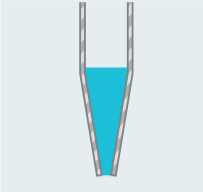
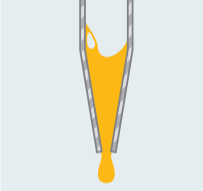

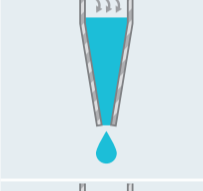

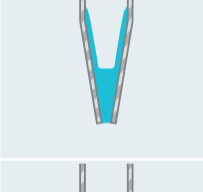



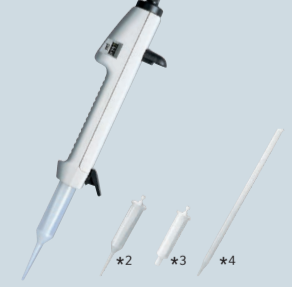





Master Any Type of Liquid

Type of Liquid	Potential problems	Prevention	Recommendations		
			Air-cushion pipettes	Positive displacement dispenser	Positive displacement pipettes
Water	 <ul style="list-style-type: none"> > Air-cushion pipettes are optimized to the physical properties of water 	<ul style="list-style-type: none"> > Optimally suitable for the use of water > No adaptation necessary 	<ul style="list-style-type: none"> > Serial pipetting for multiple samples 	<ul style="list-style-type: none"> > Varitip S^{*3,4} system allows accurate pipetting from large bottles and narrow vessels 	<ul style="list-style-type: none"> > Liquid dispensing directly from supply bottles
Viscous e.g. glycerol, oil	 <ul style="list-style-type: none"> > High resistance to flow > Liquid residues stay attached to inside tip wall > Imprecise results 	<ul style="list-style-type: none"> > Work slowly > Reverse pipetting > Adjust liquid type^{*1} 	<ul style="list-style-type: none"> > Higher precision regardless of physical properties of liquid > Serial pipetting 	<ul style="list-style-type: none"> > Varitip P^{*2} allows accurate pipetting, for example from beakers 	<ul style="list-style-type: none"> > Liquid dispensing directly from supply bottles up to a viscosity of 500 mm^{2/s}
Dense e.g. sulfuric acid, caesium chloride	 <ul style="list-style-type: none"> > Influence on size of air-cushion > Dispensed volume too low or too high 	<ul style="list-style-type: none"> > Adjust pipette to liquid density > Adjust liquid type^{*1} 	<ul style="list-style-type: none"> > Higher precision regardless of physical properties of liquid > Serial pipetting 	<ul style="list-style-type: none"> > Varitip P^{*2} allows accurate pipetting, for example from beakers 	<ul style="list-style-type: none"> > Liquid dispensing directly from supply bottles up to a density of 2.2 g/cm³
Volatile e.g. acetone, ethanol	 <ul style="list-style-type: none"> > Air-cushion expands > Liquid drips out of the tip > Imprecise results 	<ul style="list-style-type: none"> > Prewet at least 5 times > Reverse pipetting > Adjust liquid type^{*1} 	<ul style="list-style-type: none"> > Higher precision regardless of physical properties of liquid > Serial pipetting 	<ul style="list-style-type: none"> > Varitip P^{*2} allows accurate pipetting, for example from beakers > Varitip S system and valve for drip-free dispensing 	<ul style="list-style-type: none"> > Liquid dispensing directly from supply bottles up to a vapor pressure of 500 mbar
Infectious / radioactive e.g. biohazard material	 <ul style="list-style-type: none"> > Aerosols contaminate pipette > Threat to human health and sample safety 	<ul style="list-style-type: none"> > Use filter tips > Automated systems protect user and sample 	<ul style="list-style-type: none"> > Higher precision regardless of physical properties of liquid > Serial pipetting 	<ul style="list-style-type: none"> > Varitip P^{*2} allows accurate pipetting, for example from beakers 	<ul style="list-style-type: none"> > Liquid dispensing directly from supply bottles
Detergent e.g. Tween 20, Triton™ X-100	 <ul style="list-style-type: none"> > Reduced surface tension > Liquid residues stick to the inner wall of the tip > Imprecise results 	<ul style="list-style-type: none"> > Use tips with low retention effect > Adjust liquid type^{*1} 	<ul style="list-style-type: none"> > Higher precision regardless of physical properties of liquid > Serial pipetting 	<ul style="list-style-type: none"> > Varitip P^{*2} allows accurate pipetting, for example from beakers 	<ul style="list-style-type: none"> > Liquid dispensing directly from supply bottles up to a viscosity of 500 mm^{2/s}
Foaming e.g. protein-containing liquids	 <ul style="list-style-type: none"> > Foam is created > Liquid residues remain in the tip > Imprecise results 	<ul style="list-style-type: none"> > Reverse pipetting 	<ul style="list-style-type: none"> > Higher precision regardless of physical properties of liquid > Serial pipetting 	<ul style="list-style-type: none"> > Varitip P^{*2} allows accurate pipetting, for example from beakers 	<ul style="list-style-type: none"> > Liquid dispensing directly from supply bottles

^{*1} This option is only available on automated systems and electric pipettes
^{*2,3,4} See Varipette® 4720 for corresponding Eppendorf Varitips®

Eppendorf Solutions

Mechanical pipettes	Advantages <ul style="list-style-type: none"> > Easy to clean > Economical > Lightweight 	<ul style="list-style-type: none"> > Eppendorf Research® plus > Eppendorf Reference® 2 > Pipet Helper® 	<ul style="list-style-type: none"> > Multipette® M4 	<ul style="list-style-type: none"> > Varipette® 4720 	<ul style="list-style-type: none"> > Varispenser® 2/2x 
Electronical pipettes	Advantages <ul style="list-style-type: none"> > High reproducibility > Ergonomic working > Multifunctionality 	<ul style="list-style-type: none"> > Eppendorf Xplorer® > Eppendorf Xplorer® plus > EasyPet® 3 > epMotion® 	<ul style="list-style-type: none"> > Multipette® E3/E3x 		<ul style="list-style-type: none"> > Eppendorf Top Buret™ 