Drywall Testing

Drywall initially reported as 'Chinese drywall' was installed in many homes primarily in the southeastern United States from 2004-2007. The US Consumer Product Safety Commission (CPSC) has received over 3700 reports in multiple states (including the District of Columbia); additional complaints, not reported to the CPSC, may have been issued with local authorities as well.

Laboratory tests may be used to confirm visual home inspections and to demonstrate that corrosion effects are due to drywall and not other items in the home (e.g. carpets, cleaners, paints, personal care products).

Columbia Analytical has been studying this issue and testing both foreign and domestic drywall samples since February 2008. The laboratory has developed a suite of three analytical tests that may be used to identify defective drywall. These three tests are included in both the CPSC and the Florida Department of Health (FL DOH) guidance documents for a positive case definition of corrosive drywall.

Drywall Package

1. The drywall in question contains a naturally occurring allotrope of elemental sulfur— orthorhombic cyclooctasulfur (S_8). Columbia Analytical has developed a novel technique to analyze for S_8 in drywall:

   GC/ECD Test (Gas Chromatography/Electron Capture Detection) - The GC/ECD test is a robust, low-cost analysis that allows clients to screen a large number of drywall samples for S_8. Because drywall used in home construction can be from mixed sources, submission of multiple samples from one suspect home may be done to reduce the risk of false negative results. Roughly 5g (approximately 2"x2") of bulk drywall material is all that is required for the GC/ECD analysis. Results are reported in units of mg/kg. According to the FL DOH[1], a positive result above 10 mg/kg is indicative of corrosive drywall. A positive result between 5-10 mg/kg is inconclusive; further testing may be warranted.

   [1] *Case Definition (12-18-09) for Drywall Associated Corrosion in Residences, http://www.doh.state.fl.us/environment/community/indoor-air/casedefinition.html (last accessed January 17, 2011).*

2. **Hydrogen Sulfide Emission Test** - Researchers at Columbia Analytical developed an innovative chamber test procedure for the measurement of hydrogen sulfide at ultra low levels in suspect drywall. Hydrogen sulfide is a major contributor to copper pipe corrosion and has a characteristic "rotten egg" smell with an extremely low odor threshold.

3. **Copper Corrosion Confirmation Test** - A jar test is used to visually document the phenomenon of copper corrosion in the presence of test drywall samples.

Due to the constantly evolving nature of this work, please call our Simi Valley, CA laboratory at 805-526-7161 for pricing and the latest technical information on drywall testing.

Columbia Analytical Services™