

Thermo Scientific Orion pH Electrode Selection Guide

Sample Type	Electrode Recommendations
pH Precision	
Biological/Pharmaceutical – TRIS buffer, proteins, enzymes	Electrodes should have a ROSS or double junction Ag/AgCl reference (no sample contact with silver)
Education/Student Use	Electrodes should have an epoxy body for added durability
Emulsions – Foods, cosmetics, oils	Electrodes should have a Sure-Flow or open junction to prevent the electrode from clogging
Emulsions – Petroleum products, paint	Electrodes should have a glass body that resists damage from the sample and a Sure-Flow or open junction to prevent the electrode from clogging
Flat Surfaces – Cheese, meat, agar	Electrodes should have a flat-surface tip and ROSS or double junction Ag/AgCl reference (no sample contact with silver)
Flat Surfaces – Paper	Electrodes should have a flat-surface tip
General Purpose – Most sample types	All electrodes are suitable for general purpose measurements
Harsh Environments – Field or plant use, rugged use	Electrodes should have an epoxy body for added durability and be polymer or gel filled for easy maintenance
High Ionic Strength – Acids, bases, brines, pH > 12 or pH < 2	Electrodes should have a Sure-Flow or open junction for better contact with the sample and more stable measurements
Large Sample Sizes – Tall flasks	Electrodes should have a long body that fits the container
Low Ionic Strength – Treated effluent, deionized water, distilled water	Electrodes should be refillable for better contact with the sample and more stable measurements
Non-aqueous – Solvents, alcohols	Electrodes should have a glass body that resists damage from the sample and a Sure-Flow junction for better contact with the sample and more stable measurements
Semi-solids – Fruit, meat, cheese	Electrodes should have a spear tip for piercing samples and a ROSS or double junction Ag/AgCl reference
Small Sample Size – Micro-titer plates	Electrodes should have a small diameter that fits the container
Small Sample Size – NMR tubes	Electrodes should have a small diameter that fits the container
Small Sample Size – Test tubes, small flasks and beakers	Electrodes should have a small diameter that fits the container
Small Sample Size – TRIS buffer, proteins, sulfides	Electrodes should have a small diameter that fits the container and a ROSS or double junction Ag/AgCl reference
Titration	Electrodes should have a Sure-Flow or sleeve junction for better contact with the sample and more stable measurements
Viscous Liquids – Slurries, suspended solids sludges	Electrodes should have a Sure-Flow or open junction to prevent the electrode from clogging
Waters – Acid rain, boiler feed water, distilled water, rain water, well water	Electrodes should have a ROSS or double junction Ag/AgCl reference and be refillable for better contact with the sample
Waters – Drinking water, tap water	Electrodes should have an epoxy body for added durability
Waters – Wastewater, seawater	Electrodes should have a ROSS or double junction Ag/AgCl reference and have an epoxy body for added durability