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INVESTMENT PROJECT for the production of mineral feed on the basis of trepel (tripoli mineral) at the “Stalnoye” deposit in Khotimsky district of Mogilev region

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Mogilev FEZ Administration
Republic of Belarus
212003, Mogilev
78A Chelyuskintsev Street
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Project objectives:

→ use of unique natural raw materials for the production of mineral feed

→ creation of import-substituting production and organization of product export due to the growing demand for mineral feed and feed additives in the world market

→ introduction of innovative technologies for production (jointly with RUE “Scientific and Practical Center of the National Academy of Sciences of Belarus on Animal Breeding”)

→ meeting the demand of the population, corporate customers and the agricultural market for quality innovative products

RAW MATERIALS:

Access to unique trepel deposits in Khotimsky district (Belarus).

The volume of carbonate trepel deposits is **more than 30 million tons.** The deposit area **is 500 hectares**.

The pit is located 7 km from the town of Khotimsk. The nearest railway station “Kommunary” is **45 km away**.

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Mineral feed

- Mineral feed is intended for use in diets of farm animals and poultry and as part of complex feed additives, premixes, mixed fodders as a source of macro- and microelements and adsorbents of toxic substances.
- The phase composition of trepel is a finely dispersed polymineral system consisting of calcite up to 35%, opal-cristobalite up to 30%, clinoptilolite up to 15%, montmorillonite up to 10%. The mixture of impurities also includes crystalline quartz - 5%, hydrous mica and feldspar.
- Depending on the particle size distribution, the following feed can be produced:

- mineral feed for use in animal diets as mineral feed (fine-grained crumb from light gray to dark gray odorless color with granule size - 0.6-5.0 mm and humidity up to 12%) ;
- mineral feed for use as part of complex feed additives-adsorbents, premixes and mixed fodders (homogeneous granular powder from light gray to dark gray odorless color with granule size up to 0.6 mm and humidity up to 10%).

Content
in 1 kg of dry substance

calcium, g/kg	60-100
phosphor, g/kg	0,7-2,8
iron, g/kg	6,5-10,0
magnesium, g/kg	2,0-4,0
potassium, g/kg	5,0-20,0
natrium, g/kg	1,0-8,0
copper, mg/kg	7,0-90,0
zinc, mg/kg	20,0-100,0
manganese,mg/kg	100-450
cobalt, mg/kg	3,0-10,0
fluorine, mg/kg	1000
arsenic, mg/kg	0,66-2,8
lead, mg/kg	0,31-4,5
cadmium, mg/kg	0,11
strontium-90, Bq	<1,29
cesium-137, Bq	3,63-18,3

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Investment terms:

- **Required investment volume:** at least €1,000,000.
- **Product profitability:** at least 30%
- **Payback period: 2-3 years.**

SALE MARKETS:

Republic of Belarus, Russian Federation, Kazakhstan, Azerbaijan, Turkey, UAE and others.

QUALIFIED STAFF:

- ✓ **7 higher education institutions**
- ✓ **34 vocational schools and lyceums**

SCIENTIFIC RESEARCH:

Scientific and Practical Center of the National Academy of Sciences of Belarus on Animal Breeding

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Benefits of project implementation in FEZ "Mogilev"

TAX BENEFITS:

- exemption from tax on profit received from the sale of goods (works, services) of own production for export or to other FEZ residents.
- real estate tax exemption.
- exemption from land tax and rent for plots within the boundaries of FEZ "Mogilev".
- land plots are provided to FEZ residents without holding an auction for the right to conclude lease agreements.

CUSTOMS PREFERENCES:

- exemption from customs duties when importing raw materials and equipment into the territory of a free customs zone (FZ is determined for each resident separately).
- exemption from customs duties on finished products when they are sold outside the Eurasian Economic Union countries.

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For reference:

➡ Trepel (opal-cristobalite mineral) has good adsorption properties due to its high porosity, large specific surface area and ion-exchange properties.

➡ Its inclusion in animal diets increases availability of nutrients, strengthens immunity, reduces mortality (especially in early age), normalizes metabolism, prevents dyspepsia, removes toxic and harmful metabolic products from the body, prevents diseases associated with the deficiency of trace elements. Noticeable positive effects of natural trepels on digestibility of dry and organic substances of feed, nitrogen-free extract substances, nitrogen, calcium and phosphorus assimilation have been revealed.

➡ In animal feeding, natural trepels are also used as a detoxifying agent when using feeds containing increased amounts of mycotoxins, nitrates and nitrites, heavy metals, as well as a prolonging agent, especially when using synthetic nitrogenous substances. Zeolite-containing trepels are able to absorb and eliminate radioisotopes from the animal body, are not toxic substances and do not accumulate in the body.

➡ The use of mineral feed in the feeding of farm animals and poultry allows to increase animal productivity and economic efficiency of production.

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Effect of zeolite-containing mineral feed on animal organism:

- adsorption and electro-exchange properties of its components: the feed selectively adsorbs carbon dioxide, ammonia, methane, hydrogen sulfide, hydrocarbons, water, phenols, exo- and endotoxins, heavy metals, radionuclides, putrefactive microorganisms, etc. Passing through the gastrointestinal tract, mineral feed removes excess fluid, harmful gases, endotoxins from esophageal lumen, thus preventing diarrhea;
- prolonging effect of mineral feed in the body is based on the ability to more fully assimilate macro- and microelements throughout the gastrointestinal tract. Contained in the feed more than 40 macro- and microelements, vital for animals, provide its biological effect;
- adsorption properties of mineral feed towards mycotoxins: feed in the medium with acid reaction has a pronounced adsorption towards aflatoxin, T-2 toxin, ochratoxin, sorbing these toxins by 87-100 % (100 % for aflatoxin). With respect to zearalenone, deoxynivalenol and fumonisin a good sorption capacity of 61-70 % was established;
- influence of mineral feed on the productivity of farm animals: as an example, the introduction of mineral feed in the amount of 0.6 % in the composition of compound feeds for high-yielding cows of the first third of lactation has a positive effect on milk productivity and qualitative composition of milk. The use of such mixed fodders allows to increase the average daily milk yield of 3.6% fat milk by 12.7 %, including at the expense of increasing the milk fat content, and to reduce the cost of production. The introduction of mineral feed into the diet of fattening pigs contributes to a more efficient use of feed. Inclusion of mineral feed in the amount of 1, 2 and 3% increases live weight gain of fattening pigs;
- the results of numerous studies show that the use of mineral feed produced from trepel of the deposit “Stalnoye” of Khotimsky district of Mogilev region as part of mixed fodder for farm animals is not only economically effective, but also is a way of import substitution of similar feed additives imported into the Republic of Belarus.

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