

ESTE Gypsum Board Stakeholder Meeting  
RTI International, RTP NC  
July 14, 2006

RTI International (RTI) held a stakeholder meeting on July 14, 2006 to discuss an EPA-sponsored testing program for mold-resistant gypsum board.

Debbie Franke (RTI) welcomed the participants and discussed procedures associated with EPA's Environmental Technology Verification (ETV) program. EPA established the program in 1995 to accelerate the entrance of new environmental technologies into the domestic and international marketplace by developing testing protocols and verifying the performance of innovative technologies. Stakeholder groups, including vendors, buyers, permittees, etc., provide input into the test methods used for the program. Non-profit research organizations partner with EPA to run the ETV programs in water, air, monitoring, and pollution prevention. For this program, RTI will convene vendor and stakeholder meetings to obtain input on testing, then develop a test method and run the testing program. EPA will fund the stakeholder process and testing, while the vendors are being asked to fund the test method development.

Timothy Dean (EPA) discussed EPA's Environmental and Sustainable Technology Evaluations (ESTE) program that is part of ETV. While in the base ETV program, technologies are selected with input from stakeholders, in ESTE, EPA chooses the technologies to be included. EPA is planning to include three indoor-air-quality tests in the ESTE program for mold-resistant gypsum board: mold resistance, water resistance, and emissions of volatile organic compounds (VOCs).

Several issues related to the test method and program were discussed.

1. Dr. Dean was asked if the testing would include fire protection ratings, including the test for flame spread (ASTM E-84/UL 723/NFPA 255, Test for Surface Burning Characteristics of Building Materials). Dr. Dean said that EPA did not include this testing as there are existing tests for this property. John Donahue said he would look into what the industry is doing with fire ratings.
2. A question was asked if VOC testing was looking for additives might have been used in the manufacturing that would give off emissions. Dr. Dean said that yes, this is the testing EPA wanted. Dr. Menetrez explained that a variety of chemicals could be added to kill mold, and by providing information about chemical emissions as well as mold-resistance, purchasers can weigh the potential environmental and health effects. Only VOCs will be included in the program now because of time and budget constraints. The test method will define the range of chemicals to be included.
3. It was suggested that the test method reference ASTM analytical methods as well as the chamber methods.
4. At the vendor meeting there had been a discussion that this program is intended to look at gypsum board under normal use, not under flood or other unusual conditions. This was discussed.
5. It was asked whether the test method would include a permeability test such as E96/E96M-05 Standard Test Methods for Water Vapor Transmission of Materials. There is no plan at this time to include such a test.

6. Tajah Blackburn said that EPA's Office of Pesticide Programs would be interested in whether the individual products were innately resistant to mold or if they had been treated for mold resistance. This is not directly related to the ESTE program but something that might concern the vendors.
7. Elliott Horner said that remediators will want information on the vendor and if the product is mold resistant. The front of wallboard is generally painted; the back may or may not have information on vendor and product. This discussion led to one on whether the standard EPA guideline of replacing porous materials after 24-48 hours (<http://www.epa.gov/iaq/pubs/flood.html>) applies to the mold-resistant gypsum board. Dr. Menetrez suggested that while not included in the ESTE test method, it would be useful if research was funded to determine if the new products could be disinfected on the surface rather than being replaced.
8. A secondary point about remediation is that coatings and paint used on the products are not included in this test program.
9. EPA was asked how long the testing would be. Dr. Menetrez said up to six months for the mold and one or two weeks for the VOCs. Dr. Horner suggested that perhaps for a testing program, mold tests could be shorter, although six months is good for research projects.
10. It will have to be decided how often a product should be tested and how many products from a particular manufacturing site would be used in testing.

### **Current testing and standards**

The following standards are from the American Society for Testing and Materials (ASTM) [www.astm.org](http://www.astm.org). They are not all specifically focused on gypsum board, but can be used for testing the products. There are other gypsum related standards that are concerned with other physical properties of the products. There is an ASTM committee on gypsum, C11, Gypsum and Related Building Materials and Systems, however, some of the standards listed below come from other committees.

#### Mold resistance

- D6329-98(2003) Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers,
- D3273-00(2005) Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber,

#### VOC emissions

- D5116-90, Standard Guide for Small Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products,
- D6670-01 (2001) Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products,

#### Water resistance

- C473-05 Standard Test Methods for Physical Testing of Gypsum Panel Products.
- D3285-93(2005) Standard Test Method for Water Absorptiveness of Nonbibulous Paper and Paperboard (Cobb Test)

The gypsum vendors are working as part of ASTM subcommittee D.01.28, Biodeterioration, to develop WK8681, New Standard Test Method for Resistance to Mold Growth on Interior Coated Building Products in an Environmental Chamber.

Karin Foarde from RTI is a member of D22.05 Indoor Air. She is currently working on a test method focused for antimicrobials based on the standard guide D6329. As a guide, D6329 does not provide scoring or give interpretation of the results. D22.05 is also working on another standard for VOCs: WK2617, New Standard Practice for Environmental Chamber Determinations of Indoor-Relevant Emissions of Volatile Organic Compounds and Aldehydes from Small Samples of Building Products.

Greenguard ([www.greenguard.org](http://www.greenguard.org))

Tony Worthan and Elliott Horner of Air Quality Sciences discussed the GREENGUARD program. The GREENGUARD Certification Program provides third party verification for low emitting interior products and materials. The Greenguard program evolved out of the original AQSpec List™ program developed by Marilyn Black, Ph.D., Chief Scientist of Air Quality Sciences (AQS), Inc., in 1996. The original AQSpec List program was established to identify those manufacturers and products that had been tested and found to meet the general product emissions standards established by the State of Washington and the office furniture emissions standard established by the U.S. Environmental Protection Agency (USEPA) for their Headquarters' Project. Air Quality Sciences has recently announced a rating system for mold-resistant building products based on their adaptation of the ASTM D6329 guide. GREENGUARD has a pilot program for mold-resistant products; the results of the pilot study are on their website. The pilot study was looking for predictive information that could be used to build a rating system.

### **ETV/ESTE Program for Mold-Resistant Gypsum Board**

RTI has included quality controls into our ETV test methods and test plans. This will facilitate good quality being built into ASTM or other standards based on the RTI test methods.

At their meeting, the vendors said that they would like to have a workshop as part of the development process. The workshop would provide information on microbial testing, including information on the various ways to provide the microorganisms (inoculate the samples), and score the results. There was a question of how this workshop would fit into the ESTE program. Since the vendors also said they would like a round robin to show reproducibility that included RTI commercial laboratories and their own laboratories, Karin Foarde said that a workshop would help acquaint all the labs with the procedures used in the ESTE test method and any round robin testing.

RTI would prefer to keep the three tests as separate methods for the ETV process, although all three would be required.

A question was asked about stakeholder involvement as the program continues. Dr. Menetrez said that EPA welcomes stakeholder input and that they would try to keep the stakeholders informed on the progress. Dr. Dean said that they hoped the stakeholders would review the test

plan when completed. There were no specific plans for future stakeholder meetings, but that it would be possible to have a telephone conference.

### **Beyond ETV/ESTE**

Timothy Dean and Marc Menetrez (EPA) explained that while ETV does not allow ratings or provide certification, after the products have completed the ETV process, EPA does plan to provide ratings and certifications for the products.

The ETV test method could become an ASTM standard even without ratings. Ratings for testing could be a separate standard for ASTM.

#### Next Steps:

1. RTI will write the minutes and distribute to the attendees for review.
2. RTI will keep the stakeholders informed about the program.

#### Attendees:

Doris Betancourt, US EPA

Tajah Blackburn, US EPA

Timothy Dean, US EPA

John Donahue, USG Corporation

Karin Foarde, RTI International

Debbie Franke, RTI International

Elliott Horner, Air Quality Sciences

David S. Marciniak, General Services Administration, Public Buildings Service

Marc Menetrez, US EPA

Tony Worthan, Air Quality Sciences