rod measuring cell ScienceLine

SI Analytics.

For measuring the redox potential.

Technical specifications:

Art. No.	C893.1	C900.1
Type	Pt 42 A	Pt 6280
Operating temperature	0 to +100 °C	
Sensor type	Platinum, pin, Ø 1 mm	
Diaphragm	Ceramic	
Reference system	Silamid®	
Electrolyte	3 mol/l KCl	
Shaft length	120 mm	
Ø Shaft	12 mm	
Shaft material	glass	
Temperature sensor	without	
Connection	DIN 19262 (pH)	BNC (pH)

Delivery incl. fixed cable (length 1 m).

Type	Art. No.	Pack Qty.
Pt 42 A	C893.1	1 unit(s)
Pt 6280	C900.1	1 unit(s)



Conductivity-Measurement

Conductivity standards ROTI®Calipure

Our conductivity standard solutions are made from high-quality reagents and therefore ensure maximum precision during calibration.

Properties:

- Variation in conductivity $\pm 1\%$ (25 °C)
- Traceable to SRM from NIST
- Aqueous solutions

Brand/Purity	Art. No.	Pack Qty.
ROTI®Calipure 5 $\mu\text{S/cm}$ (25 °C)	2462.1	500 ml
ROTI®Calipure 10 $\mu\text{S/cm}$ (25 °C)	0810.1	250 ml
	0810.2	500 ml
ROTI®Calipure 20 $\mu\text{S/cm}$ (25 °C)	0811.1	500 ml
ROTI®Calipure 50 $\mu\text{S/cm}$ (25 °C)	0812.1	500 ml
ROTI®Calipure 84 $\mu\text{S/cm}$ (25 °C)	2432.1	500 ml
	2432.2	1 l
ROTI®Calipure 100 $\mu\text{S/cm}$ (25 °C)	2463.1	500 ml
ROTI®Calipure 147 $\mu\text{S/cm}$ (25 °C)	2433.1	500 ml
	2433.2	1 l
ROTI®Calipure 500 $\mu\text{S/cm}$ (25 °C)	2464.1	500 ml
ROTI®Calipure 1000 $\mu\text{S/cm}$ (25 °C)	2465.1	500 ml
	2434.1	500 ml
ROTI®Calipure 1413 $\mu\text{S/cm}$ (25 °C)	2434.2	1 l
	0814.1	500 ml
ROTI®Calipure 5000 $\mu\text{S/cm}$ (25 °C)	2466.1	500 ml
ROTI®Calipure 10 000 $\mu\text{S/cm}$ (25 °C)	2435.1	500 ml
	2435.2	1 l
ROTI®Calipure 20 000 $\mu\text{S/cm}$ (25 °C)	0822.1	500 ml
ROTI®Calipure 50 000 $\mu\text{S/cm}$ (25 °C)	0831.1	500 ml
ROTI®Calipure 100 000 $\mu\text{S/cm}$ (25 °C)	0832.1	500 ml
ROTI®Calipure 500 000 $\mu\text{S/cm}$ (25 °C)	2467.1	500 ml



Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Standard conductivity in sachets

ROTH SELECTION.

The quantity of reagent contained in a sachet (25 ml) is sufficient for a single calibration.

- Traceable thanks to comparison with standard references from the National Institute of Standards and Technology (NIST)
- With certificate of analysis for documenting the quality, traceability and accuracy

Delivery incl. certificate of analysis.

Standard conductivity 1413 $\mu\text{S/cm}$

WGK 1

Conductivity ($\mu\text{S/cm}$)	Conductivity accuracy	Art. No.	Pack Qty.
1413	$\pm 1\%$	KCX3.1	20 unit(s)

Standard conductivity 12,880 $\mu\text{S/cm}$

WGK 1

Conductivity ($\mu\text{S/cm}$)	Conductivity accuracy	Art. No.	Pack Qty.
12880	$\pm 1\%$	KCX4.1	20 unit(s)



Conductivity/combination meters



Portable conductivity meters COND 7 Vio

Dostmann.

- Large LCD display with simultaneous display of conductivity and temperature
- Automatic calibration with display of the calibrated ranges
- Temperature correction: automatic from 0 to +100 °C, manual 0 to +80 °C
- Confirmation when a stable measured value is reached
- Reference temperature, adjustable cell constant and temperature coefficient

Technical specifications:

Art. No.	HPL7.1
Type	COND 7 Vio Basic
Parameters	conductivity, TDS, temperature
Conductivity measuring range	0 µS/cm to 200 mS/cm
Conductivity resolution	automatic (0.01 µS/cm – 0.1 mS/cm)
Conductivity accuracy	±0.4 µS/cm (0 to 19.99 µS/cm), ±4 µS/cm (20.0 to 199.9 µS/cm), ±40 µS/cm (200 to 1999 µS/cm), ±0.4 mS/cm (2.00 to 19.99 mS/cm), ±4 mS/cm (20.0 to 200.0 mS/cm)
Calibration points	automatic: 1/2/3/4 (standard) manual: 1 (user-defined)
Reference temperature	+15 – +30 °C
Cell constant	0,1 / 1,0 / 10 cm ⁻¹
Temperature coefficient	0 – 10,00 %/°C
TDS measuring range	0 mg/l to 100 g/l
TDS resolution	automatic (0.01 mg/l – 0.1 g/l)
TDS accuracy	±0.2 mg/l (0 to 19.99 mg/l), ±2 mg/l (20.0 to 199.9 mg/l), ±20 mg/l (200 to 1999 mg/l), ±0.2 g/l (2.00 to 19.99 g/l), ±1 g/l (20.0 to 100.0 g/l)
Temperature measuring range	0 to +100 °C
Temperature resolution	0.1 °C
Temperature accuracy	±0.5 °C
Connection	BNC (EC), Cinch (°C)
L x W x H	196 x 86 x 33 mm
Weight	300 g
Power supply	3x battery Mignon/AA 1.5 V

2301T conductivity sensor with integrated temperature gauge. Measuring range: 10 µS to 200 mS/cm. Steel shaft, length/Ø: 120/12 mm. Operating range: 0 to +60 °C.

Delivery incl. 2301T conductivity sensor, test solutions (1413 µS/cm and 12,88 mS/cm), measuring beaker, storage case and batteries.

Type	Art. No.	Pack Qty.
COND 7 Vio Set	HPL8.1	1 unit(s)



Combi tester PC 5

Dostmann.

For measuring pH, conductivity, TDS, salinity and temperature.

- Large LCD display
- Waterproof and dust-proof
- Automatic temperature compensation/correction
- Confirmation when a stable measured value is reached
- Automatic calibration with display of the calibrated ranges
- Multicolour back lighting for status display of measurement mode, calibration and alarm

Technical specifications:

Art. No.	HPK4.1
Type	PC 5
Parameters	pH, conductivity, salinity, TDS, temperature
pH measuring range	-2 to +16
pH resolution	0,01 pH
pH accuracy	±0.01 pH
Voltage measuring range	-1000 to +1000 mV
Voltage resolution	0,1 mV, 1 mV
Voltage accuracy	±1 mV
Conductivity measuring range	0 µS/cm to 20 mS/cm
Conductivity resolution	automatic (0.1 µS/cm – 0.1 mS/cm)
Conductivity accuracy	±2 µS/cm (0 to 199.9 µS/cm), ±20 µS/cm (200 to 1999 µS/cm), ±0.2 mS/cm (2.0 to 20.0 mS/cm)
Reference temperature	+20 / +25 °C
TDS measuring range	0 to 10 ppt
TDS resolution	automatic (0.1 ppm – 0.01 ppt)
TDS accuracy	±2 ppm (0.1 to 199.9 ppm), ±20 ppm (200 to 1999 ppm), ±0.1 ppt (2.00 to 10.00 ppt)
Salinity measuring range	0 mg/l to 10 g/l
Salinity resolution	automatic (0.1 mg/l – 0.01 g/l)
Salinity accuracy	±2 mg/l (0.1 to 199.9 mg/l), ±20 mg/l (200 to 1999 mg/l), ±0.1 g/l (2.00 to 10.00 g/l)
Temperature measuring range	0 to +50 °C
Temperature resolution	0.1 °C
Temperature accuracy	±0.2 °C
Calibration points	1/2/3 (pH/EC)
IP rating	67
Ø x L	35 x 175 mm
Weight	130 g
Power supply	2x battery Micro/AAA 1.5 V

Delivery incl. buffer solutions (pH 4.01/7.00; EC 1413 µS/cm), storage solution, two measuring beakers, storage case and batteries.

Type	Art. No.	Pack Qty.
PC 5	HPK4.1	1 unit(s)

Density measurement

Density standards ROTI®Calipure

Our Density standards are made of high-quality reagents and are tested by Bingham Pycnometer. They can be used with any brand or type of density measuring instrument.

The batch specific Certificates of Analysis are available online.

Properties:

- No toxic metals are used in the products
- Calibration standard for density measurement by pycnometric, vibrational or hydrometer based techniques
- Usable with any brand or type of density measuring instrument
- Consistently high quality from batch to batch
- For testing of Density or Relative Density

Purity	Pack.	Art. No.	Pack Qty.
0,6919 g/ml (20 °C)	glass	2951.1	100 ml
0,7033 g/ml (20 °C)	glass	2964.1	100 ml
0,8668 g/ml (20 °C)	glass	2965.1	100 ml
1,0005 g/ml (20 °C)	glass	2966.1	100 ml
1,0301 g/ml (20 °C)	glass	2971.1	100 ml
1,0792 g/ml (20 °C)	glass	2972.1	100 ml
1,1651 g/ml (20 °C)	glass	2973.1	100 ml
1,2486 g/ml (20 °C)	glass	2974.1	100 ml
1,3304 g/ml (20 °C)	glass	2976.1	100 ml
1,7470 g/ml (20 °C)	glass	2979.1	100 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com



Hydrometer precision

Greiner glass instruments.

Without thermometer. Body Ø 16 mm, stem Ø 6.25 mm.



Measuring range (g/cm ³)	Graduation (g/cm ³)	Length (mm)	Reference temperature (°C)	Art. No.	Pack Qty.
0.600 to 0.700	0,001	300	20	HH87.1	1 unit(s)
0.700 to 0.800	0,001	300	20	HH88.1	1 unit(s)
0.800 to 0.900	0,001	300	20	HH89.1	1 unit(s)
0.900 to 1.000	0,001	300	20	HH90.1	1 unit(s)
1.000 to 1.100	0,001	300	20	HH91.1	1 unit(s)
1.100 to 1.200	0,001	300	20	HH92.1	1 unit(s)
1.200 to 1.300	0,001	300	20	HH93.1	1 unit(s)
1.300 to 1.400	0,001	300	20	HH94.1	1 unit(s)
1.400 to 1.500	0,001	300	20	HH95.1	1 unit(s)
1.500 to 1.600	0,001	300	20	HH96.1	1 unit(s)
1.600 to 1.700	0,001	300	20	HH97.1	1 unit(s)
1.700 to 1.800	0,001	300	20	HH98.1	1 unit(s)
1.800 to 1.900	0,001	300	20	HH99.1	1 unit(s)
1.900 to 2.000	0,001	300	20	HK03.1	1 unit(s)

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Viscosity measurement

Viscosity standards ROTI®Calipure

Our viscosity standards are manufactured from high-quality reagents and tested using Ubbelohde Master Viscometers. All standards are tested for kinematic viscosity (mm²/s, cSt) as well as dynamic viscosity (mPa·s, cP) and density (g/ml) at different temperatures up to 100 °C. They can be used for calibration, control, verification, qualification or method validation of kinematic and dynamic viscosity.

All viscosity standards behave like a Newtonian fluid.

The batch specific Certificates of Analysis are available online.

Product name	Purity	Pack.	Art. No.	Pack Qty.
Standard for Viscosity N2	2,9 cSt (20 °C)	glass	1P42.1	500 ml
Standard for Viscosity S3	4,5 cSt (20 °C)	glass	3385.1	500 ml
Standard for Viscosity N4	6,7 cSt (20 °C)	glass	1P43.1	500 ml
Standard for Viscosity S6	10 cSt (20 °C)	glass	3387.1	500 ml
Standard for Viscosity N7.5	14 cSt (20 °C)	glass	1P44.1	500 ml
Standard for Viscosity N10	22 cSt (20 °C)	glass	3342.1	500 ml
Standard for Viscosity N14	30 cSt (20 °C)	glass	1P45.1	500 ml
Standard for Viscosity S20	43 cSt (20 °C)	glass	3360.1	500 ml
Standard for Viscosity N26	59 cSt (20 °C)	glass	1P46.1	500 ml
Standard for Viscosity N35	88 cSt (20 °C)	glass	3349.1	500 ml
Standard for Viscosity N44	110 cSt (20 °C)	glass	1P47.1	500 ml
Standard for Viscosity S60	160 cSt (20 °C)	glass	3388.1	500 ml
Standard for Viscosity N75	210 cSt (20 °C)	glass	3356.1	500 ml
Standard for Viscosity N100	320 cSt (20 °C)	glass	3344.1	500 ml
Standard for Viscosity S200	540 cSt (20 °C)	glass	3366.1	500 ml
Standard for Viscosity N140	400 cSt (20 °C)	glass	1P48.1	500 ml
Standard for Viscosity N250	790 cSt (20 °C)	glass	3345.1	500 ml
Standard for Viscosity N350	980 cSt (20 °C)	glass	1P49.1	500 ml
Standard for Viscosity N415	1400 cSt (20 °C)	glass	1P4A.1	500 ml
Standard for Viscosity S600	1800 cSt (20 °C)	glass	1P4C.1	500 ml
Standard for Viscosity N750	2700 cSt (20 °C)	glass	1P4E.1	500 ml
Standard for Viscosity N1000	3300 cSt (20 °C)	glass	1P4H.1	500 ml
Standard for Viscosity N1400	4900 cSt (20 °C)	glass	1P4K.1	500 ml
Standard for Viscosity N2500	8300 cSt (20 °C)	glass	1P4L.1	500 ml
Standard for Viscosity S2000	8400 cSt (20 °C)	glass	1P4N.1	500 ml
Standard for Viscosity N4000	19000 cSt (20 °C)	glass	1P4P.1	500 ml
Standard for Viscosity N5100	28000 cSt (20 °C)	glass	1P4T.1	500 ml
Standard for Viscosity S8000	41000 cSt (20 °C)	glass	1P4X.1	500 ml
Standard for Viscosity N10200	58000 cSt (20 °C)	glass	1P4Y.1	500 ml
Standard for Viscosity N15000	77000 cSt (20 °C)	glass	1P50.1	500 ml
Standard for Viscosity N18000	100000 cSt (20 °C)	glass	1P51.1	500 ml



Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Detailed product information you will find in our webshop!

Always current prices!

- All relevant product information
- Status of product availability
- Specifications and certificates of analysis
- Instructions for use



Refractive index measurement

Refractive index standards ROTI®Calipure

Our refractive index standards are manufactured from high-quality reagents. They can be used with all refractometers. They are solvent based and are supplied in bottles with an additional pipette.

The batch specific certificates of analysis are available online.

Purity	Pack.	Art. No.	Pack Qty.
1,38779 (20 °C)	glass	3100.1	15 ml
1,40485 (20 °C)	glass	3102.1	15 ml
1,42345 (20 °C)	glass	3103.1	15 ml
1,44468 (20 °C)	glass	3106.1	15 ml
1,46768 (20 °C)	glass	3120.1	15 ml
1,49672 (20 °C)	glass	3124.1	15 ml
1,50044 (20 °C)	glass	3125.1	15 ml
1,51726 (20 °C)	glass	3126.1	15 ml
1,53660 (20 °C)	glass	3143.1	15 ml
1,65808 (20 °C)	glass	3152.1	15 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com



Handheld refractometer digital ORF

Kern.

Digital refractive index measuring instrument for laboratories and industry.

For refractive index measurement, with extra-large measuring range.

- Compact, rugged design
- Dust and splash-proof according to protection class IP 65
- With automatic temperature compensation (ATC)
- Measuring temperature with ATC: +5 to +40 °C (Accuracy ±0.5 °C)
- Depending on model, measured value is output on different measurement scales
- Auto-off function after 90 seconds

Technical specifications:

Art. No.	ECL0.1
Minimum sample volume	approx. 2–3 droplets
Service life	battery: approx. 3750 measurements
W x D x H	145 x 67 x 40 mm
Weight	560 g
Power supply	2 x 1.5 V AAA batteries

Delivery incl. calibration solution, leather case, storage box and batteries.



Handheld refractometer analogue

Kern.

For measuring the refractive index of transparent substances in a liquid state.

- Eyepiece with dioptré compensation
- Scale is precisely calculated and checked, with very thin and clear lines
- Without or with automatic temperature compensation (ATC)
Measuring temperature with ATC: 10 to 30 °C
Measuring temperature without ATC: 20 °C

Delivery incl. calibration solution and storage box.

Type	Scale/measuring range	Resolution	Art. No.	Pack Qty.
ORA 4RR	Refractive index/1.440–1.520 nD	0.001 nD	CEX9.1	1 unit(s)
ORA 1RE	Refractive index/1.333–1.517 nD	0.005 nD	CEY0.1	1 unit(s)

Type	Scale/measuring range	Resolution	Accuracy	Art. No.	Pack Qty.
ORF 1RS	Refractive index/1.3330–1.5400 nD	0.0001 nD	±0.0005 nD	ECL0.1	1 unit(s)

Refractive index measurement

Refractive index standards BRIX ROTI®Calipure

Our refractive index standards BRIX are gravimetrically manufactured from high-quality materials and achieve a longer shelf life through stabilisation. They can be used with all refractometers. They are based on sucrose and are supplied in practical dropper bottles.

The batch-specific certificates of analysis are available online.



Properties:

- Calibration and control standard
- stabilised, non ICUMSA (International Commission for Uniform Methods of Sugar Analysis)
- usable with all refractometers

Purity	Pack.	Art. No.	Pack Qty.
0 % stabilised saccharose, 1,33299 (20 °C)	plastic	1NYC.1	15 ml
5 % stabilised saccharose, 1,34026 (20 °C)	plastic	1NYL.1	15 ml
7 % stabilised saccharose, 1,34325 (20 °C)	plastic	1NYN.1	15 ml
10 % stabilised saccharose, 1,34782 (20 °C)	plastic	1NYP.1	15 ml
11,2 % stabilised saccharose, 1,34968 (20 °C)	plastic	1NYT.1	15 ml
11,5 % stabilised saccharose, 1,35015 (20 °C)	plastic	1NYX.1	15 ml
12 % stabilised saccharose, 1,35093 (20 °C)	plastic	1NYY.1	15 ml
12,5 % stabilised saccharose, 1,35172 (20 °C)	plastic	1P00.1	15 ml
14,9 % stabilised saccharose, 1,35552 (20 °C)	plastic	1P01.1	15 ml
15 % stabilised saccharose, 1,35568 (20 °C)	plastic	1P02.1	15 ml
19,4 % stabilised saccharose, 1,36285 (20 °C)	plastic	1P03.1	15 ml
20 % stabilised saccharose, 1,36384 (20 °C)	plastic	1P04.1	15 ml
23,8 % stabilised saccharose, 1,37026 (20 °C)	plastic	1P05.1	15 ml
25 % stabilised saccharose, 1,37233 (20 °C)	plastic	1P06.1	15 ml
30 % stabilised saccharose, 1,38115 (20 °C)	plastic	1P07.1	15 ml
35 % stabilised saccharose, 1,39032 (20 °C)	plastic	1P08.1	15 ml
40 % stabilised saccharose, 1,39986 (20 °C)	plastic	1P09.1	15 ml
45 % stabilised saccharose, 1,40978 (20 °C)	plastic	1P0A.1	15 ml
50 % stabilised saccharose, 1,42009 (20 °C)	plastic	1P0C.1	15 ml
55 % stabilised saccharose, 1,43080 (20 °C)	plastic	1P0E.1	15 ml
60 % stabilised saccharose, 1,44193 (20 °C)	plastic	1P0H.1	15 ml
67,5 % stabilised saccharose, 1,45941 (20 °C)	plastic	1P0K.1	15 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Melting point measurement

Melting point standards ROTI®Calipure



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. Carl 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.

Properties:

- Suitable for checking purity
- Max. measurement inaccuracy ± 0.3 °C
- Suitable for use independent of instrument type
- *Ready-to-use*

Product name	Purity	Art. No.	Pack Qty.
4-Acetylbenzotrile	melting point standard 56–59 °C	2902.1	1 g
Anthraquinone	melting point standard 283–286 °C	9754.1	1 g
Benzoic acid	melting point standard 121–123 °C	9722.1	1 g
Benzophenone	melting point standard 47–49 °C	9709.1	1 g
Caffeine	anhydrous, melting point standard 235–238 °C	9739.1	1 g
Carbazole	melting point standard 243–247 °C	9752.1	1 g
<i>p</i> -Nitrotoluene	melting point standard 51–54 °C	9712.1	1 g
Phenacetin	melting point standard 133–135 °C	9728.1	1 g
Phenolphthalein (C.I. 764)	melting point standard 258–263 °C	2919.1	1 g
Salicylic acid	melting point standard 158–160 °C	9731.1	1 g
Sulphanilamide	melting point standard 164–166 °C	9734.1	1 g
<i>m</i> -Toluic acid	melting point standard 107–113 °C	2916.1	1 g
Vanillin	melting point standard 81–83 °C	9714.1	1 g

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Melting point standard set 1

ROTI®Calipure

Set contains Caffeine, Sulphanilamide, Vanillin
WGK 1

Warning H302-H319

Art. No.	Pack Qty.	Packaging	Pack.
2921.1	1 set	3 x 1 g	glass

Melting point standard set 2

ROTI®Calipure

Set contains Anthraquinone, Benzophenone, Benzoic acid

Danger H315-H317-H318-H350-H372-H412

Art. No.	Pack Qty.	Packaging	Pack.
2942.1	1 set	3 x 1 g	glass

Melting point standard set 3

ROTI®Calipure

Set contains Caffeine, Phenacetin, Vanillin

Danger H302-H319-H350

Art. No.	Pack Qty.	Packaging	Pack.
2928.1	1 set	3 x 1 g	glass

Melting point measurement



Melting point measuring units MPM series

For measuring the melting point of powdery substances in glass capillaries.

Equipment features of all models:

- Digital temperature control
- Indirect, non-glare and anti-dazzle illumination of the substance during visual measurement using the magnifier
- Height-adjustable table tripod (360 to 460 mm)
- With USB interface
- Software makes it possible to create a measurement log in PDF format

Technical specifications:

Art. No.	HCE5.1
Type	MPM-H 3
Measuring range	+35 to +360 °C
Resolution	0,1 °C
Accuracy	±0,4 °C
Heat-up rate	when quick heating: to 200 °C - approx. 4 min to 350 °C - approx. 8 min when measuring: 1 °C/min
Magnification	with 3-fold magnifying glass
Width	230 mm
Depth	65 mm
Height	260 mm
Weight	6.8 kg
Mains connection	115–230 V, 50 Hz

Delivery incl. 100 melting point capillary tubes, USB cable, software and protective hood.

Semi-automatic MPM-H 3

For simultaneous testing of max. 3 samples.
Measuring process: visual by observation. Once the pre-selected temperature is reached, a filled capillary is inserted and a visual inspection of the capillary is performed using the magnifier. After the "Start" button is pressed again, the unit continues to heat up at a rate of 1 °C/min. As soon as the sample has melted, the value can be read on the display.

Type	Art. No.	Pack Qty.
MPM-H 3	HCE5.1	1 unit(s)

Accessories melting point capillary tubes for MPM series

Type	Art. No.	Pack Qty.
Melting point tubes, open on one side. Ext.-Ø 1,45 mm, int.-Ø 1,0 mm, length 80 mm	HCE6.1	100 unit(s)

The ROTH product portfolio



Always current prices!

- Quality products for individual requirements
- Special offers and promotions
- Direct dispatch – fast & reliable
- 10-day take-back guarantee

Colour Standards

The European Pharmacopoeia (Ph.Eur.) specifies the visual colour comparison method in chapter 2.2.2. In this method, 5 further colour reference solutions are prepared from the 3 primary solutions red, yellow and blue with 1 % hydrochloric acid. Carl ROTH offers you both the primary solutions and the ready-mixed colour reference solutions yellow, greenish-yellow, brownish-yellow, brown and red.

Our colour standards according to Ph.Eur. are prepared from high-quality reagents by weighing (weight %). The standards are checked by means of a spectrophotometer.

The batch specific Certificates of Analysis are available online.



Properties:

- Consistently high quality from batch to batch
- *Ready-to-use*

Product name	Brand/Purity	Art. No.	Pack Qty.
Colour Standard diluting solution	ROTI@Calipure 10 g/l HCl	1HC3.1	1 l
Colour Standard	ROTI@Calipure Reag. Ph. Eur., Primary solution, blue	1HAN.1	100 ml
	ROTI@Calipure Reag. Ph. Eur., Primary solution, red	1HAT.1	100 ml
	ROTI@Calipure Reag. Ph. Eur., Primary solution, yellow	1HAP.1	100 ml
	ROTI@Calipure Reag. Ph. Eur., standard solution brown	1HAX.1	100 ml
	ROTI@Calipure Reag. Ph. Eur., standard solution brownish-yellow	1HAY.1	100 ml
	ROTI@Calipure Reag. Ph. Eur., standard solution greenish-yellow	1HC1.1	100 ml
	ROTI@Calipure Reag. Ph. Eur., standard solution red	1HC2.1	100 ml
	ROTI@Calipure Reag. Ph. Eur., standard solution yellow	1HC0.1	100 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Colour Standards according to ASTM ROTI@Calipure

Our ASTM colour standards are prepared from high-quality reagents by weighing (weight %) according to ASTM D 1500. The standards are checked by means of a spectrophotometer.

The batch specific Certificates of Analysis are available online.

Properties:

- Calibration and/or quality control standard
- Consistently high quality from batch to batch
- *Ready-to-use*

Brand/Purity	Art. No.	Pack Qty.
ROTI@Calipure ASTM <0,5	1H62.1	100 ml
ROTI@Calipure ASTM A1	1H63.1	100 ml
ROTI@Calipure ASTM A3	1H64.1	100 ml
ROTI@Calipure ASTM A5	1H65.1	100 ml
ROTI@Calipure ASTM A7	1H66.1	100 ml



Colour Standards

Colour Standards according to Gardner ROTI®Calipure

The light yellow Gardner colour numbers 1–8 are based on potassium chloroplatinate solutions, the colour numbers 9–18 on iron(III) chloride, cobalt(II) chloride and hydrochloric acid solutions. They can be used to determine the colour number of similarly coloured liquids, such as vegetable oils or mineral oils. Our colour standards according to Gardner are prepared from high-quality reagents by weighing (weight %). The standards are checked by means of a spectrophotometer. The batch specific Certificates of Analysis are available online.

Properties:

- Calibration and/or quality control standard
- Consistently high quality from batch to batch
- *Ready-to-use*



Brand/Purity	Art. No.	Pack Qty.
ROTI®Calipure Gardner 1	1HT7.1	100 ml
ROTI®Calipure Gardner 2	1HT8.1	100 ml
ROTI®Calipure Gardner 3	1HT9.1	100 ml
ROTI®Calipure Gardner 4	1HTA.1	100 ml
ROTI®Calipure Gardner 5	1HTC.1	100 ml
ROTI®Calipure Gardner 6	1HTE.1	100 ml
ROTI®Calipure Gardner 7	1HTH.1	100 ml
ROTI®Calipure Gardner 8	1HTK.1	100 ml
ROTI®Calipure Gardner 9	1HTL.1	100 ml
ROTI®Calipure Gardner 10	1HTN.1	100 ml
ROTI®Calipure Gardner 11	1HTP.1	100 ml
ROTI®Calipure Gardner 12	1HTT.1	100 ml
ROTI®Calipure Gardner 13	1HTX.1	100 ml
ROTI®Calipure Gardner 14	1HTY.1	100 ml
ROTI®Calipure Gardner 15	1HX0.1	100 ml
ROTI®Calipure Gardner 16	1HX1.1	100 ml
ROTI®Calipure Gardner 17	1HX2.1	100 ml
ROTI®Calipure Gardner 18	1HX3.1	100 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Colour Standards

Colour Standards Pt/Co ROTI®Calipure

The platinum-cobalt colour scale (Pt/Co for short) or APHA-Hazen colour scale is used for colour assessment of almost water-clear solutions. It is defined as mg platinum per 1 l solution. The samples are compared colorimetrically against the corresponding standard solution.

Our Pt/Co (Hazen) colour standards are prepared from high-quality reagents by weighing (weight %) according to ASTM D 1209. The standards are checked by means of a spectrophotometer.

The batch specific Certificates of Analysis are available online.

Properties:

- Calibration and/or quality control standard
- Consistently high quality from batch to batch
- *Ready-to-use*



Purity	Pack.	Art. No.	Pack Qty.
0 Hazen	plastic	1EE5.1	100 ml
5 Hazen	plastic	1EE6.1	100 ml
10 Hazen	plastic	1EE7.1	100 ml
15 Hazen	plastic	1EE8.1	100 ml
20 Hazen	plastic	1EE9.1	100 ml
25 Hazen	plastic	1EEA.1	100 ml
30 Hazen	plastic	1EEC.1	100 ml
40 Hazen	plastic	1EEE.1	100 ml
50 Hazen	plastic	1EEH.1	100 ml
80 Hazen	plastic	1EEK.1	100 ml
100 Hazen	plastic	1EEL.1	100 ml
150 Hazen	plastic	1EEN.1	100 ml
200 Hazen	plastic	1EEP.1	100 ml
250 Hazen	plastic	1EET.1	100 ml
400 Hazen	plastic	1EEY.1	100 ml
500 Hazen	plastic	1EEY.1	100 ml
1000 Hazen	plastic	1EH0.1	100 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Colour Standards

Colour Standards according to Saybolt ROTI®Calipure

The Saybolt scale is used for the evaluation of water-clear, colourless to slightly yellowish liquids, such as paraffins or mineral oils.

Our colour standards according to Saybolt are prepared from high-quality reagents by weighing (weight %). The standards are checked by means of a spectrophotometer.

The batch specific Certificates of Analysis are available online.

Properties:

- Calibration and/or quality control standard
- Consistently high quality from batch to batch
- *Ready-to-use*



Brand/Purity	Art. No.	Pack Qty.
ROTI®Calipure Saybolt +30	1KNH.1	100 ml
ROTI®Calipure Saybolt +25	1KNK.1	100 ml
ROTI®Calipure Saybolt +19	1KNL.1	100 ml
ROTI®Calipure Saybolt +15	1KNN.1	100 ml
ROTI®Calipure Saybolt +12	1KNP.1	100 ml
ROTI®Calipure Saybolt +0	1KNT.1	100 ml
ROTI®Calipure Saybolt -15	1KNX.1	100 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Freezing point standards

Standards for Cryoscopy ROTI®Calipure

The concentration of a solute in a liquid, has an influence on some colligative properties of the mixed solution, one of the properties is the freezing point. The freezing point of milk is also based on this phenomenon and is below 0 °C for unaltered milk. If the milk is diluted with water, the freezing point moves closer to that of pure water (0 °C). The increase in freezing point is due to the dilution of lactose and inorganic salts, the other components such as fat, proteins and other ingredients probably have no influence on the freezing point.

The freezing point standards are produced gravimetrically (w/w) from high-quality raw materials.

The certificates of analysis are available online.

Properties:

- Used to calibrate and control
- Suitable for all cryoscopes
- For the determination of freezing point in milk
- Manufactured according to ISO 5764



Product name	Brand/Purity	Pack.	Art. No.	Pack Qty.
Standard for cryoscopy	ROTI®Calipure 000 (0,000 °C)	plastic	1PEX.1	250 ml
	ROTI®Calipure 422 m°H (-0,408 °C)	plastic	1PEY.1	100 ml
			1PEY.2	250 ml
	ROTI®Calipure 530 m°H (-0,512 °C)	plastic	1PH0.1	100 ml
			1PH0.2	250 ml
	ROTI®Calipure 577 m°H (-0,557 °C)	plastic	1PH1.1	250 ml
ROTI®Calipure 621 m°H (-0,600 °C)	plastic	1PH2.1	100 ml	
		1PH2.2	250 ml	
Standard for cryoscopy – Cooling Bath Liquid	ROTI®Calipure for cryoscopy	plastic	1PH3.1	500 ml
Standard for cryoscopy – Heat Transfer Fluid	ROTI®Calipure for cryoscopy	plastic	1PH4.1	250 ml

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Standards for Total Acid Number and Total Base Number



Standards for Total Acid Number (TAN)

The Total Acid Number (TAN), acid number (AN) or neutralisation number (NN) is determined primarily in mineral oils, lubricants and biodiesel and indicates how many mg of potassium hydroxide are required per g of sample to neutralise the acidic components and free acids. It depends, among other things, on the solubility of the sample in the solvent and on the nature of the sample. The total acid number shows changes in the oil or lubricant under oxidising conditions and serves as a quality control.

In this method, the total acid number in the sample is determined potentiometrically by acid/base titration with potassium hydroxide solution in 2-propanol.

Our TAN standards are produced in a synthetic oil matrix and tested according to ASTM D664.

Brand/Purity	Pack.	Art. No.	Pack Qty.
ROTI®Calipure 0,05 mg KOH/g	glass	1T1K.1	50 g
ROTI®Calipure 0,1 mg KOH/g	glass	1T1L.1	50 g
ROTI®Calipure 0,2 mg KOH/g	glass	1T1N.1	50 g
ROTI®Calipure 0,5 mg KOH/g	glass	1T1P.1	50 g
ROTI®Calipure 1,0 mg KOH/g	glass	1T1T.1	50 g
ROTI®Calipure 1,5 mg KOH/g	glass	1T1X.1	50 g
ROTI®Calipure 2,0 mg KOH/g	glass	1T1Y.1	50 g
ROTI®Calipure 2,5 mg KOH/g	glass	1T20.1	50 g
ROTI®Calipure 3,0 mg KOH/g	glass	1T21.1	50 g
ROTI®Calipure 4,5 mg KOH/g	glass	1T22.1	50 g

Standards for Total Base Number (TBN)

The Total Base Number (TBN) or base number (BN) is determined in oils or lubricants. It indicates the ability of the oil to neutralise acidic compounds formed during use; the unit of measurement is mg KOH/g. The determination is carried out on both new and used oils.

In the method according to ASTM D2896, the total base number of the sample is determined by dissolving the sample in a mixture of chlorobenzene and acetic acid and then titrating it potentiometrically with perchloric acid in acetic acid.

For the determination according to ASTM D4739, the sample is dissolved in a mixture of toluene, 2-propanol, chloroform with 0.5 % water and titrated with hydrochloric acid in 2-propanol.

Our TBN standards are produced in a synthetic oil matrix and tested according to ASTM D2896.

Brand/Purity	Pack.	Art. No.	Pack Qty.
ROTI®Calipure 1,0 mg KOH/g	glass	1T23.1	50 g
ROTI®Calipure 3,0 mg KOH/g	glass	1T24.1	50 g
ROTI®Calipure 6,0 mg KOH/g	glass	1T25.1	50 g
ROTI®Calipure 10 mg KOH/g	glass	1T26.1	50 g
ROTI®Calipure 15 mg KOH/g	glass	1T27.1	50 g
ROTI®Calipure 30 mg KOH/g	glass	1T28.1	50 g
ROTI®Calipure 40 mg KOH/g	glass	1T29.1	50 g
ROTI®Calipure 50 mg KOH/g	glass	1T2A.1	50 g
ROTI®Calipure 70 mg KOH/g	glass	1T2C.1	50 g

Electrolytes, Titration and Solvents

Electrolyte Lithium chloride

ROTI®Calipure 1 mol/l in ethanol

Electrolyte and reference electrode filling solution acc. to ASTM D664

UN no. 1170 · ADR 3 II · WGK 1

Danger H225-H319

Art. No.	Pack Qty.	Pack.
1T2L.1	100 ml	dropp. bottle

Electrolyte sodium perchlorate

ROTI®Calipure saturated in glacial acetic acid

Electrolyte and reference electrode filling solution acc. to ASTM D2896

UN no. 2789 · ADR 8 (3) II · WGK 1

Danger H226-H314

Art. No.	Pack Qty.	Pack.
1T2N.1	100 ml	dropp. bottle

Solvents and Titrants for TAN/TBN determination

Product name	Brand/Purity	Pack.	Art. No.	Pack Qty.
Hydrochloric acid in 2-propanol	0,1 mol/l – 0,1 N, volumetric standard solution	glass	2943.1	1 l
Perchloric acid	0,1 mol/l – 0,1 N, volumetric standard solution, in anhydrous acetic acid	glass	K023.1	1 l
Potassium hydroxide solution in 2-propanol	0,01 mol/l – 0,01 N, volumetric standard solution	glass	1T1H.1	1 l
Sodium acetate solution	0,1 mol/l – 0,1 N, volumetric standard solution, in acetic acid	glass	KK68.1	1 l
Solvent for Total Acid Number (TAN) acc. to ASTM D664	ROTI®Calipure Toluene, 2-Propanol, Water 50:49.5:0.5	plastic	0151.1	1 l
Solvent for Total Base Number (TAN) acc. to ASTM D664	ROTI®Calipure Toluene, 2-Propanol, Water 50:49.5:0.5	glass	1T2E.1	1 l
		glass	1T2E.2	2.5 l
Solvent for Total Base Number (TBN) acc. to ASTM D2896	ROTI®Calipure Chlorobenzene, Acetic acid 2:1	glass	1T2H.1	1 l
		glass	1T2H.2	2.5 l
Solvent for Total Base Number (TBN) acc. to ASTM D4739	ROTI®Calipure 2-Propanol, Chloroform, Toluene 1:1:1	glass	1T2K.1	2.5 l

Safety-relevant data and further information in the current catalogue and at www.carlroth.com

Current prices at www.carlroth.com

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Export prices might be higher.

All supplies and deliveries are subject to the terms and conditions of sale and delivery of Carl Roth GmbH + Co. KG, Karlsruhe



Electrolyte tetraethylammonium bromide

ROTI®Calipure 0,4 mol/l in ethylene glycol

Electrolyte and reference electrode filling solution acc. to ASTM D2896

WGK 3

Warning H302-H373

Art. No.	Pack Qty.	Pack.
1T2P.1	1 l	glass

