WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 4, Issue 5, May, 2023

THE ROLE OF CHEMICAL TECHNOLOGIES IN THE PROCESSING OF ECOLOGICAL DOMESTIC WASTE

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Abstract:
There are two different approaches to technical innovation in chemistry. The first is that new technologies and processes reduce the cost of eliminating sources of pollution to a minimum level, and the second is that new technologies (the right way to approach this issue) ensure the radical elimination of the cause of actual or potential chemical problems.

Keywords: Correlation, resource, raw material, petrochemical, oil, gas, portfolio, organochlorine, catalyst, organochlorine substances.

Environmental policy, economy and innovation allow to strengthen the leading position of German chemical and petrochemical industry enterprises. Careful treatment of the environment allows the use of new and environmentally friendly raw materials. Accordingly, the final product is environmentally friendly.

Man always strives for good. Therefore, all the things that surround him should be useful and should not harm him. The chemical and petrochemical industry is one of the main sources of environmental pollution. In terms of the total amount of waste released into the atmosphere, the chemical complex ranks tenth, and in terms of discharge into natural water bodies, it ranks second among industrial sectors. The concept of sustainable development, which has been approved in the last decade, requires a harmonious conduct of economic and environmental policies.

Environmental policy is rapidly being implemented in the economic strategy of developed countries and large companies. It includes a system aimed at rational use of natural resources, protection, and its restoration in the country and abroad. This policy is carried out both at the level of the country and at the level of companies that are committed to follow these standards in their development strategy. Due to this, the European Union has recently strengthened control not only of product quality, but also of its environmental friendliness.

The close integration of environmental policy, economics and innovation will allow the German chemical and petrochemical industry to strengthen its position as a leading product supplier. Accordingly, the final product is ecologically clean [1].

In German chemical and petrochemical enterprises, EN ISO 9001 and EN ISO 14001 standards are strictly followed, which continuously monitor production processes and guarantee stability.

The introduction of ISO 14001 standard and its certification allows the introduction of new ideas that increase profitability, relatively efficient technological processes, reduce costs, innovations that call for more confidence in the process of increasing competitiveness [2].

The advantages of internationally recognized standards are obvious to everyone. Participation in international tenders requires compliance with the technical requirements and standards included in the tender conditions. Such international standards guarantee the creation of the same conditions for the participants participating in the tender.

In most cases, until now, there are perceptions that environmental efficiency is associated with high costs, low profits and other indicators.

If we look at it realistically, we can see that there is a stable positive correlation between companies with high environmental performance and profits. In the last decade, there has been a positive shift between environmental problems and economic achievements [4].

This is one of the most environmentally demanding laws for Germany, showing high economic growth.

The environmental management system can also help managers who are interested enough to solve environmental problems related to the fate of their company. The existence of environmental management is also important in protecting the company from legal liability.

Many managers still do not fully understand the cost of environmental damage and other factors. In general, about 91% of total losses are caused by management system failures.

A properly designed system of environmental management allows to find effective ways to reduce costs, to encourage management and technological innovation decisions and to reduce product costs.

There are two different approaches to technical innovation in the field of ecology. The first is that new technologies and processes reduce the cost of eliminating sources of pollution to a minimum level, and the second is that new technologies (the correct approach to this issue) ensure the radical elimination of the cause of real or potential environmental problems.

The focus on environmental improvement is traditional, requiring consideration of direct costs. In recent years, some advanced companies have focused on taking

preventive measures against pollution. One of these measures is called "source reduction," which is an attempt to reduce environmental impact and pollution by addressing the problem in the early stages of product production.

The concept of "continuous improvement" described in the ISO 14001 standard allows for improvement at all stages of the life cycle.

Many German companies that have implemented the ISO 14001 standard have found many opportunities to save money, including increasing operational efficiency and reducing material and water consumption.

Among the advantages of the implementation of the ISO 140001 standard in various German companies in the production of chemical industry products, the following can be included:

- the amount of waste is reduced;
- waste expenses were reduced from $72,000 to $24,000;
- energy was saved;
- improved strategic planning.

Let's consider the solution of environmental problems in the chemical industry on the example of the BASF company [3].

The BASF group of companies is one of the largest international chemical corporations, founded in 1865 by Ludwigshafen. BASF is a leader in the chemical industry, which has about one hundred and fifty industrial sites on different continents and supplies its products to 200 countries of the world.

The portfolio of offers of the concern includes oil and natural gas, chemicals, plastics, specialty chemicals, agricultural and fine chemical products. The total number of employees of BASF is 95,000, and the volume of product sales of the concern in 2007 was 58 billion. made up the euro.

The company produces more than 8,000 products from primary raw materials such as oil, natural gas, sulfur and coal. A large amount of intermediate products are not thrown away, but are considered as raw materials for obtaining other industrial products. BASF's activity is carried out by obtaining raw materials and energy resources, various chemicals, agricultural products, consumer goods, including varnish, paint, information systems and medicine. Since 1985, BASF has focused on environmental protection, safety and health. began to implement measures. These may include:

- economic interest does not prevail over safety, health and environmental protection;
- production of ecologically safe products, their effective use and elimination of waste;
- minimal impact on the environment during production, transportation, and storage of products;

- providing assistance to consumers in the use of products;
- always develop science and technology to protect the environment and safety;

There are about 350 workshops in the Ludwigshafen site, where chemical products are produced in a complex manner. In them, samples are taken from 43 places of the inner and outer site for environmental control (air, noise, water quality, soil). BASF waste disposal uses a special plant in Europe, and 200,000 tons of waste are processed annually in 8 furnaces. Here are some examples of the company's experience in the field of catalytic chemistry and chemical technology.

The BASF company also produces catalysts for the oxidation of various exhaust gases. The use of such catalysts makes it possible to slightly reduce emissions into the atmosphere. In recent years, the company has been producing new catalysts that are used in waste treatment in many cities around the world.

The effective use of catalysts in the chemical industry is considered very effective, as they reduce energy costs and simultaneously increase the selectivity of processes. Currently, 80% of catalysts are used in various technological processes. The significant environmental impact of intermediates can be seen in the catalyst in the production of acrylic acid. Acrylic acid is effectively used in the production of dispersions, varnishes, superabsorbents and other products. As a result of research carried out in the last 25 years, the amount of unnecessary intermediate products has been reduced to 75%. The catalyst is also used effectively to obtain products for the desired purposes from the initial raw materials. The reduction of the amount of waste also reduces the energy consumption. Dichloroethane, an important semi-product in the production of vinyl chloride, is obtained by oxidation of ethylene in the presence of hydrochloric acid and air. This process leads to the formation of CO, chlorohydrocarbons. To reduce the amount of such gases, it is advisable to use oxygen as an oxidizer.

The water produced in the technological process is contaminated with organochlorine substances, and in order to reduce its impact on the environment, it was decided to install an additional regenerator in the column, which removes chlorine-capturing organic substances.

Cooling water was also used here, which was discharged into a pool near the port until the workshop was modernized. After carrying out the necessary engineering work, organic matter was completely prevented from entering the sea water.

Some work on production management was also carried out, and about 70 million marks were spent on it.

Thus, the BASF company has always paid special attention to environmental safety in the production of its products. This is a demonstration and confirmation of these

principles, and is the transition to the ISO 14001 certificate, in which the company focuses its activities on:

- optimization of consumption of natural resources;
- compliance with environmental norms;
- safe disposal of waste.

In addition to increasing the company's reputation and attracting new partners, the ISO-14001 certificate allows BASF to effectively conduct its activities and increase internal responsibility for environmental monitoring in the company.

Thus, Germany's sustainable development is explained by the interplay of ecology and economy.

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