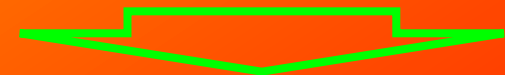
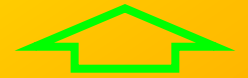


USE OF PHOSPHOGYPS

- Agriculture
- Building
- Other applications



AGRICULTURE



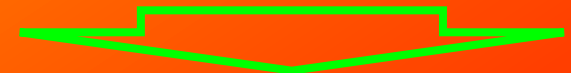
Ways to use phosphogypsum for agricultural soils:

- for land reclamation (TU U 24.1-31980517-002: 2005) solonchaks (desalinization of the soil);
- mixed with lime for the reclamation of acidic soils;
- as fertilizer ameliorants (1 ton of phosphogypsum contains about 10 kg of phosphorite);
- for composting with biological products and organic fertilizers.

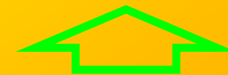


Phosphogypsum contains up to 1.5% strontium, which can accumulate in soil and plants.

The threshold value of the Ca / Sr ratio in the diet is 140. In drinking water and food products in a “healthy” area, the Ca / Sr ratio in the water supply sources is 130–920, in the “sick” one it is in the range of 15–160, causing endemic disease , the so-called level disease (or strontium rickets).



AGRICULTURE



Strontium is an alkaline-earth element, widely distributed in the earth's crust, with a content of 0.04%.

The average content of stable strontium in soils is 0.01-0.28%.

Strontium, like calcium, easily passes into the soil solution and is sorbed by the soil absorbing complex, from where it enters the roots of plants. Plants contain 0.0001-0.017% stable strontium.

When 10 tons of phosphogypsum is applied per hectare, 110-130 kg of P₂O₅ in assimilable form enters the soil.

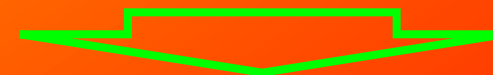


Phosphogypsum is used to produce slow dissolving fertilizers of prolonged action.

The ability of urea to form complexes with phosphogypsum is used to granulate simple superphosphate without drying.

A soil modifier is also obtained with slowly acting nitrogen fertilizer by the interaction of phosphogypsum with urea at a temperature of 95-160 ° C.

Phosphogypsum is introduced: before plowing and after it under cultivation. The dose is according to the amount of sodium in the root layer of the soil, which must be replaced with calcium and is 3-15 t / ha.



Cement industry:

- cement setting period regulator;
- mineralizer in the process of firing cement clinker;
- hydraulic additives.

Road construction:

- material for the foundation of roads.

Production of building materials:

- gypsum binders grades GZ, G5 and G10, G15;
- products based on them (partition and ceiling plates, building blocks, putty and plaster mixes, etc.);
- high strength anhydrite binder;
- drywall;
- mineral filler production of difficult to combustible heat-insulating rigid polyurethane foam.



BUILDING

In the manufacture of products from phosphogypsum and phosphogypsum binder obtained from dump phosphogypsum, natural resources are used by 5-10%, and 90-95% of the product composition is represented by the secondary product of the chemical industry - fresh phosphogypsum and dump phosphogypsum.

For example, to save natural raw materials, gypsum materials are used in the proportions:

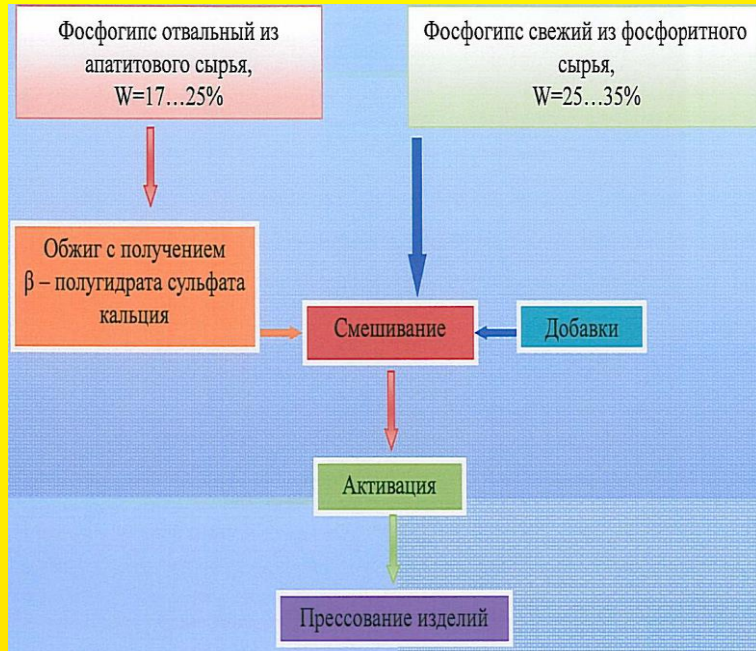
Natural gypsum: 50 weight. h

Phosphogypsum: 15 weight. h

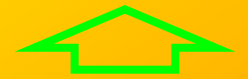
Fluorogypsum: 10 weight. h

Gypsum obtained by desulfurization of flue gases: 20 weight. h

Plaster from recycled waste: 5 weight. h



OTHER APPLICATIONS



Production of paper and paints: as a filler.

Filler for paint helps to dilute the tone, is used to save expensive pigments, to improve the technical and operational characteristics of paint coatings.

Production of a sulfidizer for mine smelting of oxidized nickel ores.

Synthesis of low temperature phosphite-based belite.

