Joint-Stock Company Vostok (JSC Vostok)

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Joint Stock Company Vostok, a leading manufacturer of microbiological products in Russia, produces a wide range of enzymes, antibiotics and other medical products for various industries. In addition to providing quality products for domestic consumption, Vostok also exports to Western Europe, CIS and Baltic countries.

Located at Vostochny in the Kirov region, JSC Vostok is one of the largest manufacturers of microbiological synthesis products in the Russian Federation. The company operates production facilities in Vostochny, Russia, and Vilnius, Lithuania, as well as sales offices in Moscow and St. Petersburg.

FOCUS

JSC Vostok manufactures three different lines of products:

- Medical syringes and infusions: JSC Vostok produces one third of all syringes sold in the Russian Federation, as well as various solutions for medical use;
- Wide range of enzyme preparations: The company is one of the largest producers of enzymes for a wide range industrial processes; and
- Antibiotics and feed additives for animal and poultry production.

JSC VOSTOK'S PRODUCTION FACILITIES

Built in 1969, JSC Vostok's production facilities were designed to produce microbiological products for agriculture, light manufacturing, chemical, and food industry. The plant is arranged around three buildings that accommodate departments in nutrient media preparation, micro and ultra-filtration, spray drying, standardization and packaging, and fermentation. There is an inoculation station with a bank of pure cultures and numerous research laboratories for monitoring and quality control of production.

Production is accomplished with the following processing facilities: Twenty 0.5 cubic meter reactors, ten 15 m^3 fermenters, twelve 63 m^3 fermenters, an installation for continuous sterilization of nutrient media (with productivity of 20 m^3 media per hour), and two 15 m^3 reactors for additional feeding of nutrients to the two operational fermenters. **The facility has a total of one million liters of fermentation capacity.**

All fermenters are equipped with automatic systems for foam breaking and pH control. Drum vacuum-filters and filter-press units are used for separating the microbiological biomass. For the concentration process, there are vacuum evaporators, micro and ultra-filtration units, as well as a compressor-installation for producing process air and a refrigerating/cooling plant.

JSC VOSTOK'S PRODUCT LINES

Medical syringes and infusions: one third of all syringes sold in Russia are produced by JSC Vostok. Disposable syringes for injections, namely Leur 2A, Leur SB, Leur 10B and Leur 20B, are produced on equipment imported from Werner Kamman Gmbh, Germany. The standard Leur tips allow the use of both Russian and imported needles. These syringes can be used for subcutaneous, intravenous and intramuscular administration of drugs.

The company also produces isotonic sodium chloride solution, glucose solutions, and Disol, Trisol and Acesol saline solutions for injections

in multiple medical applications. All of these products are registered and licensed by the Ministry of Health and Medical Industry of the Russian Federation.

Enzyme Preparations: JSC Vostok is one of the largest producers of enzymes based on microbiological synthesis in the Russian Federation. These enzyme preparations are used extensively in industries such as brewing, baking leather and textiles, animal and poultry.

- Amylosubtilin (A-amylase), used to break down polysaccharides, is prepared from *B. subtilus* cultures and comes in both liquid and solid form;
- Protosubtilin (Protease) used to break down proteins;
- Celloviridine (Cellulase) used for the breakdown of cellulose, is produced from cultures of *Trichodema viride*, and is applied to rye and barley fodder preparations;
- Xylanase, produced from Micromyces, is used extensively by the baking industry to improve the taste and texture of bread;
- Multienzyme formulations for fodder additives allow the use of cheap, non traditional feeds for animal and poultry farming;
- Alkaline protease is included in laundry and household detergents for removing protein-derived soiling; and
- Glucavamorin, produced by *Aspergillus awamori* germ culture, is an important component for brewing beer.

Antibiotic preparations:

- Biovit, containing the antibiotic chlortetracycline, is beneficial in curing diseases, such as pasteurellosis, colibacteriosis, salmonelloses, gastroenterocolitises, and bronchopneumonia in calves, hoglings, fur-bearing animals, dogs, as well as respiratory mycoplasmosis in birds. The preparation contributes to increased resistance against gastrointestinal diseases, lower mortality, body-weight augmentation, and higher productivity of farm animals and poultry.
- Bacilihin, a preparation based on the antibiotic bacitracin, increases body weight and productivity of animals and poultry without accumulation in tissues.
- Kormogrizin, containing the wide spectrum antibiotic Grizin, is beneficial for normal intestinal microorganisms and used specifically in feeds for breeding animals and poultry.

INTERNATIONAL COLLABORATION

In 2005, JSC Vostok signed an agreement with the BioIndustry Initiative of the U.S. Department of State and the ISTC for a comprehensive production line upgrade to optimize its enzyme biosynthesis processes and determine the optimal conditions for enzyme function; develop technologies for extraction and purification of enzymes with minimal fermentation activity loss; and prepare better liquid and stabilized forms of enzyme preparations. This process upgrade effort will be accomplished by collaborating with a prominent U.S. biotechnology company that focuses on enzyme production from niches within microbial biodiversity.

JSC Vostok invites collaborations from Western companies to take advantage of the current excess fermentation capacity and the company's extensive distribution networks in the Russian Federation, as well as other CIS countries.