

# DRYWALL SAMPLING METHODS<sup>1</sup>

AIR	BENEFITS	LIMITATIONS	COMMENTS	COSTS
<b>ASTM D-5504 modified</b>	<ul style="list-style-type: none"> <li>Recommended by FL DOH</li> <li>Grab sample, quick to collect</li> <li>Tedlar bags are easy to store / transport</li> <li>Low detection limits</li> <li>Quick turn-around times</li> </ul>	<ul style="list-style-type: none"> <li>Labs must have upgraded sulfur sensor and expertise</li> <li>Hydrogen sulfide degradation 40-60%; must be analyzed within 24 hrs.</li> <li>Careful packaging for shipment to prevent bag tears and loss of sample</li> </ul>	Airborne carbonyl sulfide and carbon disulfide	\$165 - \$325
<b>TO-15</b>	<ul style="list-style-type: none"> <li>Tests for variety of VOC's - can modify scan</li> <li>Many labs can analyze</li> <li>Quick turn-around times</li> </ul>	<ul style="list-style-type: none"> <li>Summa canisters are bulky and expensive to ship</li> <li>Must use special glass-lined summa canister</li> <li>Can run continuous sample up to 24 hrs.</li> </ul>	ASTM plus VOCs at low detection limits	\$250 - \$300
<b>OSHA-type exposure sampling</b>	<ul style="list-style-type: none"> <li>Many labs can analyze</li> <li>Quick turn-around times</li> </ul>	<ul style="list-style-type: none"> <li>Detection limits not low enough to be useful</li> <li>Sampling requires pumps or film badges which take several hours for sample collection</li> </ul>	Will almost always be non-detect	\$50 - 150

BULK	BENEFITS	LIMITATIONS	COMMENTS	COSTS
<b>Environmental Chamber Testing using TO-15</b>	<ul style="list-style-type: none"> <li>Environmental chamber can expedite the off-gassing of organic sulfides</li> <li>Low detection limits</li> </ul>	<ul style="list-style-type: none"> <li>Expensive</li> <li>Long Turn-around times, at least 15 days</li> <li>May not sample correct sheet of drywall where mixed materials are used</li> </ul>	Bulk samples are off-gassed and gasses tested	\$1,200
<b>Total Sulfur EPAC 9034</b>	<ul style="list-style-type: none"> <li>Cheap</li> <li>Easy to collect samples</li> <li>Quick turn-around times</li> <li>Samples are stable</li> </ul>	<ul style="list-style-type: none"> <li>Detection limits not low enough to be useful (.2mg/kg)</li> <li>May not sample correct sheet of drywall where mixed materials are used</li> </ul>	Will almost always be non-detect	\$25
<b>SEM</b>	<ul style="list-style-type: none"> <li>Easy to collect samples</li> <li>Samples are stable</li> <li>Can detect trace levels of Strontium sulfide which appears to be a good indicator of Chinese Drywall</li> </ul>	<ul style="list-style-type: none"> <li>Expensive</li> <li>Results are greatly dependent on lab technicians level of experience / expertise</li> <li>May not sample correct sheet of drywall</li> </ul>	May be good test to confirm Chinese	\$500 - \$1000
<b>XRF, X-ray Diffraction and Light microscopy</b>	<ul style="list-style-type: none"> <li>Can detect iron disulfide in sample</li> <li>Easy to collect samples</li> <li>Samples are stable</li> </ul>	<ul style="list-style-type: none"> <li>No definitive studies to determine if iron disulfide is the cause of the problem</li> <li>Results are greatly dependent on lab technicians level of experience / expertise</li> <li>Expensive</li> <li>May not sample correct sheet of drywall</li> </ul>	Not definitive	\$600

CORROSION TESTING	BENEFITS	LIMITATIONS	COMMENTS	COSTS
<b>Sulfur Compounds in Corrosion</b>	<ul style="list-style-type: none"> <li>Can determine if corrosion is likely caused by sulfur compounds</li> </ul>	<ul style="list-style-type: none"> <li>Specialized laboratory required</li> <li>Analysis time can take several weeks</li> <li>Expensive</li> <li>Requires bulk sample of corrosion or corroded metal part</li> </ul>	Definitive if corrosion was caused by sulfur compounds	\$500
<b>Corrosion Chamber Testing</b>	<ul style="list-style-type: none"> <li>Can determine if sample is causing corrosion on copper</li> <li>Easy to collect samples</li> </ul>	<ul style="list-style-type: none"> <li>Long analysis times - up to a month</li> <li>Expensive</li> <li>May not sample correct sheet of drywall where mixed materials are used</li> </ul>	Bulk samples are placed in environ chamber w/ clean	\$1,800

OTHER	BENEFITS	LIMITATIONS	COMMENTS	COSTS
<b>Bacterial Digestion</b>	<ul style="list-style-type: none"> <li>Sulfur compounds are produced by certain aerobic and anaerobic bacteria</li> <li>Low cost</li> </ul>	<ul style="list-style-type: none"> <li>Little data showing interpretation of results</li> <li>Not an industry standard</li> <li>Highly specialized labs only</li> </ul>		\$130

**Building Health Sciences** ([www.buildinghealthsciences.com](http://www.buildinghealthsciences.com)) Phone: 800-789-7475

<sup>1</sup>DRYWALL SAMPLING METHODS provided as a courtesy to BHS by Russ Nassof of TRC Solutions ([www.trcsolutions.com](http://www.trcsolutions.com))