ASTM D7730 - 11 Standard Test Method for Determination of Dioctyl Sulfosuccinate in Sea Water by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)

Instrument: Waters ACQUITY UPLC system with AB Sciex API 3000 LC/MS/MS System

Significance and Use

DOSS is an anionic detergent that is approved by the Food and Drug Administration and is used widely as a laxative, emulsifying, solubilizing and dispersing agent, and is used in the cosmetic industry. DOSS may also be used as a dispersing agent to treat oil. DOSS may be released into the environment at levels that may be harmful to aquatic life. The US EPA aquatic life benchmark for DOSS is 40 ppb.

This method has been investigated for use with reagent and sea water.

1. Scope

1.1 This procedure covers the determination of dioctyl sulfosuccinate (DOSS) in sea water by direct injection using liquid chromatography (LC) and detection with tandem mass spectrometry (MS/MS). This analyte is qualitatively and quantitatively determined by this method. This method adheres to selected reaction monitoring (SRM) mass spectrometry.

1.2 The Detection Verification Level (DVL) and Reporting Range for DOSS are listed in Table 1.

1.2.1 The DVL is required to be at a concentration at least 3 times below the Reporting Limit (RL) and have a signal/noise ratio greater than 3:1. Fig. 1 and Fig. 2 display the signal/noise ratio of the selected reaction monitoring (SRM) transition.

1.2.2 The reporting limit is the concentration of the Level 1 calibration standard as shown in Table 5 for DOSS, taking into account the 50% sample preparation dilution factor.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

TABLE 1 Detection Verification Level and Reporting Range

Analyte	DVL (µg/L)	Reporting Range (µg/L)
DOSS	3	20-400

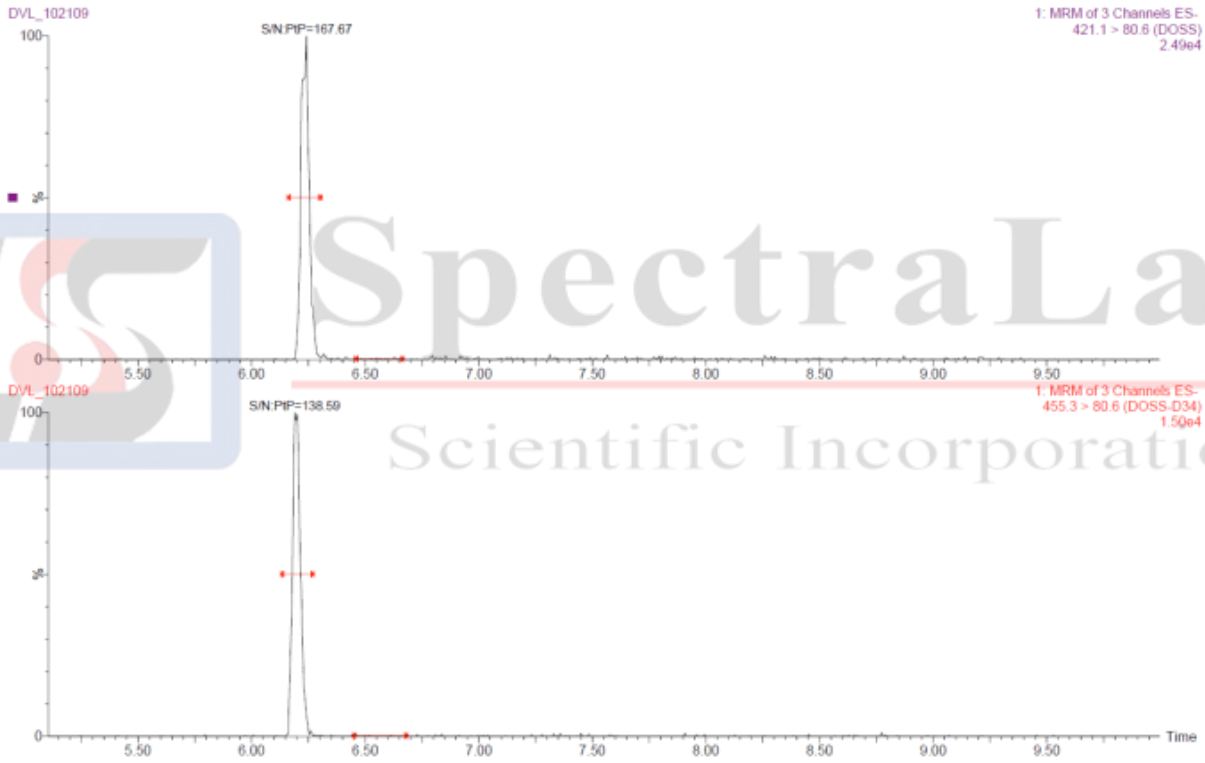

FIG. 1 Detection Verification Level Signal/Noise Ratio

2. Referenced Documents *(purchase separately)*

ASTM Standards

D1193 Specification for Reagent Water

D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water

Other Standards

EPApublicationSW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods

http://www.astm.org/Standards/D7730.htm