

## Comparison: Liquids Sampling Technologies

Technology:	Sample Transfer Stripper ( ASI Membrane Technologies)	Stripping Column / Sparger	Gas Chromatography
	Model 204	Flame Ionization Detector or similar	Injection valves
<b>Principles incorporated</b>	Henry's Law & proprietary methods	Henry's Law	Absorption
<b>Maintenance requirements</b>	<p>✓ LOW</p> <p>STS Membrane creates ultra-clean sample for detector &amp; physically blocks liquids from passing through to detector. Clean only one to two times per year typical</p>	<p>✗ HIGH</p> <p>Plagued by frequent liquid "carry-overs". No physical block to prevent liquids from contaminating detector and gas sample lines. User reported constant cleaning &amp; upkeep</p>	<p>✗ HIGH</p> <p>Column fouling common occurrence with liquid measurements. Requires high upkeep and cleaning</p>
<b>Moving parts</b>	<p>✓ NONE</p> <p>No moving parts</p>	<p>✗ HIGH</p> <p>Complicated system using 85% more parts than STS Membrane</p>	<p>✗ HIGH</p> <p>User reported frequent fouling of chromatograph injection valves</p>
<b>Cost of ownership</b>	<p>✓ Cost-Effective</p> <p>Minimal maintenance means less cost over time</p>	<p>✗ HIGH</p> <p>High long term cost due to constant cleaning/maintenance requirements</p>	<p>✗ HIGH</p> <p>High long term cost due to constant cleaning/maintenance requirements and fuel</p>
<b>Accuracy</b>	<p>✓ HIGH</p> <p>STS creates ultra-clean sample for analysis</p>	<p>✗ LOW</p> <p>As system contamination occurs, accuracy drops significantly</p>	<p>✗ LOW</p> <p>As system contamination occurs, accuracy drops significantly</p>
<b>Versatility</b>	<p>✓ YES</p> <p>STS maintains accuracy by preventing liquid carry-over. Calibrations maintains stability over long term</p>	<p>✗ NO</p> <p>System fouls as liquids frequently pass through to detector and gas sample lines requiring frequent cleaning</p>	<p>✗ NO</p> <p>Injection valves foul requiring replacement</p>
<b>Range</b>	<p>✓ PPB, PPM and up to 100% ranges with high precision</p>	<p>✗ Low ppm ranges not reliable</p>	Wide range ability but fouling reduces ability over time
<b>Consumables</b>	<p>✓ LOW</p> <p>Carrier Gas/Air only. Calibrations not required.</p>	<p>✗ HIGH</p> <p>Requires Carrier Gas (Nitrogen), Hydrogen fuel (for FID) and Cal Gas</p>	<p>✗ HIGH</p> <p>Requires Carrier Gas (Nitrogen), Hydrogen fuel (for FID) and Cal Gas</p>
<b>Safety</b>	<p>✓ SAFE</p> <p>Closed loop system for analysis and cleaning. No sample exposure to user</p>	<p>✗ CAUTION</p> <p>User potentially exposed to residual sample when cleaning is required</p>	<p>✗ CAUTION</p> <p>User potentially exposed to residual sample when cleaning is required</p>

NOTE: Data listed is typical and may vary based on manufacturer.