Simplifying Progress

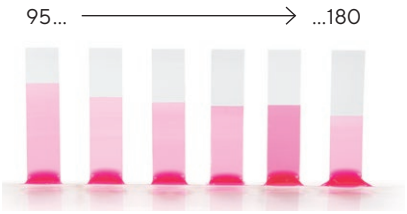
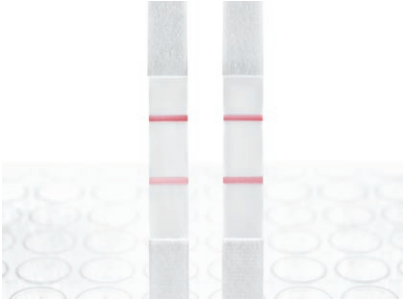
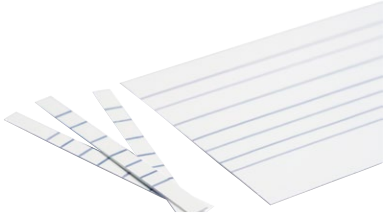
Tips and Tricks for Product Development

Unisart® Membranes in Lateral Flow Test Platform

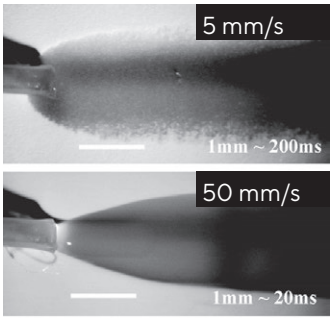
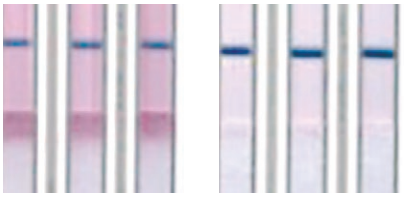
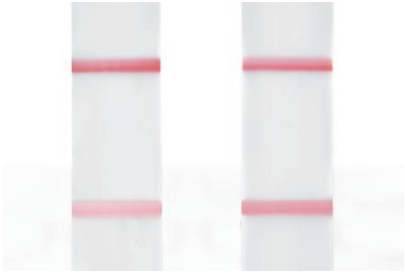
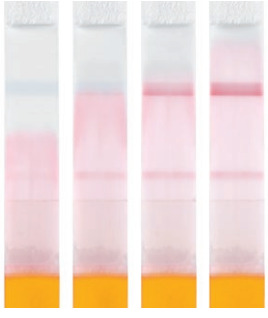
SARTORIUS

Tips and Tricks for Product Development

Unisart® Membranes in Lateral Flow Test Platform

Description	Action	Example
Membrane storage and handling conditions	▪ T 15-25° C | max 60% relative humidity ▪ Very dry conditions may alter the wettability and handling properties, can be overcome by conditioning the membrane at 40-60% RH for approx. 12 h ▪ Keep membrane originally packed in protected, well aerated area ▪ Keep membrane away from open fire, any sources of heat, light and chemical vapors ▪ After unpacking, please avoid any direct contact with the membrane, also with materials that have the potential to release chemicals or additives into the membrane (e.g., cardboard, plastic)	
Unisart® Nitrocellulose Membranes	▪ Choice of capillary flow rate ▪ Highly viscous samples and fast readout time: Unisart® CN 95, CN 110 ▪ High precision and longer readout time: Unisart® CN 140U, CN 140B, CN 150, CN 180	
Line printing conditions	▪ Speed: 50–60 mm/sec ▪ Dispensing rate: 1.0–1.25 µL/cm	
Printing buffer e.g., for IgG	▪ 50 mm Phosphate, 3% methanol, pH 7.4 ▪ 5 mm borate buffer, 150 mm NaCl, 1% sucrose, pH 8.0	
Protein fixing conditions	Fix proteins at 37–60° C for at least 5–15 min immediately after printing. Vary with nature of reagents, printing buffer composition and membrane	

Find out more
www.sartorius.com/en/products/oem/oem-membranes-and-devices/diagnostic-membranes/unisart-lateral-flow

Description	Action	Example
Uneven lines		
▪ Dispensing equipment	▪ Verify dispensing equipment ▪ Adjust speed, volume, humidity (50–60% RH), drying conditions ▪ Install device to reduce electrostatic charges	 Wang, *et al; J Memb Sci.* 2008
▪ Conjugate pad	▪ Verify dispensing and free release of reagents on conjugate pad ▪ Add small amounts of surfactant to support homogeneous flow and reduce non-specific binding (e.g., 100 mm Tris-buffer, 0.5% BSA, 0.25% Tween, 5% saccharose, pH 8.0)	
▪ Buffer	Optimizing capture antibody buffer for each reagent ▪ Reduce ionic strength: Low ionic strength helps binding to NC ▪ pH +/- 1 from isoelectric point to decrease protein stability in solution ▪ Up to 5% alcohol (MeOH or EtOH) to support wetting and protein binding ▪ Add minute amounts of surfactant: can support line morphology and prevent non-specific binding	
▪ Slitting	Sharp edges are essential for homogeneous front flow and even lines ▪ Adjust blades for different backing thickness (50 vs. 100 µm)	

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