

Министерство образования Республики Беларусь  
Учреждение образования  
«Полоцкий государственный университет»

**УСТОЙЧИВОЕ РАЗВИТИЕ ЭКОНОМИКИ:  
МЕЖДУНАРОДНЫЕ И НАЦИОНАЛЬНЫЕ АСПЕКТЫ**

Электронный сборник статей

II Международной научно-практической конференции,  
посвященной 50-летию Полоцкого государственного университета

(Новополоцк, 7–8 июня 2018 г.)

Новополоцк  
Полоцкий государственный университет  
2018

**Устойчивое развитие экономики: международные и национальные аспекты**  
[Электронный ресурс] : электронный сборник статей II международной научно-практической конференции, посвященной 50-летию Полоцкого государственного университета, Новополоцк, 7–8 июня 2018 г. / Полоцкий государственный университет. – Новополоцк, 2018. – 1 электрон. опт. диск (CD-ROM).

Впервые материалы конференции «Устойчивое развитие экономики: международные и национальные аспекты» были изданы в 2012 году (печатное издание).

Рассмотрены демографические и миграционные процессы в контексте устойчивого развития экономики; обозначены теоретические основы, практические аспекты управления человеческими ресурсами; выявлены и систематизированы драйверы инклюзивного экономического роста в Беларуси и за рубежом; раскрыты актуальные финансовые и экономические аспекты развития отраслей; приведены актуальные проблемы и тенденции развития логистики на современном этапе; отражены современные тенденции совершенствования финансово-кредитного механизма; освещены актуальные проблемы учета, анализа, аудита в контексте устойчивого развития национальных и зарубежных экономических систем; представлены новейшие научные исследования различных аспектов функционирования современных коммуникативных технологий.

Для научных работников, докторантов, аспирантов, действующих практиков и студентов учреждений высшего образования, изучающих экономические дисциплины.

*Сборник включен в Государственный регистр информационного ресурса. Регистрационное свидетельство № 3061815625 от 23.05.2018.*

Компьютерный дизайн М. С. Мухоморовой  
Технический редактор А. Э. Цибульская.  
Компьютерная верстка Т. А. Дарьяновой.

211440, ул. Блохина, 29, г. Новополоцк, Беларусь  
тел. 8 (0214) 53 05 72, e-mail: a.lavrinenko@psu.by

## THE INVENTORY MANAGEMENT STRATEGY IN THE SUPPLY CHAINS OF ENTERPRISES OF THE PETROCHEMICAL INDUSTRY

*M.J. Banzekulivaho, Ph.D., associate professor,  
Polotsk State University, K.Y. Fomina, logistics service specialist,  
JSC "Naftan", Novopolotsk, Republic of Belarus*

Material inventories are one of the most expensive assets of most enterprises, including the petrochemical complex, that is why they determine their policy of behavior in the market and influence the level of their management. The state of the material inventories has a determining effect on the competitiveness of enterprises, therefore, one should adhere to their optimal level, as their understatement or overstatement can lead to tangible losses, for the prevention of which an effective strategy of managing the material inventories in the supply chains is required.

The object of the research in this article is the management system of the material inventories at one of enterprises of the petrochemical industry of the Republic of Belarus. The subject of the research is the strategy of managing the material inventories in the supply chains of the given enterprise. The objective of the research is to propose economically justified measures aimed at increasing the efficiency of the strategy for managing inventories in supply chains of enterprises of the petrochemical complex of the Republic of Belarus.

Inventories as a phenomenon in the work of logistic systems are commodity-material values that are waiting for consumption. In logistics, the term "inventories" is used only in the application to material flows. Inventories in the supply chain management of the logistic system of the enterprise are commodity-material values. The inventories have manufacturing enterprises, wholesale enterprises, retail trade enterprises and service enterprises, logistic intermediaries and operators, banks, exchanges, insurance organizations, ports, etc. In all these organizations, inventories provide basic and auxiliary activities to commodity-material values [1, p. 20].

Inventory management is a common problem for enterprises of virtually any branch of the national economy in their system of functioning, since it is always necessary to create them to ensure the continuity of the implementation of production and economic activities. The enterprise always needs to create reserves to ensure the continuity of the implementation of production and economic activities.

Inventories of raw materials, materials, components and finished products are material values that await production or personal consumption [2, p. 210].

To determine the inventory rate, three groups of methods are used: heuristic methods, methods of technical and economic calculations and economic and mathematical methods. Heuristic methods involve the use of the experience of specialists who study the reporting of previous periods, analyze the market situation and make decisions on the minimum required level of inventories, based, to a large extent, on the subjective understanding of trends in the development of demand. The method of technical and economic calculations consists in dividing the aggregate inventories, depending on the intended purpose, into separate groups, for example, on nomenclature or assortment positions. Then, for these groups, the levels of insurance, current and seasonal stocks are calculated separately. The method of technical and economic calculations allows you to accurately determine the required size of inventories, but it is very labor intensive. Economic and mathematical methods allow you to determine inventory rates based on the construction of mathematical models of inventory management, or using extrapolation methods to predict future inventories based on the rates of their change and their formation trends in the previous period [3].

To date, three main types of inventory management strategies are widely known: the most prudent strategy, the additional reserve strategy and the strategy of the percentage of demand.

In accordance with the most prudent strategy, the size of the required reserves is defined as the product of the maximum consumption of inventories within one day for the greatest duration of the delivery period that was available for the orders issued by the enterprise. According to the additional reserve strategy, the guarantee of requirements is ensured by the creation of an additional reserve of material resources. The strategy of the percentage of demand is based on the analysis of the frequency of demand for inventories based on the results of work within one day.

At the enterprise of the petrochemical industry under investigation, there is a department for inventory management, whose responsibility is to monitor the level of the material inventories to ensure a continuous production process. However, a certain system and strategy of inventory management at the enterprise has not been formed at the moment.

As a result of studying the aspects of the strategy for managing material inventories in the supply chains of an enterprise, it is possible to single out the general features of an additional reserve strategy, in which the guarantee of requirements is ensured by the creation of an additional reserve of material assets. In this case, the enterprise does not have a specific methodology for calculating the reserve number of storage units in warehouses. In turn, the strategy for managing material inventories should be based on the implementation of a specific management system. Control over the state of inventories and the formation of an order at the enterprise is carried out periodically through the operational management system. After a certain period of time, an operative decision is taken - "order" or "not order". If you order, then how many units of material resources. This system works well in conditions where it is possible to foresee the size of demand with a sufficient degree of certainty. Otherwise, unexpectedly increased demand in the period between orders can lead to a deficit in the logistic system.

Analysis of the enterprise's activities allowed to form an effective chain of actions to optimize the strategy of inventory management, according to which the development of relevant activities should start with the procedure for forecasting the demand for purchased commodity-material values. Then, based on the obtained forecast value of demand, to differentiate the material resources purchased by the enterprise into groups, using the methods of ABC- and XYZ-analysis. To manage the material inventory of the groups obtained, it is necessary to choose an effective system for regulating the level of inventories in the warehouses of the enterprise, to calculate and analyze its main parameters.

The level of inventories and the costs of their storage should be optimal and ensure the uniform operation of production, transport and warehouse systems. The decision-making process for inventory management involves solving such problems as planning the demand for inventories for a certain period, determining the total costs for inventory management for a given period, structuring and controlling inventories, regulating stocks, determining the optimal order size and the time interval between orders, choosing the optimal inventory management system.

The analysis of the material inventory management system in the supply chains of the enterprise revealed the following two main problems that require immediate resolution:

- 1) the lack of uniformity in the names of commodity-material values. Due to this problem, it is impossible to accurately determine the consumption of a particular species for a specific period of time, and, accordingly, calculate the inventory norms;

- 2) the lack of a single optimal strategy, and, accordingly, the management system of material inventories in the enterprise and the correct calculation of its parameters, taking into account unforeseen changes in the market.

To solve these problems, it is recommended to implement a strategy for managing material inventories in the supply chains of a given enterprise in the petrochemical industry of the Republic of Belarus, aimed at:

- working out a system of objectives for the development of the warehouse economy of the enterprise and their achievement;
- improvement of the staffing of the warehouse facilities of the enterprise;
- Improvement of information and documentation support for the enterprise's warehouse facilities;
- working out an effective mechanism for managing material inventories in the enterprise.

The system of the goals of the development of the warehouse economy of the enterprise and the strategy for achieving them should be developed by systematizing the names of commodity-material values and developing an working out the effective strategy for managing material inventories. To improve the staffing of the warehouse economy of the enterprise, is proposed a new management structure for it after the creation of a bureau of normative and reference information. Improvement of information and documentation support of the warehouse economy of the enterprise provides for the creation of an expert group with the functions of conducting a comprehensive analysis of the existing range of all commodity-material values in the warehouse economy of the enterprise and creating a directory of material values. An effective strategy for managing material inventories at an enterprise will be based on the intensity of their consumption and the predictability of demand for them.

Thus, the further development of supply chains, the search for new business partners, the active promotion of petrochemical products to the foreign market, are the main activities of the enterprise reflecting the strategic directions of ensuring the management of material inventories in supply chains of enterprises of the petrochemical industry.

#### **Bibliography**

1. Стерлигова, А.Н. Управление запасами в цепях поставок : учеб. / А.Н. Стерлигова. – М. : ИНФРА-М, 2008. – 430 с.
2. Аникин, Б.А. Логистика : учеб. / Б.А. Аникин. – изд. 3-е. – М. : ИНФРА-М, 2012. – 368 с. Логистика: учеб. пособие / Б.А. Аникин [и др.]; под ред. Б.А. Аникина, Т.А. Родкиной. – Москва : Проспект, 2015. – 408 с.
3. Алесинская Т.В. Основы логистики. Функциональные области логистического управления. – Таганрог: Изд-во ТТИ ЮФУ, 2009.– 79 с. [Электронный ресурс]. – Режим доступа: <http://www.konsalter.ru/biblioteka/m192/>. – Дата доступа: 28.03.2018.

### **СТРАТЕГИЯ УПРАВЛЕНИЯ МАТЕРИАЛЬНЫМИ ЗАПАСАМИ В ЦЕПЯХ ПОСТАВОК ПРЕДПРИЯТИЙ НЕФТЕХИМИЧЕСКОЙ ОТРАСЛИ**

***М.Ж. Банзекуливахо, К. Фомина***

Рассмотрены теоретические и методологические аспекты стратегии управления материальными запасами на предприятии, раскрыта экономическая сущность запасов и выявлены их разновидности в производственно-хозяйственной деятельности предприятия. Представлены результаты анализа системы управления материальными запасами на одном из предприятий нефтехимической отрасли Республики Беларусь, проведённого с целью выявления их уровня, необходимого для обеспечения ритмичного функционирования производственного процесса. Предложена стратегия, направленная на обеспечение эффективности управления материальными запасами в цепях поставок предприятий нефтехимической отрасли.