











Electrodes for pH measurement

Which electrode for which application?

Application	Specifics	Electrode	Order no.	Application	Specifics	Electrode	Order no.
General	Standard laboratory, various samples, pH 0...14, T = 0...100 °C	Unitrode	6.0258.600	Detergents, surfactants	General	Viscotrode	6.0239.100
	Routine analysis in similar samples, pH 1...11	Ecotrode Gel	6.0221.600		Samples with pH >10	Profitrode	6.0255.100
Water	DeminerIALIZED, drinking and sea water, weakly buffered solutions	Aquatrode Plus	6.0257.000	Leather, paper, textile industry	Bleaching & dye baths	Profitrode	6.0255.100
					Dampening solutions (offset printing), glue	Unitrode	6.0258.600
Leather, paper, textiles (surface measurement)	Flat membrane	6.0256.100					
Washing liquors	Viscotrode	6.0239.100					
Dye baths, ink, wood stain, lacquers	Profitrode	6.0255.100					
Waste water	General	Unitrode	6.0258.600	Paints, lacquers, solvents	Dispersions, emulsions, resins, suspensions	Unitrode	6.0258.600
	Sulfide-containing waste water	Profitrode	6.0255.100		Paint (surface)	Flat membrane	6.0256.100
	Soil samples	Surface measurement or aqueous suspensions	Flat membrane		6.0256.100	Non-aqueous, polar solvents	EtOH-Trode
Agriculture, plant breeding		Culture media, small volume samples	Biotrode	6.0224.100	Electroplating, metal processing	General	Profitrode
	Fertilizers	Unitrode	6.0258.600	Acidic electroplating baths		Unitrode	6.0258.600
	Liquid manure	Profitrode	6.0255.100	Cutting-oil emulsions		Viscotrode	6.0239.100
	Nutrient solutions	Viscotrode	6.0239.100	Concentrated acids		Profitrode	6.0255.100
	Protein-containing solutions	Porotrode	6.0235.200	Photographic baths, fixative solutions		Profitrode	6.0255.100
Food, stimulants	General	Unitrode	6.0258.600	Special applications	Emulsions, suspensions, dispersions	Unitrode	6.0258.600
	Protein-containing food, beer	Porotrode	6.0235.200		Polymer dispersions (water-based dispersion paints and adhesive dispersions on basis of acrylic acid esters and styrene)	Ecotrode Gel	6.0221.600
	Penetration measurement (dough, cheese, meat)	Spearhead	6.0226.100		Samples at pH >12	Unitrode	6.0258.600
	Drinking water	Aquatrode Plus	6.0257.000		Temperature 80...100 °C	Unitrode (Idrolyte)	6.0258.600
	Juices, wine, spirits	Unitrode	6.0258.600		Ion-deficient solutions, weakly buffered solutions	Aquatrode Plus	6.0257.000
Pharmaceutical industry, biology	Creams, liquid formulations, medicinal syrups mouthwashes, raw materials	Viscotrode	6.0239.100		Non-aqueous, polar solvents	EtOH-Trode	6.0269.100
	Dialysis solutions, urine	Unitrode	6.0258.600		Penetration measurement	Spearhead	6.0226.100
	Gastric juice, serum, small-volume samples	Biotrode	6.0224.100		Protein-containing solutions	Porotrode	6.0235.200
	Infusion solutions	Aquatrode Plus	6.0257.000		Small volume samples	Biotrode	6.0224.100
	Protein-containing solutions	Porotrode	6.0235.200			Flat membrane	6.0256.100
Cosmetics	Shampoos, emulsions, shower gels, lotions, perfumes	Viscotrode	6.0239.100		Surface measurements	Flat membrane	6.0256.100
	Make-up	Microelectrode	6.0234.100		Biofuels	EtOH-Trode	6.0269.100
	Skin (surface measurement)	Flat membrane	6.0256.100				

Practical tips, care and maintenance

Unitrode	Ecotrode Gel	Aquatrode Plus	Profitrode	Viscotrode	Biotrode	Spearhead pH electrode	Porotrode	Flat membran pH electrode	EtOH-Trode
<p>Combined pH glass electrode, fixed ground-joint diaphragm.</p> <ul style="list-style-type: none"> • Very low alkali error • Insensitive to contamination • High-temperature resistance <p>Ordering info 6.0259.100 without cable, plug-in head G 6.0258.010 (with Pt 1000), fixed cable, plug F+ 2 x 2 mm 6.0258.600 (with PT 1000), without cable, plug-in head U</p>	<p>Combined pH glass electrode, twin-pore diaphragm.</p> <ul style="list-style-type: none"> • For routine measurements in similar samples • With lifetime indicator • Maintenance-free reference electrolyte (gel) <p>Ordering info 6.0221.100 without cable, plug-in head G 6.0221.600 (with NTC), without cable, plug-in head U</p>	<p>Combined pH glass electrode, fixed ground-joint diaphragm.</p> <ul style="list-style-type: none"> • For low-conductivity or weakly buffered solutions • Very rapid response • Insensitive to contamination <p>Ordering info 6.0253.100 without cable, plug-in head G 6.0257.000 (with Pt 1000), fixed cable, plug F+ 2 x 4 mm</p>	<p>Combined pH glass electrode, ground-joint diaphragm.</p> <ul style="list-style-type: none"> • For difficult matrices • Very easy to clean • Double-junction construction <p>Ordering info All without cable, plug-in head G 6.0255.100 (fitting length: 113 mm) 6.0255.110 (fitting length: 170 mm) 6.0255.120 (fitting length: 310 mm)</p>	<p>Combined pH glass electrode, ground-joint diaphragm.</p> <ul style="list-style-type: none"> • For viscous, protein or sulfide-containing solutions • Easy-to-clean diaphragm <p>Ordering info 6.0239.100 without cable, plug-in head G</p>	<p>Combined pH glass electrode, plied Pt-wire diaphragm.</p> <ul style="list-style-type: none"> • For small-volume samples • For protein-containing samples and samples containing organic solvents • Shaft diameter 3 mm • Reference electrolyte: Idrolyte¹⁾ 6.2308.040 <p>Ordering info 6.0224.100 without cable, plug-in head G</p>	<p>Combined pH glass electrode, twin-pore diaphragm.</p> <ul style="list-style-type: none"> • For measurement in semi-solid samples • Maintenance-free reference electrolyte (gel) • Very easy to clean <p>Ordering info 6.0226.100 without cable, plug-in head G</p>	<p>Combined pH glass electrode, ceramic capillary diaphragm.</p> <ul style="list-style-type: none"> • For protein-containing or viscous samples • Reference electrolyte: Porolyte²⁾ 6.2318.000 • Very easy to clean <p>Ordering info 6.0235.200 without cable, plug-in head G</p>	<p>Combined pH glass electrode, fixed ground-joint diaphragm.</p> <ul style="list-style-type: none"> • For pH-measurement on surfaces (e.g. skin, leather, paper, textiles) • Very rapide response • For measurement of small volume samples <p>Ordering info 6.0256.100 without cable, plug-in head G</p>	<p>Combined pH glass electrode, ground-joint diaphragm.</p> <ul style="list-style-type: none"> • For pH-measurements in EtOH • Double-junction construction <p>Ordering info 6.0269.100 without cable, plug-in head G</p>
									
<p>Use 6.2308.040 Idrolyte¹⁾ as reference electrolyte for measurement at temperatures 80...100 °C or to suppress protein precipitation by KCl.</p> <p>Do not wipe electrode. Unitrodes filled with c(KCl) = 3 mol/L should be stored in 6.2323.000 storage solution. For cleaning/care 6.2325.000 pHHit Kit is recommended.</p>	<p>Store in c(KCl) = sat. 6.2308.000</p> <p>Do not wipe electrode. Rinse with water/ethanol to remove contamination.</p>	<p>Store in 6.2323.000 storage solution only. Do not wipe electrode. For cleaning/care 6.2325.000 pHHit Kit is recommended.</p>	<p>Store in bridge electrolyte. Do not wipe electrode. For cleaning/care 6.2325.000 pHHit Kit is recommended. Lift sleeve ring for cleaning ground-joint diaphragm. If the sleeve ring is blocked place the electrode in hot water for a few minutes to dissolve adhering material. Spare ground-joint diaphragm for Profitrodes 6.0255.1X0: order no. 6.1243.020</p>	<p>Store in 6.2323.000 storage solution. Do not wipe electrode. For cleaning/care 6.2325.000 pHHit Kit is recommended. Lift sleeve ring for cleaning ground-joint diaphragm. If the sleeve ring is blocked place the electrode in hot water for a few minutes to dissolve adhering material.</p>	<p>Store in 6.2308.040 Idrolyte¹⁾. Do not wipe electrode. For cleaning/care 6.2325.000 pHHit Kit is recommended.</p>	<p>Store in 6.2308.000 KCl sat. Rinse with water or ethanol to remove contamination. Do not remove contamination in pinhole diaphragm mechanically or with a needle. The gel electrolyte might be damaged. Remove electrode slowly from sample to avoid underpressure in the gel electrolyte.</p>	<p>Store in 6.2323.000 storage solution. Rinse with water or ethanol to remove contamination. Do not wipe electrode. For cleaning/care 6.2325.000 pHHit Kit is recommended.</p>	<p>Store in 6.2323.000 storage solution. Add a small drop of dist. water on the surface to be measured. Do not wipe electrode. For cleaning/care 6.2325.000 pHHit Kit is recommended.</p>	<p>If reference electrolyte is c(KCl) = 3 mol/L store in 6.2323.000 storage solution. Do not wipe electrode. For cleaning/care 6.2325.000 pHHit Kit is recommended.</p>

¹⁾ Idrolyte is a glycerol-based electrolyte whose ion activity corresponds to that of c(KCl) = 3 mol/L.

²⁾ Porolyte is a KCl solution that has been gelled by polymerization and is used in electrodes with a capillary diaphragm (Porotrode).