

# 11 21 phosphate rock processing us epa

## Download Complete File

Phosphate Rock: Processing, Uses, and Environmental Concerns\*\*

### What is Phosphate Rock?

Phosphate rock is a sedimentary rock primarily composed of calcium phosphate minerals, such as apatite. It is a non-renewable resource essential for the production of fertilizers and other phosphorus-based products.

### Raw Materials and Processing

- **Raw Materials:** Phosphate rock is composed of apatite minerals ( $\text{Ca}_5(\text{PO}_4)_3(\text{F}, \text{Cl}, \text{OH})$ ) and impurities such as calcite, dolomite, and quartz.
- **Processing:** Phosphate rock is processed through a series of steps known as beneficiation to remove impurities and concentrate the phosphate content.

### Processing Methods

- **Flotation:** This process separates phosphate minerals from impurities based on their different surface properties.
- **Washing and Screening:** These methods remove loose impurities and size the phosphate rock for further processing.

### Chemical Extraction

To produce phosphoric acid, a key ingredient in fertilizers, phosphate rock undergoes chemical extraction using sulfuric acid or nitric acid.

### Shipping

- **Bulk Carriers:** Phosphate rock is typically shipped in bulk carriers due to its large volume and relatively low value.
- **Specific Gravity:** Phosphate rock has a specific gravity of approximately 2.65-3.0, making it a dense material.

## Environmental Concerns

- **EPA Limit:** The Environmental Protection Agency (EPA) has set a limit of 0.1 mg/L for phosphates in wastewater discharge.
- **Unsafe Levels:** Excessive phosphate levels in water bodies can lead to eutrophication, causing algal blooms, fish kills, and other environmental impacts.

## Uses of Phosphate Rock

Phosphate rock is primarily used in the production of:

- **Fertilizers:** Phosphorus is essential for plant growth, making fertilizers containing phosphate rock a crucial input for agriculture.
- **Phosphoric Acid:** This acid is used in the manufacture of detergents, food additives, and other products.
- **Other Products:** Phosphate rock is also used in animal feed, glassmaking, and water treatment.

## Acceptable Phosphate Levels

- **Normal Phosphate Level:** An acceptable phosphate level in water for human consumption is generally below 0.1 mg/L.
- **Acceptable Range:** The acceptable range for phosphorus in freshwater ecosystems is typically 0.01-0.1 mg/L.
- **Optimal Phosphate Level for Corals:** Corals require a specific range of phosphate levels, ideally between 0.05-0.15 mg/L.

## Disadvantages of Phosphate Rocks

- **Environmental Impact:** Phosphate mining and processing can have negative environmental impacts, such as deforestation and water contamination.
- **Depletion:** Phosphate rock is a non-renewable resource, and its depletion is a concern for future generations.

minecraft minecraft seeds 50 incredible minecraft seeds you must use includes  
 minecraft pocket edition pc ps3 ps4 xbox 360 xbox one unofficial minecraft  
 handbook mercedes benz c320 building platonic solids how to construct sturdy  
 platonic solids from paper or cardboard and draw platonic solid templates with a ruler  
 and compass heraeus labofuge 400 service manual honda cbr600f3 motorcycle  
 service repair manual 1995 1996 1997 1998 download nfpa 921 users manual  
 financial statement analysis ratios lg tv manuals online bright ideas press simple  
 solutions il drivers license test study guide law machine 1st edition pelican sears  
 kenmore dishwasher model 665 manual into the dragons lair dungeons dragons  
 forgotten realms adventure 7b end of unit test answer reproduction elementary linear  
 algebra 2nd edition by nicholson reach out africa studies in community  
 empowerment sustainable development and cross cultural engagement answers to  
 gradpoint b us history the philosophy of animal minds how to start and build a law  
 practice millennium fourth edition leroi air compressor manual model we75ssiaqh  
 makalah ekonomi hubungan internasional makalah terbaru mechanical engineering  
 cad lab manual second sem 1969 mercruiser 165 manual quoting death in early  
 modern england the poetics of epitaphs beyond the tomb early modern literature in  
 history if the oceans were ink an unlikely friendship and a journey to the heart of the  
 quran american board of radiology moc study guide hasard ordre et changement le  
 cours du droit international french edition  
 mitsubishiup2033cmanual cunningsmanualof practicalanatomyvolume 1grovelmi  
 manualabbottarchitect c8000manual corporateresolution toappoint  
 signingauthorityjudicial tribunalsin englandand europe1200 1700the trialin  
 historyvolumei fujifinepixhs10 manualfocus 2006acuratl valvecovergrommet  
 manualdrops inthebucket levelc accmapettn2 questionpaperapro scoutguidejaguar  
 xfworkshopmanual theboy whoharnessed thewindcreating currentsof

electricityandhope psmanual deservicio enfordescape 2007speed readinghow  
todramatically increaseyour readingspeed andbecomethe top1of readersreadfaster  
learnbetter remembermore stochasticprocess papoulis4thedition  
saudiaramcoengineering standardvolvo pentasterndrive manualanti inflammatorydiet  
theultimate antiinflammatorydietrecipes loseweightnow volume4 partsmanualfor  
kubotav1703 enginegrowingmarijuana boxsetgrowing marijuanaforbeginners  
andadvanced marijuanagrowing techniquesgrowingmarijuana marijuanagrowing  
growingmarijuana indoorsback painsimpletips tricksand homeremedies  
toovercomechronic backpainand behappy againholistichealing chronicback  
painbackpain reliefremediesspinal cordhealingpain paralegaljobhunters  
handbookfrom internshipstoemployment firstdiscussionstarters speakingfluency  
activitiesfor lowerleveleslefl students1stdiscussion startersclass10 sciencelab  
manualsolutionsfusion usermanual organicchemistry carey9th editionsolutions1jz  
gemanualearning assessmenttechniques ahandbook forcollege facultyhowto  
solvegeneralchemistry problemsfourthedition musafircintamakrifat 2taufiqurrahmanal  
azizyhandbook ofcommercial catalystsheterogeneouscatalysts byhowardf rase2000  
0324new hollandskidsteer workshopmanual