



# Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 658B

**Overview** Anionic and Amphoteric surfactant in shampoo can be determined by the first derivative technique, using the Orion Titrator PLUS and the Orion surfactant electrode.

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<b>Industry</b>	Cosmetics
<b>Species Measured</b>	Amphoteric Surfactant
<b>Sample</b>	Shampoo
<b>Sample Size</b>	0.4g
<b>Typical Concentration</b>	1-2% w/w
<b>Technique</b>	# 6 First Derivative
<b>Electrode</b>	Surfactant Electrode 9342BN. Double Junction Reference Electrode 900200.
<b>Solutions</b>	Inner/Outer Fill Solution 900002/900003. Hyamine 1622 solution. Acid solution: 20 mL 5N H <sub>2</sub> SO <sub>4</sub> diluted to 500 mL.
<b>Sample Prep</b>	Accurately weigh 4g of sample. Transfer to 200 mL volumetric flask and fill to mark with DI water. Pipet 20 mL of sample to a 150 mL beaker and add 50 mL DI water and 10 mL of acid solution. Titrate.

### Statistics

<b># of Trials</b>	3	<b>Mean</b>	2.35 % w/w	<b>%CV</b>	0.02%
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**Analysis Time** ~ 5 minute(s)

**Comments** 1. Clean the electrode, stirrer, and dispenser probe with DI water thoroughly between measurements. 2. A few drops of methanol will help reduce foaming during dilution.