



GOVERNMENT OF KHYBER PAKHTUNKHWA  
CLIMATE CHANGE, FORESTRY, ENVIRONMENT  
AND WILDLIFE DEPARTMENT  
(SECTION ENVIRONMENT)

**NOTIFICATION**

Peshawar Dated the 25/07/2025

**No. SO(ENVT)/CCFE&WD/1-8/EPC-2025:** In exercise of powers conferred under Clause xxii of Section 7 of the Khyber Pakhtunkhwa Environmental Protection Act, 2014, (Khyber Pakhtunkhwa Act No. XXX of 2022), the Khyber Pakhtunkhwa Environmental Protection Council (EPC) in its 3<sup>rd</sup> Meeting held on 13.05.2025 has been pleased to approve the following guidelines for General Environmental Approval (GEA);

**GUIDELINES FOR FERTILIZER GRINDING UNIT, ROCK PHOSPHATE OR OTHER GRINDING OF ROCK MATERIAL**

**Contents**

**Introduction**

Grinding of phosphate refers to the process of reducing the size of phosphate rocks and/or concentrate to produce particles that are suitable for use in fertilizer production.

Phosphate rock is an important natural resource used to produce phosphoric acid, a primary component of many modern fertilizers. The rock is mined from deposits found around the world and contains several key minerals, including the phosphorus-bearing mineral apatite.

After the phosphate rock has been mined, it is beneficiated, a process of separating the phosphate minerals from the non-phosphate minerals such as silicates, carbonates, and clays. This beneficiation process often includes crushing and grinding of the phosphate rock to produce particles that are suitable for further processing.

Grinding of the phosphate rock is typically performed in large ball mills, typically 35-40% of the internal volume of the mill. The rock is fed into the mill through a rotating feed chute and crushed as the result of the collision between rock particles and grinding media, which is most often steel balls. The ground rock particles are then transported to a set of cyclones where the slurry is separated into different fractions based on the size of the particles.

The resulting ground phosphate rock is then transported to processing plants where it is reacted with acid to produce phosphoric acid, which is used in the manufacturing of various fertilizers. Grinding of phosphate is a necessary step in the production process of fertilizer, and efficient grinding systems can make a significant contribution to the profitability of the production of fertilizer.

**Scope of guideline**

These guidelines are applicable to all agricultural products which involves repacking, mixing, formulation of agriculture products/fertilizers.

**How to use these guidelines**





**GOVERNMENT OF KHYBER PAKHTUNKHWA  
CLIMATE CHANGE, FORESTRY, ENVIRONMENT  
AND WILDLIFE DEPARTMENT  
(SECTION ENVIRONMENT)**

The project proponent is obliged to use these guidelines for the preparation and submission of the GEA report along with checklist.

### **Glossary**

**Act** means the Khyber Pakhtunkhwa Environmental Protection Act, 2014

**Contamination** introduction of impurities in the environment

**Environment** means (a) air, water and land; (b) all layers of the atmosphere; (c) all organic and inorganic matter and living organisms; (d) the ecosystem and ecological relationships; (e) buildings, structures, roads, facilities and works; (f) all social and economic conditions affecting community life; and (g) the inter-relationships between any of the factors in sub-clause (a) to (f).

**Environmental Assessment** a technique and a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and Taken into account by the planning authority in forming their judgments on whether the development should go ahead.

**Impact on Environment** means any effect on land, water, air or any other component of the environment, as well as on wildlife harvesting, and includes any effect on the social and cultural Environment or on heritage resources.

**Mitigation Measure** means a measure for the control, reduction or elimination of an adverse impact of a development on the environment, including a restorative measure.

**Pollution** the presence in the environment or the introduction into it, of substances that have harmful or unpleasant effects

**Rules** means the Khyber Pakhtunkhwa Environmental Assessment Rules, 2021

**GEA** means General Environmental Approval as per schedule IV of KP Environmental Assessment Rules, 2021

### **Project Description**

The process flow for a Rock Phosphate grinding unit may vary depending on the specific equipment and system in use, but generally, the process may consist of the following steps:

1. Raw Material Reception and Processing: The raw material, i.e. the rock phosphate, is received and inspected for quality and purity. After that, it is crushed to the required size using crushing equipment.
2. Grinding: Once the rock phosphate has been crushed, it is sent to the grinding unit where it is processed using a suitable grinding machine. Grinding is done to reduce the particle size of the rock phosphate to the required fineness, which is important for delivering the desired quality of the finished product.
3. Screening: The ground rock phosphate is then screened to separate the fine particles from the larger ones. The fine particles are then collected and passed through a secondary grinding process to further reduce their size.
4. Blending: The ground rock phosphate is blended with other suitable materials to achieve the desired chemical composition of the finished product. The blending process ensures that the finished product has a uniform composition and quality.
5. Packing and Storage: The final product is then packed into suitable containers or bags and stored in a dry and cool place. During packing, it is important to ensure that the product is not exposed to moisture or other contaminants that might degrade its quality.





**GOVERNMENT OF KHYBER PAKHTUNKHWA  
CLIMATE CHANGE, FORESTRY, ENVIRONMENT  
AND WILDLIFE DEPARTMENT  
(SECTION ENVIRONMENT)**

---

6. Flotation: The classified ground material is then subjected to flotation where a collector is added to the slurry to selectively float the phosphate particles while the silica and other non-phosphate minerals are not floated. The phosphate-rich froth is skimmed off and collected in a launder while the tailings are discharged to the tailing pond.

7. Drying: The collected froth is dried to a moisture content of about 10-12% by passing it through a rotary dryer before it is sent for further processing.

8. Purification: The dried phosphate concentrate is then subjected to further purification by reacting it with sulfuric acid to form a phosphate fertilizer such as concentrated super phosphoric acid (CSPA).

9. Storage: The final product is stored in large silos before it is packaged and transported for sale to customers.

Overall, the process for a Rock Phosphate grinding unit involves raw material reception and processing, grinding, screening, blending, packing and storage, and quality control. The goal is to produce quality rock phosphate that meets the required standards and specifications while ensuring worker safety, environmental compliance, and efficient use of resources.

**Environmental Aspects**

- **Dust Suppression**

One of the primary concerns with Rock Phosphate grinding is dust generation.

- **Waste Water**

The grinding process may also generate wastewater that contains contaminants such as phosphates and heavy metals.

- **Solid waste**

The unit should ensure that all waste generated during the grinding process is properly disposed of in compliance with regulations.

- **Noise**

Grinding units can generate loud noise levels that can be harmful to human health and cause disturbance to the surrounding environment.

- **Storage & Transportation:**

Proper storage and transportation of the grinding material is extremely important. Improper storage can lead to environmental contamination.

**Mitigation options**

- **Dust Suppression**

- The unit must use suitable equipment and technologies to suppress dust emissions from the process.
- This can include the use of venting systems, dust collectors, and other dust suppression equipment to minimize airborne particulate matter.





GOVERNMENT OF KHYBER PAKHTUNKHWA  
CLIMATE CHANGE, FORESTRY, ENVIRONMENT  
AND WILDLIFE DEPARTMENT  
(SECTION ENVIRONMENT)

- **Waste Water**
  - The unit must have a proper wastewater management system in place to ensure that the contaminants are removed before discharge into the environment.
- **Solid waste**
  - Mitigation measures such as recycling, reuse, or safe disposal of waste materials may be adopted.
- **Noise**
  - Machinery should be installed in enclosed area.
  - Generator should be covered and enclosed in canopy.
  - Machinery and generator should be properly maintained.
- **Storage & Transportation:**
  - The unit should ensure safe storage and transportation of the material.

Moreover, the project site must be in the designated government industrial estate/zone.

-sd-

Secretary to Govt. of Khyber Pakhtunkhwa  
Climate Change, Forestry, Environment & Wildlife  
Department

No. SO(ENVT)/CCFE&WD/1-8/EPC-2025:

**Copy for information to;**

1. All members of Environmental Protection Council (EPC) Khyber Pakhtunkhwa
2. PS to Secretary Climate Change, Forestry, Environment & Wildlife Department, Khyber Pakhtunkhwa

Muhammad Ishaq  
Section Officer (Environment)