



EPA CONFIRMS SUPPORT FOR FGD GYPSUM WALLBOARD

In a report published in February, 2014, the U.S. Environmental Protection Agency concluded that the use of FGD gypsum is safe, and with respect to any adverse environmental impacts, there is no difference between wallboard made with FGD gypsum and wallboard made with mined gypsum rock.

The EPA report, Beneficial Use Evaluation of FGD gypsum wallboard can be found at https://www.epa.gov/sites/production/files/2014-12/documents/ccr_bu_eval.pdf

The EPA reported that the releases of any constituents of concern – from either FGD wallboard or mined gypsum wallboard – *“are at or below relevant regulatory or health-based benchmarks for human or ecological receptors. Thus, EPA supports continued beneficial reuse of coal fly ash in concrete and FGD gypsum in wallboard.”*

In its report, the EPA cited a number of independent scientific studies that evaluated the constituents of both mined gypsum and FGD gypsum to determine whether any adverse health or environmental concerns were raised for either product. There were none.

In particular, the EPA cited a study that demonstrated that the negligible amounts of mercury in FGD gypsum products are below the levels found in indoor and outdoor air. The study is titled *“Evaluation of potential for mercury volatilization from natural and FGD gypsum products use flux-chamber tests.”* (Scott Shock, et al., Environmental Science and Technology, 2282 – 87 (Feb. 2009)) The Shock study specifically stated:

“The resulting concentration estimates (for wallboard) are well below the U.S. Environmental Protection Agency (EPA) reference concentration for indoor air elemental mercury of 300 ng/m³ and the Agency for Toxic Substances and Disease Registry minimal risk level (MRL) of 200 ng/m³. Further, these estimates are below background mercury concentrations in indoor air and within or below the range of typical background mercury concentrations in outdoor air.”

MINED GYPSUM ROCK AND FGD GYPSUM

Gypsum rock is calcium sulfate dihydrate (CaSO₄ · 2H₂O). It is a mineral. It is one of the most – if not the most - common minerals on earth. Gypsum deposits have been discovered all over the world. Gypsum rock is mined throughout North America. In its crushed powder form, gypsum is the primary constituent of the interior walls of most homes in the United States – either in plaster walls or in gypsum wallboard.

FGD gypsum has the same chemical formulation as mined gypsum. FGD (flu gas desulfurization) gypsum is created as part of the environmental control processes that reduce the sulfur emissions from coal-fired power plants. The emission control technology uses calcium (crushed limestone) to capture sulfur before it is released into the air. The combined product that results is calcium sulfate



dihydrate – or gypsum. The purity of mined gypsum is high, but varies (75 % to 95%) depending on natural geological variations. The purity of FGD gypsum is even higher – typically above 90%.

USG has been a pioneer in the use of recycled materials in the manufacture of our Sheetrock® brand gypsum wallboard, and the use of FGD gypsum is consistent with environmental stewardship. For decades, USG has covered all our Sheetrock panels with recycled paper. In the 1980's we first began to use FGD gypsum in our products. Since then, we have worked to further extend our use of this sustainable and safe raw material. Today, a significant amount of our Sheetrock brand gypsum wallboard is made with FGD gypsum.

As part of our product stewardship USG evaluates and approves each new potential gypsum source, mined rock gypsum or FGD gypsum, through in-depth analytical chemical analysis to assure the safety of our products. Analytical testing shows that FGD gypsum and mined gypsum have the same chemistry and crystal structure. Our testing further shows that any trace impurities identified in FGD gypsum are consistent with levels found in mined gypsum – both are extremely low and of no safety concern. Once approved, every source of gypsum, whether mined or FGD, is placed into our Quality Assurance and Quality Control program to maintain the safety and quality of our products.

USG has been the leader in developing the safe and sustainable use of FGD gypsum and in creating standards and specifications for the use of FGD gypsum in wallboard. The specifications that we have established with the electric power companies for the production of FGD gypsum have become the industry standard and we will continue to maintain the highest quality of all raw materials used in production of USG products.