ASTM D7731 - 11e1 Standard Test Method for Determination of Dipropylene Glycol Monobutyl Ether and Ethylene Glycol Monobutyl Ether in Sea Water by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)

Instrument: AB Sciex API 4000 LC/MS/MS

Significance and Use

DPGBE and EGBE have a variety of residential and industrial applications such as, cleaning formulations, surface coatings, inks and cosmetics. These analytes may be released into the environment at levels that may be harmful to aquatic life.

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

1. Scope

1.1 This procedure covers the determination of Dipropylene Glycol Monobutyl Ether (DPGBE) and Ethylene Glycol Monobutyl Ether (EGBE) 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 DPGBE and EGBE 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 single reaction monitoring (SRM) transition.

1.2.2 The reporting limit is the concentration of the Level 1 calibration standard as shown in Table 4 for DPGBE and EGBE, taking into account the 20% sample preparation dilution factor.

2. Referenced Documents (purchase separately)

ASTM Standards

D1193 Specification for Reagent Water

<u>D2777</u> 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

References: http://www.astm.org/Standards/D7731.htm