

# Review of Methods 1664A and 1664B for HEM and SGT-HEM

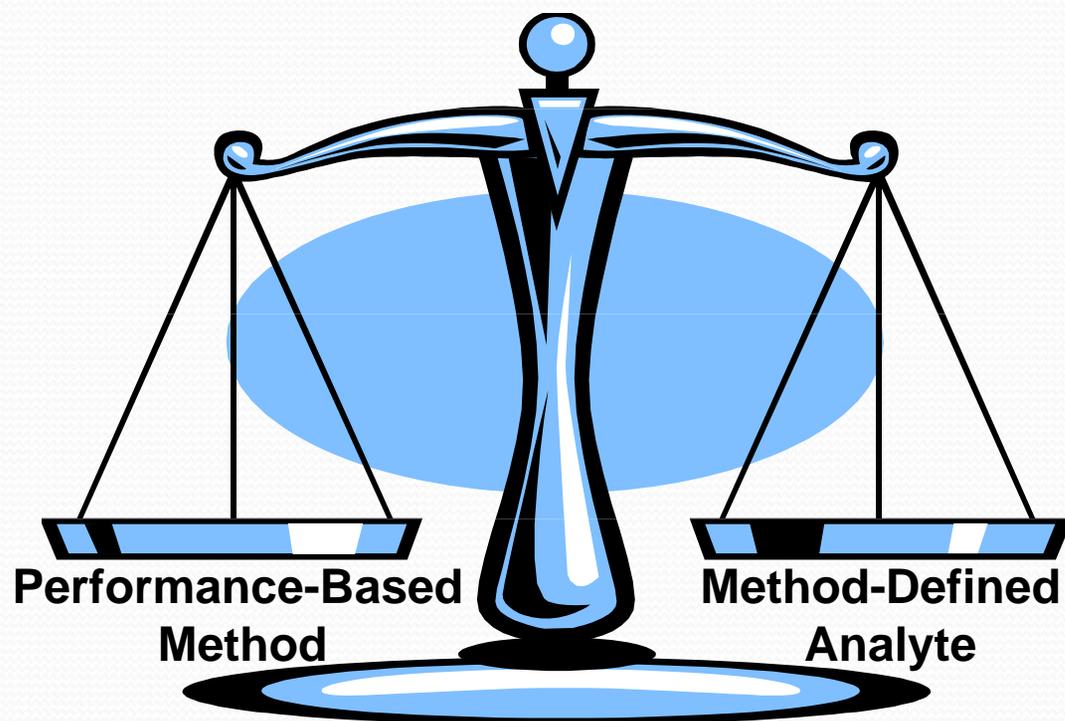
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# EPA 1664A and 1664B – HEM & SGT-HEM



# EPA Method 1664B History

- Published – February 2010
- Proposed MUR– September 23, 2010
- Final MUR – May 18, 2012
- Effective Date – June 18, 2012

# Summary of EPA Method 1664A/B

- 1 L sample acidified to pH<2
- LLE – 3 x 30 mL extractions n-hexane
- Dry extract with sodium sulfate
- Distill solvent from extract
- HEM is desiccated and weighed
- Proportionate silica gel treatment
- SGT-HEM is desiccated and weighed

# Main Difference Between EPA 1664A and 1664B = Modifications

- Allowable (16)
- Unacceptable (5)
- Limited-Use ATP (1)
- All included in EPA 1664B – §1.7 & 1.8

## 40 CFR §136.6 – Method Modifications

- Many potentially acceptable modifications but can not change chemistry or determinative technique
- “An analyst may not modify an approved analytical method for a method defined analyte.” ((b)(3))
- Wastewater matrix issues
  - Can improve QC recovery with salts and inert surfactants
  - “must not react with or introduce the target pollutant into the sample”

# Review of 1664A and 1664B

Method Modification	1664B	1664A
<b>Alternate Extraction Techniques</b>	<b>Included</b>	<b>Allowable</b>
<b>Alternate Concentration Techniques</b>	<b>Included</b>	<b>Allowable</b>
<b>Omit Oven Drying Step §11.4.4</b>	<b>Included</b>	<b>Allowable</b>
<b>Lower PAR Concentration (20mg/L)</b>	<b>Included</b>	<b>Allowable</b>
<b>Collect Smaller Sample Volume</b>	<b>Included</b>	<b>Allowable</b>
<b>Additional Balance Calibration</b>	<b>Included</b>	<b>Allowable</b>

# Review of 1664A and 1664B

Method Modification	1664B	1664A
Sample Acidification, pH<2	Included	Allowable
Prefilter, Filtration Aid Use	Included	Allowable
SPE Filter Use	Included	Allowable
Matrix Spike Selection	Included	Allowable
Silica Gel Treatments	Included	Allowable
Silica Gel Equivalence	Included	Allowable

# Review of 1664A and 1664B

Method Modification	1664B	1664A
<b>Solvent Phase Separation Paper</b>	<b>Included</b>	<b>Allowable</b>
<b>Polar Solvent Cleaning</b>	<b>Included</b>	<b>Allowable</b>
<b>Polar Solvent SPE Conditioning</b>	<b>Included</b>	<b>Allowable</b>
<b>Polar Solvent Rinsing/Extraction</b>	<b>Not Allowed</b>	<b>Not Allowed</b>
<b>Alternate Extraction Solvents</b>	<b>Not Allowed</b>	<b>Not Allowed</b>
<b>Methanol Rinse Exception</b>	<b>Included</b>	<b>Allowable</b>

# Review of 1664A and 1664B

Method Modification	1664B	1664A
<b>Optimized Extraction Procedure</b>	<b>Included</b>	<b>Allowable</b>
<b>Alternate Determination Techniques</b>	<b>Not Allowed</b>	<b>Not Allowed</b>
<b>Analysis of &lt; Collected Sample</b>	<b>Not Allowed</b>	<b>Not Allowed</b>
<b>Other Reference Standards</b>	<b>Not Allowed</b>	<b>Not Allowed</b>
<b>Spiking into Extractor</b>	<b>Not Allowed</b>	<b>Not Allowed</b>
<b>Method 1664 “Cu”</b>	<b>Included ATP</b>	<b>Allowable ATP</b>

# Summary of 1664B Modifications

- 1 L sample acidified to pH<2
- LLE – 3 x 30 mL extractions n-hexane
- Dry extract with sodium sulfate
- Distill solvent from extract
- HEM is desiccated and weighed
- Proportionate silica gel treatment
- SGT-HEM is desiccated and weighed

# Review of 1664A and 1664B

- 1664B is the same basic method as 1664A
- 1664B has the added benefit of defined modifications
- 1664B is in effect since June 18, 2012

# Questions? More information?

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