



PG Pilot Project Frequently Asked Questions

What is phosphogypsum / PG?

Phosphogypsum, or PG, is a byproduct created during the phosphate fertilizer manufacturing process. For every ton of phosphate, about five tons of PG are produced. In the United States, where PG is generally required to be stacked and stored, approximately 46 million tons of PG are produced per year.

How is PG stored?

PG is stored in large, engineered features known as gypstacks or gypsum stacks, typically located near phosphate fertilizer manufacturing facilities. The PG is transported to these stacks using process water, which acts as a carrier fluid.

Once the PG reaches the stack, the process water is decanted and returned to the production plant. This water is either reused for transporting additional PG or further processed as needed.

After placement, the PG dries and hardens on the stack surface.

Are gypstacks monitored?

Gypstacks are heavily regulated and extensively monitored. Depending on the scope, inspections are performed daily, weekly, monthly and annually. Additionally, gypstacks are routinely inspected by environmental regulators like the Florida Department of Environmental Protection. Once a gypstack is closed, it is still monitored for at least 50 years. Stacks are also subject to requirements under the Clean Air Act and Clean Water Act, as well as land use requirements.

How many active gypstacks does Mosaic have in Florida?

Mosaic has four active gypstack systems in Florida.

Why is PG stored?

The EPA first adopted regulations in 1989 that, with a few exceptions, require phosphogypsum be stored in stacks designed to contain the PG, due to the presence of slightly elevated content of naturally occurring radiation materials (NORM). The composition of PG is a reflection of the ore from which phosphate fertilizer is made and contains low levels of NORM.

What else contains NORM? What are other common sources of radiation?

NORM is found in everyday materials including granite countertops, ceramic dinnerware and even bananas. According to the EPA, the average person in the United States is exposed to around 600 millirems of radiation per year, through both environmental exposures and day-to-day items containing NORM.

If NORM isn't a concern, why do we still stack and store PG?

NORM can be a concern, but radiation values in PG are quite low. EPA's decision to require storage in stacks is based on a very cautious risk assessment performed 35 years ago. Since then, the



understanding about radiation risks has matured, and EPA's approval of the road project is a reflection of the agency's enhanced knowledge about how modest those risks can be under certain circumstances.

How does Mosaic want to use PG?

We have received approval from the EPA for a pilot test road using 1,200 tons of PG as the road base at our New Wales facility in Florida. The PG in the test road will be blended with aggregate materials, like concrete, to create a road base located below the pavement to evaluate the suitability of PG in road construction.

What safety measures have been taken for this project?

A comprehensive environmental monitoring program is underway at the pilot road site, which is located entirely on the New Wales property. Monitoring activities include groundwater and soil sampling, dust monitoring to assess airborne particulate levels, and radiation surveys conducted throughout the pilot test. Personnel working on-site are equipped with personal dose monitoring devices to track potential exposure. After construction is completed, monitoring will continue for at least 18 months. The results will be provided to EPA.

What was done to prepare the road before construction?

Groundwater and soil samples were collected to establish baseline conditions.

What is the EPA's risk threshold and how does PG compare?

The EPA has a risk threshold of less than 3 in 10,000 to determine whether or not a product is safe for use. When assessed, PG had a risk threshold of no more than 0.5 in 10,000 – well below the threshold.

How else is PG used across the globe?

Applications include artificial reefs for oyster beds, road bases, forestry, agriculture, crop growth, and carbon sequestration. Approximately 40 million tons of PG are recycled and reused annually. Countries that reuse PG include Spain, Belgium, India, China, Canada and Norway.

What are the other benefits of reusing PG?

Doing so contributes to a sustainable economy; beneficially using PG helps move us toward a zero-waste future where stacking PG is viewed as a last resort.

What is Mosaic's statement on PG reuse and the pilot road project?

Mosaic is proud to support innovative, science-based solutions where materials once deemed wastes realize future uses supporting a cyclical economy in a world with finite resources.

Our phosphogypsum (PG) road reuse pilot project represents a notable step forward.



Construction of the pilot road is expected to be completed later this fall, followed by an 18-month period of rigorous environmental monitoring and suitability testing. Throughout this phase, Mosaic will work closely with regulatory agencies at the state, local and federal level, including the U.S. Environmental Protection Agency (EPA).

Phosphogypsum is already being reused safely in over 20 countries across more than 50 applications, including agriculture, road base, and reforestation. Our study contributes to the growing body of global research with science-backed data specific to Florida's environment.

Where can I learn more?

To learn more about the pilot road project and PG reuse, click [here](#).

For the EPA's study conducted at the University of Florida, click [here](#).

To read the study completed by The Fertilizer Institute, click [here](#).