The Armada Slickline Single-Phase Sampler (SPS-ASL) represents the latest in slickline-conveyed sampling equipment offered by Halliburton. SPS-ASL assemblies can be composed of an activation section, one or two nitrogen sections, and one or two SPS-A samplers. In a standard configuration, each SPS-ASL assembly holds two 400-cm$^3$ (24.4-in.$^3$) SPS-As that return 800 cm$^3$ (48.8 in.$^3$) of sample with recovery pressures over 10,000 psi (689 bar) for black oil. Where ultrahigh recovery pressures are required, one of the SPS-ASLs can be replaced with a nitrogen chamber, resulting in a 400-cm$^3$ (24.4-in.$^3$) sample with recovery pressures over 14,000 psi (965 bar) for black oil. The SPS-ASL arrives onsite fully assembled. The customer only has to program the electronic timer and charge the nitrogen before running in hole. When the timer completes its countdown, sampling of the reservoir fluid begins. After the sampling is complete, the SPS-ASL will automatically trigger the release of high-pressure nitrogen, which overpressurizes the reservoir fluid, maintaining a single-phase sample during the recovery to the surface.

**Features**
- Samples in reservoir conditions up to 20,000 psi (1379 bar) and 350°F (177°C)
- Number of samplers and nitrogen tubes can be varied, giving extremely high recovery pressures.
- User-friendly software with reprogrammable timer
- 2.05-inch (52-mm) maximum diameter with 1.78-inch (45-mm) hydraulic equivalent diameter flow resistance
- Ability to run on slickline, electric line, or coiled tubing
- Single or multiple tools can be run in a tool string

**Benefits**
- Uses proven Armada SPS-A sampler technology currently used in Armada 5-inch and 7-inch cased-hole carriers
- Collects a larger volume than other available slickline samplers
- Higher ratio of nitrogen volume to sample volume than other available slickline samplers
- Lab-tested to collect up to 100,000 cSt. fluid at only 1,000 psi (69 bar) reservoir pressure
- Ceramic coating prevents H$_2$S adsorption and enables accurate concentration measurements
- Arrives fully assembled and pressure tested
- Meets material requirements for H$_2$S-containing environments at all temperatures
**Operation**

The only preparation necessary is to charge the nitrogen section, program the timer, and install the battery. The timer then starts, and the tool can be run in hole. After the tool triggers and is retrieved from the well, the SPS-ASL may be broken down on site and the samples transferred into sample cylinders at elevated temperature and pressure to maintain single-phase conditions.

<table>
<thead>
<tr>
<th>Armada® Slickline Single-Phase Sampler (SPS-ASL) Specifications</th>
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<tbody>
<tr>
<td>Assembly Length in. (cm)</td>
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<tr>
<td>--------------------------</td>
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<td>213 (541)</td>
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For more information about the Armada Slickline Single-Phase Sampler (SPS-ASL), contact your local Halliburton representative or email welltesting@halliburton.com