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Kunming offers incentives to cut Phosphogypsum waste and expand industrial reuse

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Chinaâ??s Kunming city has introduced financial rewards of up to RMB 2 million per enterprise annually to accelerate phosphogypsum recycling, promote higher-value applications and reduce waste generation across the phosphorus chemicals industry

Kunming, a major phosphorus chemicals production centre in China's Yunnan province, has introduced a new policy framework to reduce phosphogypsum generation and expand its use in construction materials, cement production and other industrial applications.

Released on October 8, 2026, by the Kunming Municipal Bureau of Industry and Information Technology, the interpretation of Kunming's Measures for Further Strengthening the Comprehensive Utilization of Phosphogypsum sets out 14 measures across four areas: source reduction, harmless disposal, resource utilisation and supporting factors. The policy will remain in force until December 31, 2030.

The measures reflect a broader effort to address the environmental burden associated with phosphorus chemicals production while improving the economic value of industrial by-products. Phosphogypsum, generated during wet-process phosphoric acid production, presents significant storage and management challenges when it cannot be absorbed by downstream industries.

Kunming's approach places greater emphasis on preventing waste at the production stage, alongside expanding the market for processed phosphogypsum and strengthening incentives for its commercial use.

Financial rewards target waste reduction and recycling

The policy introduces financial incentives for companies that reduce phosphogypsum generation intensity and for producers and purchasers involved in its utilisation.

Enterprises that achieve a year-on-year reduction of at least 3 per cent in phosphogypsum generation intensity will qualify for a one-time award of RMB 500,000. The measure is intended to encourage process improvements and more efficient use of phosphate resources.

Additional rewards are linked to the previous year's utilisation volumes. Producers and users of phosphogypsum-based cement retarders, building gypsum powder and sulphuric acid can receive RMB 5 per tonne. The reward rises to RMB 10 per tonne for the production of building materials and for purchasers using phosphogypsum-based building materials.

Annual rewards are capped at RMB 2 million per enterprise. By extending incentives to both producers and buyers, the policy seeks to strengthen demand for recycled materials rather than relying solely on expanded processing capacity.

The structure also signals a preference for applications that can absorb larger volumes of phosphogypsum and create commercially viable outlets for the material.

Production-stage controls seek to curb waste generation

Beyond financial incentives, Kunming is targeting the processes that determine how much phosphogypsum is generated in the first place.

The measures call for more structured development of phosphate resources, greener mining practices and improved utilisation of low- and medium-grade phosphate ore. They also encourage more efficient mineral beneficiation and the adoption of newer wet-process phosphoric acid technologies, including the hemi-dihydrate process, which can help reduce phosphogypsum generation under suitable operating conditions.

The emphasis on source reduction is significant because expanding downstream consumption alone may not be sufficient to address the accumulation of industrial waste if generation continues to rise.

The policy therefore combines improvements in resource efficiency and production technology with measures designed to increase the proportion of phosphogypsum that can be safely processed and reused.

High-value applications receive policy support

Kunming will prioritise demonstration projects involving the production of sulphuric acid and cement from phosphogypsum, alongside other higher-value applications.

The policy also provides for stronger support in land use, energy assessments, environmental impact assessments, and access to water, electricity and gas. These measures are intended to ease implementation challenges for projects that can expand utilisation capacity.

Government-funded projects are expected to prioritise phosphogypsum-based building materials where quality and safety requirements are met. The city will also continue promoting applications in mine backfilling, slope treatment, landscaping and land consolidation, widening the range of potential disposal channels.

The approach links industrial waste management with construction demand and land rehabilitation, although the scale of material that can be absorbed will depend on product quality, regulatory requirements, project economics and local market conditions.

Implementation will determine the policy's impact

Kunming's framework combines waste prevention, financial incentives and support for industrial reuse rather than treating phosphogypsum management as a disposal problem alone.

Its effectiveness will depend on whether the incentives encourage sustained reductions in waste intensity, generate reliable demand for phosphogypsum-based products and support applications that meet environmental and safety standards.

The policy also highlights a central challenge for industrial circularity: converting a large-volume by-product into a dependable commercial resource requires more than technical feasibility. Processing costs, product performance, market acceptance and the availability of suitable projects will shape how much material can be absorbed.

With the measures scheduled to remain in effect through the end of 2030, Kunming is seeking to align phosphorus resource efficiency with its wider solid-waste management and “zero-waste city” objectives. The results could offer a useful indicator of how local industrial policy can combine production-stage controls with demand-side incentives to improve the management of mining and chemical industry residues.