

PROJECT  
for Potassium Fertilizer  
Exploration, Development  
and Production.  
Start Up Stage  
Presentation



# Project Brief Description

The Project is at the start up stage, within which the Company intends, from its own fund, to explore and make a part of probable reserves be government registered.

- The Project contemplates exploring and developing a polyhalite ore deposit to produce the end-product - Sulphate of Potash (SOP, 50% K<sub>2</sub>O, price US\$ 650 per ton), at the quantity of 0.5 to 1 million tons per year.
- The budget for construction of the production is US\$ 1 bn at the finished-product output of 1 million tonnes per year.
- The finished product is export-oriented and much-in-demand on the markets of China, India, South America; a number of large distributors have preliminary expressed their interest.
- The resource potential of the Project is formed by a polyhalite ore deposit with inferred reserves of about 3 billion tons of ore discovered in two sites located in the Kaliningrad region of the Russian Federation, presumably belonging to the category of large deposits.
- After making a part of probable reserves be government registered, it is necessary to attract investments for implementing the following stages:
- The development of the industrial process of polyhalite ore mining, extraction and processing into finished product, i.e. Sulphate of Potash, detailed TEO, other relating to stages prefeasibility study, feasibility study;
- detailed development of design of a mine, mining and processing plant, production plant of finished-product range, and the infrastructure preparation. In parallel, it is advisable to conduct a supplemental reconnaissance and reserve increase;
- The construction of a mine, mining and processing plant, production plant ;
- The operation of the finished product manufacture, sales of the finished products, the expansion of the sulphate product range, and extraction of associated magnesium and gypsum, an increase in the production and processing output.
- The profitability of the mining, production and sales of the finished product by EBITDA at the selling price of US\$ 500 is 67%.
- Based on the scope of geological prospecting works already performed, the Company intends to register the reserves under categories C1, C2 at the quantity of 50-60 million tons of K<sub>2</sub>O in 2017. Generally, the ore reserves are assumed at the quantity of more than 250 million tons of pure K<sub>2</sub>O in the deposit.

- Sulphate of Potash ( $K_2SO_4$ ) is a valuable potash fertilizer, chloride-free, contains 45–50% of potash and a negligible chloride admixture, water soluble.
- Primary consumer of SOP — agricultural industry.
- World consumption about 7 mln tons per year.
- This is a premium-class product among potash fertilizers.
- Average cost of SOP was US\$ 550 on the market in 2016, hereat the cost of Muriate of Potash was US\$ 216

### Advantages of Sulphate of Potash Compared with Muriate of Potash

- Chloride-free
- Ideally suited for fruits, vegetables and tobacco species (species that are sensitive to chloride),
- Presence of sulphate-ion affects positively the yield of mustard and leguminous families (consuming a lot of sulphur)
- Rich in nutrients
- Water soluble
- The best fertilizer for use in dry-lands
- Improves taste, colour, odour and shelf-life of products

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## Licensed Sites

JSC “COMPLEX MINING INVESTMENTS” (JSC “KGDI”) is a holder of 2 licenses for polyhalite ore deposit prospecting and evaluation, including:

- The North Krasnoborsky site, area = 11.62 km<sup>2</sup>, with an exploration permit without limit in depth,
- The East Krasnoborsky site, area = 19.59 km<sup>2</sup>, with an exploration permit without limit in depth.

Департамент по недропользованию по Северо-Западному федеральному округу  
(наименование органа, выдавшего лицензию)

**ЛИЦЕНЗИЯ**  
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Выдана **Закрытому акционерному обществу «Комплексные горнодобывающие инвестиции»**  
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данную лицензию **(ЗАО «КГДИ»)**

в лице **генерального директора**  
(ф.и.о. лица, представляющего субъект предпринимательской деятельности)  
**Кутбидинова Нуридина Тактевича**

с целевым назначением и видами работ **геологическое изучение**  
(поиски и оценка) калийно-магниевых солей на Северо-Краснобorsком

участке недр

Участок недр расположен **на территории Полевского**  
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Описание границ участка недр, координаты угловых точек, копии топопланов, разрезов и др. приводятся в приложении **№ 1, 3**

Участок недр имеет статус **геологического отвода** (геологического или горного отвода)  
(№ прилож.)

Дата окончания действия лицензии **01 июля 2018 года**  
(число, месяц, год)

Место штампа государственной регистрации  
**РОСНЕДРА**  
Департамент по недропользованию по Северо-Западному федеральному округу  
ЗАРЕГИСТРИРОВАНО  
**23. ИЮНЯ 2018**  
№ **66**  
Подпись уполномоченного Регистрации  
**Кутбидинова Н.Д.**

Департамент по недропользованию по Северо-Западному федеральному округу  
(наименование органа, выдавшего лицензию)

**ЛИЦЕНЗИЯ**  
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**Кутбидинова Нуридина Тактевича**

с целевым назначением и видами работ **геологическое изучение,**  
**включающее поиски и оценку месторождений полезных ископаемых.**

Участок недр расположен **в правобережье р. Дейма**  
(наименование населенного пункта, района, области, края, республики)  
**Полевский район, Калининградской области**

Описание границ участка недр, координаты угловых точек, копии топопланов, разрезов и др. приводятся в приложении **№ 3.**

Участок недр имеет статус **геологического отвода** (геологического или горного отвода)  
(№ прилож.)

Дата окончания действия лицензии **29 мая 2020 года.**  
(число, месяц, год)

Место штампа государственной регистрации  
**РОСНЕДРА**  
Департамент по недропользованию по Северо-Западному федеральному округу  
ЗАРЕГИСТРИРОВАНО  
**29. МАЯ 2020**  
№ **196**  
Подпись уполномоченного Регистрации  
**Кутбидинова Н.Д.**

At the North Krasnoborsky licensed site with an area of 11.62 sq. km:

- the works on the drilling of five bore holes with a depth of 1km, core recovery and its analysis for wells no.no. 1, 2, 3, 4, 5, and for the existing well 2BII have been performed;
- a seismic survey of the section with a length of 210 km has been performed;
- a geophysical well logging on wells no.no. 1, 2, 3, 4, 5, 2BII with a length of 6 thnd. m has been performed, and the geophysical well logging data on 16 oil prospecting wells with a length of 25.6 thnd m has been conducted

Parameters	North Krasnoborsky (Cat. P1) (license agreement)	North Krasnoborsky		Total North Krasnoborsky (Cat. C2-P1) (geophysical well logging, seismic survey, drilling performed) - plan	East Krasnoborsky (Cat. C2-P1) (geophysical well logging, seismic survey performed) - plan	Integrated area NK_EK (Cat. C2-P1) (drilling + geophysical well logging, seismic survey performed) - plan	Planned proven reserves (Cat. C1, C2, B)
		North Krasnoborsky (total Cat. C2+C1) (drilling, geophysical well logging, seismic survey performed) - actual	North Krasnoborsky (Cat. C2-P1) (geophysical well logging, seismic survey, s.d. performed drilling - plan)				
Ore deposit area (sq. km)	11.62	3.29	3.43	6.72	8.42	15.14	15.14
Average thickness (meter)	66.80	66.00	66	66.00	55.00	66.00	55
Average content K2O (6.0% cut-off)	11.26	11.30	11.26	11.26	11.26	11.26	11.26
Ore mass, tons (spec.weight 2.7)	1,530,000,000	586,384,920	625,494,985	1,211,879,905	1,518,560,555	2,730,440,460	2,248,117,145
K2O weight, tons (6.0% cut-off)	240,000,000 (incl. expl. permit of "Lukoil KLM")	66,261,496	70,196,181	136,457,677	170,989,918	307,447,595	253,137,991
Deposit size	very large	medium	medium	large	large	very large	very large

In-House Materials of JSC "KGDI"

The interpretation of the geophysical and seismic data of the entire site showed the presence of an ore deposit with a formation thickness of 66m at the average prospect of 11.26% in a part thereof having an area of 6.72 sq. m that gives the availability of 136.4 million tons of pure K<sub>2</sub>O, including:

- the availability of 66.2 million tons within the well contour no.no. 3, 4, 2BII with an area of 3.29 sq. km
- 70.2 million tons within the contour of remaining 3.43 sq. km out of 6.72 sq. km
- no ore grade mineralization within the location of wells no.no. 2, 5 outside of 6.72 sq. km.

The interpretation of the data obtained during the drilling of exploration wells no.no. 1,2,3,4,5, and 2BII, has determined that:

- an average formation thickness of 66m on wells no.no.3,4, 2BII has been determined at the average prospect of 11.3% that gives the availability of K<sub>2</sub>O at the quantity of 67 million tons in equivalent
- no ore grade mineralization on wells no.no. 2,5 (went beyond the mineralization boundaries), the well no. 1 is killed.

Accordingly, the geophysical, seismic data already obtained **are confirmed** with high accuracy **by materials of drilling works carried out, and they justify the availability of 66.2 million tons of pure K<sub>2</sub>O of Category C1, C2 for the site having an area of 3.29 sq. km.**

No drilling operations were carried out in the site having an area of 3.43 sq. km yet; however, the confirmation of the geophysical and seismic data by the drilling data from the first site makes it possible to reliably predict the coincidence of the drilling data in the neighboring second site with the availability there of about 70 million tons of pure K<sub>2</sub>O of Category C2, P1.

IT is supposed the availability of 136 million tons of pure K<sub>2</sub>O of Category C1,C2,P1 within the North Krasnoborsky site in total.

**Similarly, regarding the East Krasnoborsky licensed site, the interpretation of the seismic and geophysical well logging data determines the availability of 171 million tones of pure K<sub>2</sub>O of Category C2,P1.**

In total, 307 million tons of pure K<sub>2</sub>O of Category C1,C2,P1B are estimated for the North Krasnoborsky and East Krasnoborsky sites.

Out of them, **given the proven evidence of the geophysical and seismic data by the drilling data for two sectors of the sites** (both, the coincidence of the availability, and the coincidence of non-availability) **and the coincidence rate of their interpretation**, it is considered to be reasonable to determine **the planned value of reserves of Category C1, C2 as 250 million tons**, or in terms of finished product - **500 million tons of K<sub>2</sub>SO<sub>4</sub>.**

In 2017, based on the actual data for five wells, their processing, interpretation, development of extraction and processing technology, preparation of preliminary feasibility studies are conducted, whereupon it is planned to make a government registration of reserves in categories C1, C2 in the amount of 50-60 million tons by content of K<sub>2</sub>O.

Material resources of the Project are composed of the mineral deposit resources, and the infrastructure that includes the existing conditions for power supplies and transport links.

### Energy Supplies

Total demand of the Project for electric power = 60 MW and 78.5 million cub. m of gas.

A thermal power plant is located in the town of Gurievsk that is 40 km from the supposed location place of the production complex. The thermal power plant capacity is 875 MW.

The Baltyiskaya nuclear thermal power station is being constructed in the Nemansky district of the Kaliningrad region. The commissioning date – 2020. The planned electric capacity = 2400 MW.

“North Stream” gas pipeline goes across the Kaliningrad region, wherefrom the construction of a branch is planned to develop a gas supply system in the region.

A governmental programme for the development of electric power supplies in the Kaliningrad region has been approved at the federal level.

The needs of the Project are introduced in the existing governmental programme of electric power supplies in the Kaliningrad region .

### Transport Links

Sea link: a distance from the deposit field to the Kaliningrad sea port – 50 km.

Railroad link:

- In 7 km – local railroad,
- In 11 km – regional railroad.

In addition, the Polessky district is characterized by a developed transportation network.

Motor roads:

- In 7 km – regional motor road,
- B 13 км – federal motor road.



### 3. Marketing Analysis.

#### Review of Global Demand for Potash Fertilizers

The use of fertilizers makes it possible to increase substantially the cropping intensity. For that very reason, the fertilizer manufacturing is one of the most promising and developing industry sectors all over the world.

Over the past decade, the fertilizer consumption in the world has increased by one third, setting the next historical maximum. The growth was almost entirely ensured by the most successful emerging countries — primarily China and India, which account for almost 40% of the consumption of basic agricultural chemicals now.

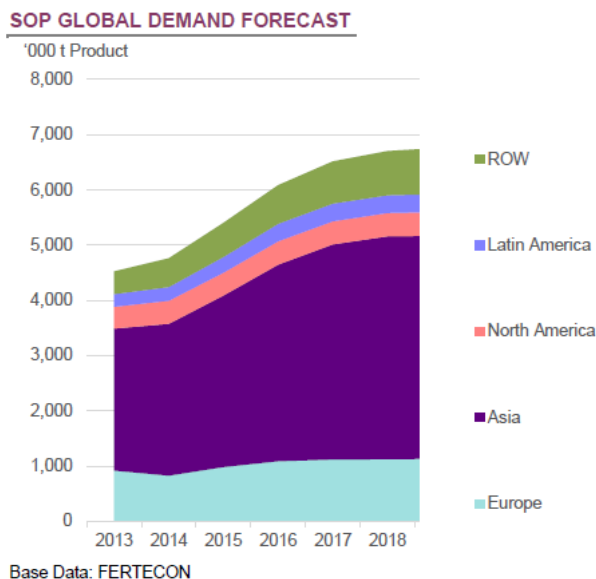
The most rapid pace of the demand growth is demonstrated by potash fertilizers, i.e. +4.2% yearly.

Description	2014	2015	2016 (forecast)	% of changes
<b>Nitrogen fertilizers (N)</b>	110,400	111,800	113,250	+1.3%
<b>Phosphorous fertilizers (P<sub>2</sub>O<sub>5</sub>)</b>	40,300	41,300	42,330	+2.5%
<b>Potash fertilizers (K<sub>2</sub>O)</b>	30,200	31,500	32,800	+4.2%
<b>Total (N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O)</b>	180,900	184,600	188,400	+2.0%

Global demand for fertilizers, 2014-2016 (thnd tons).

According to P. Heffer, International Fertilizer Industry Association, June 2016

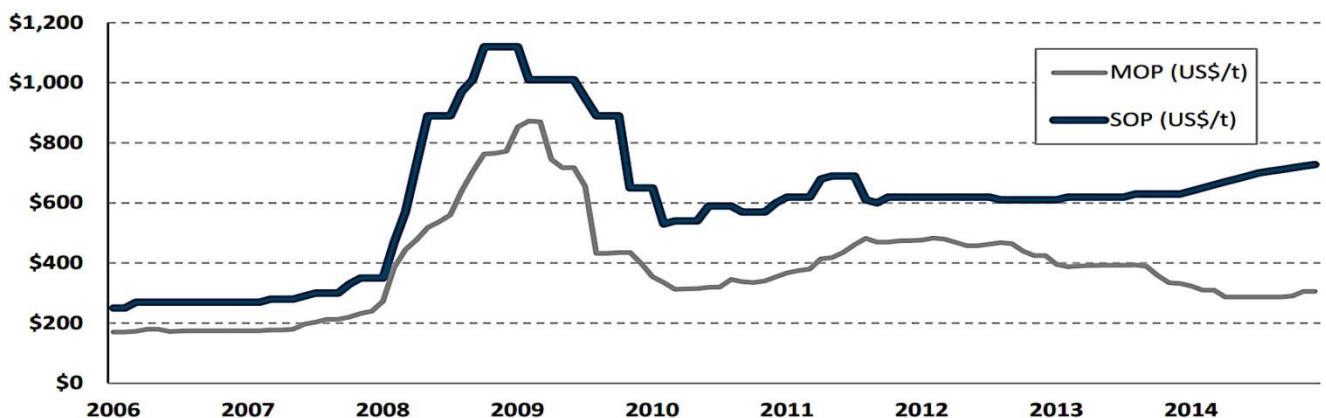
- Sulphate of Potash is characterized by a steady demand on the market owing to its unique properties.
- According to forecasts by FERTECON expert consulting agency, it will reach 6.7 million tons in physical terms in 2018.





On the world commodity markets, the Sulphate of Potash (SOP) was traded previously with a premium of 30-50% to the Muriate of Potash (MOP). As can be seen from the graph below, prices were strongly correlated till 2013, thereafter the correlation was reduced. It is evidence that the pricing of the Sulphate of Potash is becoming more marked-based and is formed by the balance of demand and supply rather than by price of the Muriate of Potash.

Prices of the Sulphate of Potash remained relatively stable during the period of high volatility on the potash market. The average price of the Sulphate of Potash for 2016-2017 was US\$ 450 per ton at price of the Muriate of Potash of US\$ 216-230 per ton.



Prices of Sulphate of Potash (SOP) and Muriate of Potash (MOP). Source: FOB California.

The Sulphate of Potash is manufactured of primary and secondary sources. The primary sources include natural raw brines (very limited in reserves), and minerals (the resource potential is being developed at present), including polyhalite that are located predominantly in China, Germany, Chile and the USA.

The secondary source is the potash muriate. The manufacturing process used at the secondary sources is the Mannheim process, whereby the fertilizer is made of muriate potash by sulphuric acid exposure, and as a result of chloride substitution by sulphate. Hydrochloric acid is obtained thereby as a by-product that is not a plus but rather a minus as it has no commercial consumption and creates problems with the environment, the necessity to bury wastes and transport precursors. It is more costly method due to the consumption of electric power and sulphuric acid. The potash muriate should have 97% purity. At the worse purity this method is dangerous and harmful in terms of environment due to increase in the waste output of the acid use.

Process, method	World production, %	Manufacture source	Finished product
<b>Mannheim method</b>	60%	<ul style="list-style-type: none"> <li>– KCl</li> <li>– Sulfuric acid</li> <li>– Electric power</li> </ul>	<ul style="list-style-type: none"> <li>• SOP</li> <li>• Hydrochloric acid</li> </ul>
<b>KCl and kieserite (magnesium sulfate) processing</b>	25%	<ul style="list-style-type: none"> <li>– KCl</li> <li>– kieserite (magnesium sulfate)</li> <li>– Electric power</li> </ul>	<ul style="list-style-type: none"> <li>• SOP</li> <li>• Magnesium Chloride</li> </ul>
<b>Evaporating of salt lake water</b>	15%	<ul style="list-style-type: none"> <li>– Brine lake</li> <li>– Electric power</li> </ul>	<ul style="list-style-type: none"> <li>• SOP</li> <li>• Magnesium Chloride</li> <li>• NaCl (common salt)</li> </ul>
<b>Polyhalite processing</b>	0% (projected 40% and more)	<ul style="list-style-type: none"> <li>– Polyhalite</li> <li>– Water</li> <li>– Electric power</li> </ul>	<ul style="list-style-type: none"> <li>• SOP</li> <li>• kieserite (magnesium sulfate)</li> <li>• Poly-4</li> </ul>

Existing manufacturers	Process	Production capacity
SDIC Xinjiang Luobopo Potash Corp. (China)	Evaporating from the water of salt lakes	1.3 mln tons
Compass Minerals (USA)	Evaporating from the water of salt lakes	500 thnd tons
SQM (Chile)	Evaporating from the water of salt lakes	500 thnd tons
Migao Corp. (China)	Mannheim process	308 thnd tons
Tessenderlo Group (Belgium)	Mannheim process	750 thnd tons
K+S Kali (Germany)	Mannheim process	750 thnd tons
Other manufacturers	Mannheim process	1.5 mln tons

The main producer of potash fertilizers in China is **SDIC Xinjiang Luobopo Potash Corp.** The company focuses mainly on the production of sulphate of potash. The company uses the evaporation from the water of salt lakes as a manufacturing process. The company's annual production capacity is 1.3 million tons of sulphate of potash.

**Compass Minerals** (the USA) is the largest manufacturer of sulphate of potash in the North America. It produces 500 thousand tons annually by evaporating from the water of salt lakes.

**SQM** is a Chilean producer, showing the result of production activities of 500 thousand tons, also using the process of evaporating from the water of salt lakes.

Other Chinese manufacturer is **Migao Corp.** The company shows good results of increasing in its production capacity. Thus, the volume of output of one of the products manufactured (sulphate of potash) in 2014 was 190 thousand tons, and in 2015 - 308 thousand tons.

The largest company manufacturing the sulphate of potash in Europe is **Tessenderlo Group** located in Belgium. The capacity of the enterprise is 750 thousand tons.

A German manufacturer **K+S Kali** plays an important role on the world market. It produces products using the Mannheim method; it provides annual production capacity of 750 thousand tons.

New Projects currently implemented in the world	Process	Expected annual production capacity
1. Ochoa Project, IC Potash (the USA)	Polyhalite ore processing	750 thnd. tons
2. Strictum LLC, Nivenskoye deposit, Kaliningrad region, the RF	Kainite ore processing	1 mln. tons
3. York Potash Project of Sirius Minerals, UK	Manufacture of <b>polyhalite flour (POLY4)</b> of polyhalite ore (16% concentrate, the ratio to finished product 3:1)	5 mln. tons
4. Allana Potash Corp., Ethiopia	Evaporating from the water of salt lakes	1 mln. tons
5. KGDI JSC, Polessky district, Kaliningrad region	Polyhalite ore processing	500 thnd. tons

1. The **IC Potash** company is implementing the Ochoa Project. The deposit field is located in the United States, New Mexico. It plans to produce 750,000 tons of sulphate of potash by the processing of polyhalite ore.
2. The Nivenskoye deposit of potassium-magnesium salts, being developed by the Strictum company, is located in the Kaliningrad region. The expected production capacity is 1 million tons of finished products per year. The manufacturing process used is the processing of kainite ores.
3. Other potential producer is **Sirius Minerals**, who is implementing the York Potash Project. The deposit is located in the United Kingdom, North Yorkshire. The company plans to produce polyhalite flour (POLY4, 16% concentrate, the ratio to the finished product is 3: 1). The annual production capacity is 5 million tons a year for 50 years.
4. The project in Ethiopia, which is implemented by **Allana Potash Corp.**, according to the company's plans, should provide the capacity of 1 million tons of sulphate of potash per year.

## Strengths

Geology: significant reserves

Technology: operating expense reduction (OPEX) owing to the direct processing of polyhalite into sulphate of potash

Logistics: operating expense reduction (OPEX) owing to physical proximity to the sea

Logistics: capital expense reduction (CAPEX) owing to the developed infrastructure

Taxes: tax burden reduction for FEZ residents

## Weaknesses

Limitedness of market

High requirements to conformity to environment protection standards

Project sensitiveness to the world market situation

Territorial remoteness of the Kaliningrad region from the main consumers within Russia.

## Opportunities

Prospective market of sulphate of potash may be the market of muriate of potash

Increase of sales volumes up to 1 million tones after entering the market

Product diversification based on both sulphate, and magnesium and plaster stone

Tendency toward substitution of old processes (Mannheim) by the new ones on the market

## Threats

Appearance of new competitors and projects for expansion of the existing manufacturing facilities

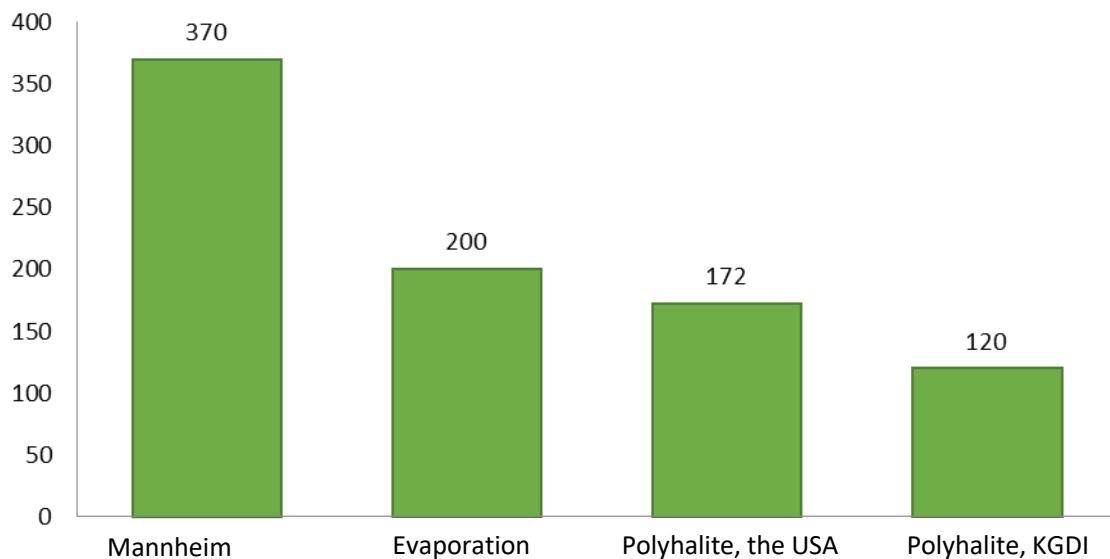
Supplies formed by an increased number of manufacturers exceeds the demand

Probable world crises, including the crises on the fertilizer market

**Positioning of the Project:**

The basic competitive advantage of the KGDI's project is the lower cost of the products manufactured due to the direct process of the polyhalite processing, which forms the operating cost of the processing of the enriched concentrate into the finished product within the range of US\$ 80 to US\$ 120, and the physical proximity to the sea, FEZ tax privileges and the developed infrastructure of the region.

Most of the new projects that are planned for implementation are based on the polyhalite ore and provide for a manufacturing process being similar to ours. That is grounds to believe that when these projects are launched on the market of sulphate-of-potash fertilizer, the new manufacturers will develop the existing sales markets serviced by manufacturers with traditional technologies through lower operating cost against the background of the growing market of sulphate of potash.

**Cost of 1 ton of finished product**

## 4. Project Implementation Stages

N o.	Project stage	Scope	CAPEX, mln US dollars
1	Exploration and evaluation	Drilling, seismic survey, geophysical studies, interpretation, technological process, TEO provisional mining parameters, Pre-Feasibility-Study, GKZ, approved reserves (C2, C1), mining license;	16
2	Prospecting	Additional drilling, seismic survey, geophysical studies, interpretation, conceptual design of technological processes and manufacturing facilities, TEO final mining parameters, Feasibility-Study, GKZ, increase in the approved reserves (C1, C2, B);	8
3	Engineering and obtaining approvals	Preliminary permissions, drafting plans (P Stage), obtaining approvals (Rostekhnadzor, Central Revision Committee, Glavgosexpertiza); detailed design stage (DD Stage)	30
4	Construction of infrastructure	Railroad, motor road, energy supplies; utility lines, land plot	70
5	Construction of a plant	1) Mine 2) Mining and processing integrated works 3) Basic product manufacturing plant 0.5 mln. tons	660
6	Operation		Total 784

Moreover, the working capital is US\$ 70 mln.

All-total, total investments US\$ 850 mln at the production capacity of 0.5 mln. tons of finished products. Conventionally, the cost of a plant with a capacity of 1 mln. tons is determined as 1 billion US dollars.

- The infrastructure construction includes:
  - buildings and structures = US\$ 53.5 mln
  - equipment = US\$ 15 mln
  - land plot = US\$ 1.5 mln
- The construction of the main production unit with a production capacity of 500 thnd. tons annually:
  - buildings and structures, including a mine = US\$ 320 mln
  - equipment = US\$ 270 mln
  - unexpected expenses for the entire integrated works = US\$ 70 mln
- Working capital = US\$ 70 mln
- Total buildings and structures = US\$ 375 mln
- Total equipment = US\$ 355 mln



## REVIEW

The basic processing method for extraction of sulphate of potash from polyhalite ore is based on **the splitting of polyhalite during calcination into soluble and insoluble fractions**, and then (for the soluble fraction that is extracted as polymineral brine containing mainly sulphate and magnesium potassium salts), - the **crystallization of sulphate salts and magnesium salts of potassium from the polymineral brine** at different temperatures. By this method, it is extracted from the polyhalite ore at least 92.5% of potassium sulphate  $K_2SO_4$ ; 2,5% remains in solid fraction, and 5% remains in the brine, which is re-sent as the mother liquor to the same processing cycle.

Specialists of the “KGDI” Company, in collaboration with a team of Russian scientists have developed **in the laboratory the calcination and crystallization conditions in respect of the properties of polyhalite ore of the North Krasnoborsky deposit**, and as a result, **a unique technology for processing of polyhalite** by adapting the basic scheme to the characteristics of polyhalite ores of the North Krasnoborsky deposit has been developed.

## The KGDI’s Laboratory Analyses

The laboratory analyses of samples conducted in laboratories of the Mineralogy Department of the Moscow National Mineral Resources University, the Research Institute for Comprehensive Exploitation of Mineral Resources of the Russian Academy of Sciences and the Central Research and Development Institute “Geolnerud” demonstrated that the polyhalite ore of the North Krasnoborsky deposit is suitable for processing.

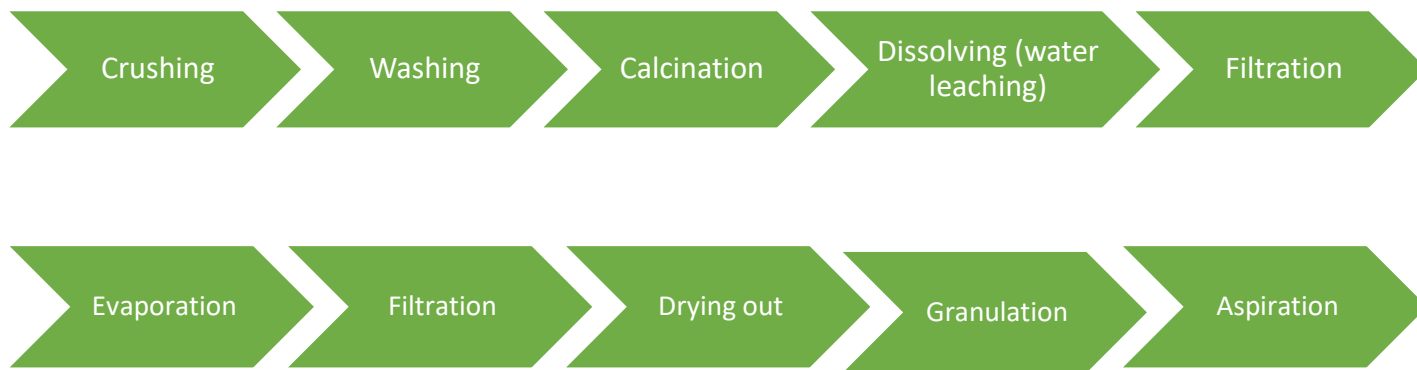
## Description of Technological Process

Technological method for manufacturing of sulphate of potash, i.e.  $K_2SO_4$  (SOP) - developed on the basis of polyhalite studies of the North Krasnoborsky deposit of potassium-magnesium ores.

The description of the scheme of polyhalite processing into sulphate of potash with the content of the main substance, sulphate of potash, i.e.  $K_2SO_4$ , in the finished product not less than 92.5%.

The technology is based on the feature of difference in the dissolution temperature and the temperature of crystallization, respectively (changes in the degree of solubility and crystallization due to the temperature) of salt polymineral brines.

Basic stages of the technological process for the manufacturing of sulphate of potash (SOP) based on the polyhalite from the North Krasnoborsky deposit consists of the following processes:



- cost per ton of ore mined is RUB 0.310 thnd;
- cost per ton of ore mined with primary processing is RUB 1.142 thnd;
- production cost of finished product is RUB 6.330 thnd;
- full cost per ton of finished products is RUB 11.5 thnd;
- selling price is RUB 35.52 thnd per ton, all in prices of 2017;
- revenue from sales is RUB 17.76 bn annually (in prices of 2017);
- cost of products is RUB 5.75 bn (in prices of 2017);
- EBITDA is RUB 12.0 bn (in prices of 2017).

The total volume of investments is RUB 56.7 bn to be allocated as follows :

- prospecting, evaluation RUB 0.8 bn;
- exploration, design RUB 2.2 bn;
- infrastructure RUB 4.8 bn,
- main production RUB 44.3 bn, (including buildings and structures RUB 21.5 bn, equipment RUB 22.8 bn);
- working capital RUB 4.6 bn.

Thus, the existing first stage of the project life required investments in the amount of RUB 0.9 bn; RUB 0.5 bn was invested from the company's funds .

The second, third and fourth stages require investments in the amount of RUB 7 bn.

The fifth stage, i.e. the construction of a plant, is estimated in the amount of RUB 44.3 bn, out of which RUB 5.0 bn can be made from production activities and VAT refunds, so the fifth stage requires the investments of RUB 39.3 bn.

## **Funding Sources**

A source of funding for the Start Up stage are funds of the company, initiating the project.

Moreover, it is necessary to attract an investor to the project, who will provide an equity financing in the amount of RUB 7 bn, as well as the provision of guarantees for a debt financing organization in the amount of RUB 35.3 bn.

- The number of employees will be 700 people. It is planned to carry out organizational and technical measures to improve the management structure and staff the vacancies while expanding the production.
  - The water used in the manufacturing process is returned to the cycle thereby eliminating the emission of harmful substances into the environment and resulting in a closed-loop process.
  - The production waste during the operation of the enterprise is not hazardous and is classified as class 4-5. At present, there are technologies for recycling of such waste or it is directly used in various manufactures. For example, from experience of the European companies, it is possible to use the plaster stone formed during road construction, or after preliminary cleaning, for manufacturing of building materials based on plaster stone. Regarding the issues of by-products usage and organization of the production (development of technological process) of construction materials, a memorandum was signed with the K-TEK company (Germany). Emissions to the atmosphere do not exceed the norms established by the European Union.
- 1 The Project will affect the employment of the population, the number of employees of the enterprise will be 700 people; 17% of them are administrative personnel, the rest are the production staff;
  - 2 Providing additional workplaces in related areas (machinery manufacturing, mining industry, railway services, and others)
  - 3 The Project includes infrastructure works, including the creation of road infrastructure, the development of existing infrastructure on the territory of the mining and processing works, landscaping;
  - 4 The Project rules out any negative consequences of the impact on the environment.