



**ARCADIS** (led by project manager from Veritatis Advisors) advised client on permitting strategies at 42 manufacturing plants. US EPA Title V air permits for wallboard plants were examined GHG emissions, energy performance, and air emissions of PM and VOC's. US wallboard producers typically must maintain Title V air permits granted by US EPA in conjunction with state programs.

USG is North America's leading producer and distributor of gypsum wallboard (drywall). Drywall is composed of a layer of re-slurred gypsum rock sandwiched between two layers of special paper. In addition to being easy to install, drywall provides a measure of fire protection to buildings and efficient construction.

Gypsum is a crystal from mines of natural gypsum deposits or synthetic gypsum, usually from the sulfur scrubbing of coal powered electric generation, called flue gas desulphurization gypsum or FGD gypsum.



Two major commercial methods used to make gypsum wallboard water resistant – wax emulsion or organosilicones (siloxanes). They are dispersed into the gypsum slurry during board manufacture however and achieve water repellency through a thin layer adsorbed onto the gypsum crystals during manufacture.

***What Veritatis did:***

-Materiality and GHG Assessment Scheme



Siloxanes, when dried in this manner, according to the literature, may cause increased air emissions, called hazardous air pollutants (HAPS). HAPS created during the drying process require permitting to meet EPA VOC and PM emission requirements (especially PM10 and less).

Methods for comparison of VOC emissions were developed and simulated wallboard drying utilizing a special oven apparatus were designed and fabricated that simulated EPA's Method 25 for testing plant stack emissions. Panels tested demonstrated significantly higher emission potential according to the projects summary paper (**Environmental, Health, & Safety Impact of Common Water Resistant Additive Technologies In Gypsum Wallboard Production**)

