



**Certification of the Oxygenate Compounds**

Currently, there is not an EPA approved method that references all of the oxygenate compounds. EPA Method 8260B does not include all of the oxygenate compounds. Below is a list of the oxygenate compounds included in EPA Methods 8260B and 8260C. EPA Method 8260C has not been made available for use by the EPA.

Oxygenates:

	<u>8260B</u>	<u>8260C</u>
t-Amyl Alcohol (TAA)	–	–
t-Amyl methyl ether (TAME)	–	X
t-Butyl Alcohol (TBA)	X	X
t-Butyl Formate (TBF)	–	–
Diisopropyl Ether (DIPE)	–	X
Ethanol	X	X
Ethyl tert Butyl Ether (EtBE)	–	X
3,3-Dimethyl-1-butanol	–	–

The oxygenate compounds will be certified separately from the other volatile compounds due to different QC requirements and due to the fact that most of the compounds are not included in Method 8260B which is the current approved method for volatiles. The certificates will read "EPA 8260B-OXY". The laboratory may apply for any approved volatile preparation methods, e.g. 5030B, 5035, etc.

**Applying for Certification for the Oxygenate Compounds**

The laboratory must submit an application for certification to seek approval for the oxygenate compounds. The following items must be included in the application for certification:

- Signed Application
- Application Fee
- SOP(s)
- Quality Assurance Manual
- Certificate from Primary Certifying Authority (Out-of-State Laboratories Only)\*
- IDOC Study
- MDL Study- submit chromatograms for each MDL replicate traceable to compiled MDL spreadsheet
- LLOQ Verifications- submit data for each instrument used to report oxygenate results
- Full Data Package \*\*

\* Out-of-state laboratories must first obtain certification for the oxygenate compounds through their primary certifying authority by EPA Method 8260B before seeking certification in South Carolina.

\*\* The full data package must include the most recent initial calibration data, purge and GC/MS operating conditions, sequence run log, calibration verification standards, all quality control samples, and standard preparation records.

## **Quality Control and Method Criteria for the Oxygenate Compounds**

Oxygenates are generally poor purgers and require a heated purge. This may require separate analysis for the oxygenates from the regular volatile scan. The laboratory must follow all calibration and QC criteria listed in SW-846 Methods 8260B and 8000D along with the criteria listed below.

### **Calibration**

Calibration must be performed with a minimum of five standards using average response factor or linear regression. Quadratic calibration is not acceptable. The %RSD must be < 15% in order to assume linearity through zero and to use average response factor for calibration. If the %RSD is > 15%, linear regression may be used as long as the correlation coefficient is > 0.99 and adequate response is noted for each concentration. The initial calibration standards must also pass the percent error and/or relative standard error (RSE) requirements in section 11.5 of EPA 8000D.

The calibration curve must be verified before sample analysis each day and at least every 12 hours with a check standard which must recover within 70-130%. If any compounds in the check standard exceed this range, the instrument must be recalibrated.

The calibration curve must meet the required reporting levels for the oxygenates. Typically, the lowest level of the calibration curve will need to be 5 to 10 times below the action level. For any oxygenate compounds where an action level is not specified, the reporting level will need to be the lowest practical achievable limit that the laboratory can meet.

### **Laboratory Control and Matrix Spikes**

All laboratory control samples (LCS) and matrix spikes (MS/MSD) must be spiked with the oxygenate compounds to monitor precision and accuracy each batch. Control limits of 70-130% must be used for the LCS. The laboratory must generate and maintain control limits for the matrix spikes.

### **Action Levels for the Oxygenate Compounds**

<u>Oxygenates:</u>	<u>Action Level (ppb)</u>
t-Amyl Alcohol (TAA)	240
t-Amyl methyl ether (TAME)	128
t-Butyl Alcohol (TBA)	1400
t-Butyl Formate (TBF)	-----
Diisopropyl Ether (DIPE)	150
Ethanol	10000
Ethyl tert Butyl Ether (EtBE)	47
3,3-Dimethyl-1-butanol	-----