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Environmental and Legal Regulation of the Handling of Chemicals

[1]Assiya Kuderina, [1]Ilyas Kuderin, [1]Bolat Aitimov, [1]Dana Nurbek, [1]Galymzhan Akhmet and [2]Indira Amreeva
[1]*Zhetysu University named after I. Zhansugurov, Taldykorgan, Kazakhstan*
[2]*Academy Kainar, Almaty, Republic of Kazakhstan*

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Corresponding Author:
Assiya Kuderina
Zhetysu University named after I. Zhansugurov, Taldykorgan, Republic of Kazakhstan

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Abstract: The implementation of a set of measures aimed at consistently reducing the negative impact of hazardous chemical factors on the population and the environment to an acceptable level of risk provides for the development and analysis of the experience of the European Union and its member States in the field of chemical management as well as the development of recommendations for improving legislation and other regulatory legal acts on environmental protection from chemical pollution. To this end, the article presents the rationale and conceptual approaches to the formation of legislation in the field of chemical safety within the framework of state policy. The most important aspect in the formation of legislation is the global nature of chemical safety problems, in this connection, the article points to the need to bring the law in this area closer to partners in economic cooperation and integration. Taking into account the focus of future laws on reducing the level of negative impact of hazardous chemicals on the population and the environment, the legal and political consequences of their implementation are outlined.

INTRODUCTION

The transformation of chemicals in real environmental conditions in terms of their resulting impact on human health and safety is an urgent but little studied problem of eco-analytical monitoring and regulatory regulation. Long-term studies of environmental objects conducted in various regions using modern methods of physical and chemical analysis show that the results of analysis of air, water and soil samples show a wide range of various chemicals that are not included in the technological emissions characteristic of these objects. Hundreds of organic compounds were found in urban air, indoor air, water and soil and in quantities that often exceed their maximum permissible concentrations. This is due to the fact that under the influence of natural and man-made physical and chemical factors, processes of transformation of substances occur which can lead to the formation of new compounds, often even more toxic and dangerous than the original ones[1].

The number of known chemicals is huge and continues to grow every year. Currently, the largest database of chemical compounds of the American chemical society CAS Registry contains information about 157 million unique organic and inorganic chemicals (including, in addition to individual substances, alloys, coordination compounds, minerals, mixtures, polymers and salts) (Chemical Abstracts Service)[2]. As for

pollutants, when discussing the problems of controlling chemical pollution of the environment, various data are provided on the amounts of pollutants: from 600 thousand chemical compounds registered in 1954, 12 million in 1992, to 16 million in 1998. At the same time, about 105 new organic compounds are synthesized annually[3]. However, a significant part of them are obtained in micro quantities and accordingly are not produced or used in industry. Among the substances that can enter the environment, a significant part is made up of organic compounds which can be potentially dangerous substances, since, they find practical application in industry and everyday life. At the same time, our country has developed only no >4.5 thousand hygiene standards for various chemicals: >2000 for normalizing their content in atmospheric air, about 2000 in water, 180 in soil. However, even such a relatively small amount of normalized substances is not sufficiently controlled due to the lack of official control methods. On the other hand, it is known that environmental objects are characterized by a multi-component composition of chemical pollution. However, the state system of eco-analytical monitoring of environmental quality controls only a limited number of substances selected without taking into account their actual content and the transformation processes occurring with them under the influence of natural and man-made physical and chemical factors[4]. The state of the environment including its individual components, in particular, atmospheric air, water bodies and soil in the industrial regions of the Russian Federation where a significant part of the population lives, remains unfavorable. More than 35% of surface sources of drinking water supply and >15% of underground sources do not meet the requirements for chemical safety due to the increased content of industrial pollutants in them[5]. According to the state eco-analytical monitoring, >50% of the urban population is exposed to polluted air. The list of cities in the Russian Federation with high air pollution and concentrations of certain substances exceeding 10 MPC includes >200 cities. Roshydromet publishes annual reports in which it determines the priority list of “dirty” cities based on the results of measurements. It changes slightly from year to year but in General it includes almost the same cities. For example, in 2011, the priority list of cities with very high levels of pollution in which the integrated air pollution index (ISA) reached above 14 included 27 cities[6]. At the same time, the state system of eco-analytical monitoring of pollution of various environmental objects is focused on monitoring only a limited list including, in particular, for monitoring urban air pollution, no >10 priority indicators and does not take into account the multi-component composition of pollutants and the processes of transformation occurring in the environment under the influence of natural and man-made physical and chemical factors. Thus, there is a need to fill the existing knowledge gap in this area which can be done by collecting and summarizing all currently available information about the unaccounted-for hazards of chemicals generated as a result of their transformation caused by natural and anthropogenic factors. Production of chemicals and products in Kazakhstan is divided by types as follows: inorganic chemical substances, basic and other; chemical substances, organic, basic and other; industrial gases; dyes and pigments; paints, varnishes and similar coatings, printing ink and mastic; Soaps and detergents, cleaning and polishing preparations; perfumes and cosmetics; pesticides and agrochemical and other products; plastics in primary forms; other chemical products not included in other groupings; fertilizers and nitrogen compounds[7].

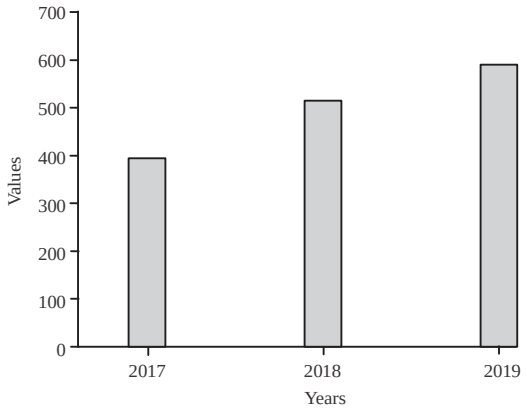

Fig. 1: The amount of chemical substances

Figure 1 shows the volume of production of chemicals and products for 2017-2019 compared to the year, tons.

At the beginning of 2019 produced 581 791 tonnes of chemical substances and products. The main inorganic chemicals have the largest production volume and make up 426,345 tons (73.2% of the total).

MATERIALS AND METHODS

The study used methods of comparison included observation, generalization and analysis. This made it possible to obtain concrete results and draw conclusions based on General methods of scientific knowledge of social reality and private methods, namely, comparative legal, logical, statistical, system-structural. The formulation and justification of theoretical provisions, practical recommendations and conclusions are carried out using proven research methods used in the sciences of constitutional, administrative, civil, environmental law as well as in the Sciences of European, international law and comparative law, ecology, philosophy, Economics, sociology and statistics.

Legal regulation of the handling of chemicals: Legal regulation of the handling of potentially dangerous chemicals and materials is a significant area of legal protection of the environment. Currently, the Kazakhstan market has a large number (about 600 thousand) of chemicals while their range is constantly increasing[8].

Such substances are used in various fields of economic activity, in particular in industry, agriculture, energy, defense and other areas. These include agrochemicals (fertilizers and pesticides), ozone-destroying substances and materials and dangerous chemicals that are used in defense and other fields.

Chemicals at different stages (stages) of circulation can have a negative impact on the environment. Requirements for the handling of specific hazardous chemicals and materials are set out in special international documents, laws, Government regulations and departmental regulations. In Europe, as well as around the world, we have long been concerned about the environmental situation on the planet. Therefore, the goal of most EU countries is to encourage the introduction of advanced innovative technologies and techniques to ensure a high level of consumer and environmental protection and to assist in the search for alternative methods for assessing the risk of substances on the domestic market. Based on this, on 29 October 2003, the European Commission accepted for consideration a proposal for a new system for regulating the production and use of chemicals. REACH project (Registration, Evaluation and authorization of chemicals-registration, Assessment and Authorization for the production and use of Chemicals), aimed at improving the protection of human health and the environment while enhancing the competitiveness of the European chemical industry is the fruit of many years of negotiations between the European Parliament, Member States represented by the Council of Ministers and the European Commission with the bill being the focus of intense lobbying of economic and commercial interests on behalf of industry as well as in the support of non-governmental organizations, advocates for the interests of consumers and the environment. In the process of developing the REACH system, the relevant provisions of a number of international agreements and programs were taken into account, in particular: the OECD programme on substances produced in large quantities (1990); the Geneva Convention (1979) on long-range transboundary air pollution; the Rotterdam Convention (1998) on trade in hazardous substances; the Stockholm Convention (2001) on persistent organic pollutants; the UNECE system of classification and labelling of chemicals, harmonized at the global level and first published in 2003, revised and supplemented in 2005[9]. In the Republic of Kazakhstan, the laws "environmental code" and "on the safety of chemical products" establish General requirements in the field of environmental protection when handling chemicals.

Thus, according to the Kazakhstan law "environmental code", operations for the production and use of potentially dangerous chemicals must ensure that: compliance with the established standards of maximum permissible environmental impact during production, storage, transportation and use.

Implementation of measures to prevent harmful consequences of their use for public health and the environment.

Production and import of products containing persistent organic pollutants or resulting in the formation of persistent organic pollutants provided for by international treaties of the Republic of Kazakhstan are Prohibited. Production and use of chemicals defined by international treaties of the Republic of Kazakhstan are restricted. Persistent organic pollutants must be destroyed in an environmentally friendly manner.

It is prohibited to use technologies for the destruction of persistent organic pollutants and chlorine-containing waste without comprehensive treatment of waste gases. At the same time, the complex treatment of waste gases should ensure the content of dioxins and furans in the treated waste gases in concentrations not >0.1 ng m^{-3}.

The use of persistent organic pollutants is prohibited in places associated with the production and processing of food or feed.

From the analysis of Kazakhstan's legislation, the following stages (stages) of handling chemicals can be distinguished: research (testing, examination); production; use (application), transportation, storage, disposal (disposal)[10].

Let's look at them in more detail. Research (testing, examination) of chemicals. Research (testing, examination) of chemicals is an important preventive stage and means of managing their handling, in particular, related to their creation. At this stage, all necessary information about the impact of chemicals on the environment and human health is identified. This information provides the basis for making a decision on the possibility of allowing products consisting of chemicals and materials to be produced, transported, purchased, stored, sold and used (used) which must be taken in order to handle them in an environmentally friendly manner.

In accordance with article 18 of the Law of the Republic of Kazakhstan dated December 4, 2002 No. 361-II On sanitary and epidemiological welfare of the population, the production and handling of potentially dangerous chemicals is allowed on the territory of the Republic of Kazakhstan after conducting the necessary Toxicological, hygienic and toxicological studies of these substances, establishing the procedure for handling them,

environmental regulations and state registration of these substances in accordance with the legislation of the Republic of Kazakhstan. This provision of the law introduces a number of requirements and measures for chemicals before their circulation is allowed on the territory of the Republic of Kazakhstan[11].

Toxicological-hygienic and ecological-toxicological research, hygiene regulations, hygiene and environmental standards are developed by relevant specialized institutions and organizations accredited for these purposes by the Ministry of Health and Social Development of the Republic of Kazakhstan (regarding the safety of substances for human health) and the Ministry of Ecology, Geology and natural resources of the Republic of Kazakhstan (regarding the safety of substances for the environment), as well as taking into account measures of individual and collective protection of human health and the environment in the production and use (use) of potentially dangerous chemicals.

In addition, according to this law, the following types of research can be carried out: expertise, investigations, examinations, tests and Toxicological, hygienic and other types of assessments. The procedure for conducting sanitary and epidemiological examinations, investigations, surveys, studies, tests and toxicological, hygienic and other types of assessments is established by the Federal Executive body authorized to carry out state sanitary and epidemiological supervision the sanitary and epidemiological service of the Republic of Kazakhstan. Sanitary and epidemiological examinations and investigations, surveys, studies, tests and Toxicological, hygienic and other types of assessments are carried out in order to establish compliance (non-compliance) with the sanitary rules of products (chemicals and materials) imported into the territory of the Republic of Kazakhstan and intended for sale to the population as well as for use in industry, agriculture, civil construction, transport, in the process of which direct human participation is required which should not have a harmful effect on humans and the environment (environment) and is allowed to be imported into the territory of the Republic of Kazakhstan in the presence of sanitary and epidemiological conclusions issued in accordance with the established procedure by the chief state sanitary doctors.

Sanitary and epidemiological conclusions are issued for the following products: food products; goods for children (artificial polymer and synthetic materials for the manufacture of children's products); materials, equipment, substances, devices used in the field of household drinking water supply and wastewater treatment, in swimming pools with the exception of materials, substances; chemical and petrochemical products for industrial purposes, household chemicals; polymer and synthetic materials intended for use in construction, transport as well as for the manufacture of furniture and other household items; products of mechanical engineering and instrumentation for industrial, medical and household purposes, except for spare parts for vehicles and household appliances (except those in contact with drinking water and food); pesticides and agrochemicals; materials, products and equipment in contact with food; anti-ice reagents[12].

Foreign legislation on the handling of chemicals: Both international law and foreign legislation regulating requirements for chemicals are extremely extensive, heterogeneous, systemically complex and very difficult to master for the purpose of their subsequent analysis and possible use in the Russian Federation. In principle, I must say that to date, the situation in this area of legal regulation is quite difficult. It is characterized by such moments: the existence of international law on certain types of chemicals, for example, ozone-depleting substances the absence of General rules recognized by the international community on the handling of many types of chemicals including dangerous ones; the need for clear regulation of the most stringent requirements for the production, import and other handling of chemicals the lack of proven methods and requirements agreed between individual countries to ensure the safe handling of chemicals in order to protect human health and the environment; discrepancies in the system and the structure of the sources of law governing the chemicals, even within a relatively uniform legal systems (for example, within the EU, there are still separate conflicts between provisions in directives and national legislation of the countries members of the Union, not only regarding the definition the concept of "chemical substance", their classification, prohibitions of entry into circulationcertain substances that are particularly dangerous from an environmental or health point of view but also in connection with the introduction of certain restrictions, obligations of producers and importers, necessary control measures and perhaps most importantly, methods for calculating risks resulting from the admission of new chemicals to the market or the reduction of the use of old chemicals); when comparing with the system and structure of Russianlegislation on chemicals, it should be noted that in the EU and itsmember countries, on the one hand, there are more or lessless codified (or special) acts onchemicals in General-directives at the EU level, laws-at the levelof EU member States. But on the other hand, there are also separate actsregulating the handling of pesticides and agrochemicals.

Finally, in international law, in European law and innational foreign legislation on the handling ofchemicals, many specific requirements are contained as well as inRussian legislation, in General acts, i.e., laws on the handling of chemicals. Environmental protection or in acts on the protection of air, water and soil (analogs ofthe

Russian Environmental code in the Russian Federation, the Land code in the Russian Federation, the Forest code in the Russian Federation and so on).

All this, in our opinion, requires at least a brief description of the main acts of international law and foreign legislation in the field of chemical management, taking into account the volume of this dissertation research.

The European Community has been and still is an engine in the development of the Institute of legal regulation in the field of chemicals management, both at the European level and in individual EU member States including Germany. More than 40 years ago, on August 16, 1967, the European Economic Community issued a Directive with a very characteristic title "on the classification, packaging and designation of dangerous substances". The main purpose of this act was to facilitate trade activities related to chemicals in European countries and to unify the dangerous characteristics of these substances. Later, the Directive further regulated special safety measures and procedures, i.e., registration and verification of new substances introduced into circulation. This resulted in a fundamental division of chemicals into old and new substances. For new substances, a legal tool for assessing their risk was introduced. Old substances could be on the market indefinitely but subject to a special condition, that is, until the state deems it necessary to introduce certain restrictions on their turnover-up to a ban. As a result of this decision, there were no European regulations for substances already on the market (old substances) and the regulation of their handling was assigned not to the pan European but to the national competence of the EU member States. Therefore, in 1982, Germany created its "Council on old substances that affect the environment". This Council has issued 251 reports on 335 hazardous substances over the past 25 years. At the same time, there were about 100,000 of them in the European register for old substances. It became clear that each individual EU member state is not able to independently achieve the same quantity and quality assessment of old substances. Therefore, in 1993 The EU has issued a Regulation on the substance assessment system. In a systemically organized process, EU member States had to investigate the health and environmental risks that could be caused by handling about 2,500 of the most important substances and set up special structures responsible for assessing these types of risks. In Germany, for example, the Federal office for labor protection and occupational medicine became responsible for registration and the European chemicals office in Ypres became responsible for coordinating work in the EC. The 5 years after the entry into force of this Regulation, the European Community was forced to draw a disappointing conclusion: only 20 substances were evaluated at the time[13]. It has become necessary to change the overall approach to this problem and create a new strategy for regulating the handling of chemicals[14].

The main principles of the new strategy are: creation of a unified system for registration, verification and admission to circulation (turnover) for both old and new substances) chemicals; setting registration deadlines for all old substances; introducing industry responsibility for taking safety measures when handling chemicals; replacing hazardous chemicals with alternative safe chemicals. The new strategy resulted in European community Regulation no 1907/2006 of 30 December 2006. "On registration, evaluation, admission and restriction of chemicals" (Registration, Evaluation, authorization and Restriction of Chemical (REACH-VO). This EC Regulation is still in effect to this day and is one of the main sources of law governing the handling of chemicals in Germany and other member States of the Union[15].

The leading role of EU regulations is based on the fundamental principles of the Community. According to article 249 para. 1 of the Treaty establishing the European Community, the Regulation of the European Community does not require transformation into national law and is directly applicable in all EU countries. Thereby is achieved a uniform legal regulation on the whole space of the EU. This goal is also achieved in the field of chemical management.

From a substantive point of view, European community Regulation No. 1907/2006 serves as its name implies, to establish uniform requirements for the registration, assessment, admission and restriction of the circulation of chemicals. The regulation is based on the principle of "industrial independence" and the resulting responsibility of industry for the production and distribution of chemicals (preamble to the EU Regulation, paragraphs 16, 18, 25 and article 1). In other words, this means that the industry itself must ensure that the EU and its member States receive the most complete information about chemicals including their quantities, names, properties, etc. Only by assigning this responsibility to industry will the EU and its member States be able to obtain all the necessary information for the registration, assessment, admission and restriction of chemicals. All attempts by the EU or EU member States to solve this problem on their own were (as noted above) extremely unsuccessful. Analyzing foreign legislation, European environmental experts rightly consider the German Law "on protection from dangerous substances" to be one of the most clearly formulated acts[16].

It is also a clear example of the optimal integration of EU requirements into national legislation, carried out systematically, consistently, fully and effectively. The act serves to translate into national legislation seven European community directives, namely directives:

2001/95/EC on General Product Safety (GPSD). The directives not only oblige them to be translated into national law but also serve as a framework for the judicial and executive authorities to interpret a particular provision of German law. If the state does not have time to transform the Directive within a certain period of time or does it in bad faith, it may be liable if this violation causes damage to certain persons. In the conflict of such goods as man and the environment, preference is ultimately given to man as "past purgatory" and "standing at the center of the universe" (the anthropocentric point of view)[17].

Environmental management in the field of management of chemical substances: The basis of the state policy in the field of environmental protection from chemical pollution is the improvement and strengthening of the Institute of chemical safety, the activation of state functions that regulate the consistent reduction of the negative impact of various factors on chemical safety. Effective protection of the environment from the negative effects of chemicals as a system of legal and organizational mechanisms cannot be achieved without proper state environmental management. Analysis of legislation and law enforcement practice shows that only by conducting reforms of the system of state environmental control as well as changes to existing environmental legislation cannot solve the problems of Kazakhstan in the issues of chemical safety and improve the environment[18].

As a result of these changes, the state environmental management system still does not provide a sufficient level of management efficiency in the field of chemical safety and environmental protection. The ongoing administrative reform has not yet led to the optimization of public administration in this area. In this regard, it is advisable to further discuss ways to optimize the system of public administration in the field of chemical safety. In order to optimize the state environmental management in the field of chemical management, it is necessary to authorize one of the Federal executive authorities to carry out state environmental expertise of chemicals as an object that is important for solving Federal issues (including regulatory issues) and Federal state control in the field of chemical safety. At the same time, it is necessary to establish a clear procedure for distinguishing objects of state environmental control between Kazakhstan and its subjects by amending the law of the Republic of Kazakhstan dated March 18, 1997 No. 85 "on environmental expertise" (On environmental expertise)[19].

Since, environmental protection in accordance with article 72 of the Constitution of the Republic of Kazakhstan is a subject of joint responsibility of the Republic of Kazakhstan and its subjects, the subjects of the Republic of Kazakhstan have their own competence in the field of chemical safety and assume responsibility, within their competence, to ensure chemical safety at the regional level[20]. The powers of state authorities of the Republic of Kazakhstan and subjects of the Republic of Kazakhstan are established by the Environmental code. the powers Of state environmental management bodies are not a permanent, unchangeable category. The powers of the Republic of Kazakhstan and the subjects of the Republic of Kazakhstan may be redistributed in the following ways:

- Conclusion of agreements on the division of powers
- Conclusion of agreements on the transfer of the existing part of the powers

The transfer of some of the responsibilities in the field of chemical safety can contribute to a more rapid and effective response to threats arising from the impact of hazardous chemicals on the environment. In the Republic of Kazakhstan, at the level of subjects of legislative initiative, in the doctrine and among the public, active discussions are constantly being held on the system of state Executive authorities on improving the system of state environmental management and control in the field of environmental protection, ensuring effective interaction between Federal Executive authorities and Executive authorities of the subjects of the Republic of Kazakhstan .It is also proposed to concentrate the organization and implementation of state environmental control and supervision in the field of handling chemicals and ensuring chemical safety in one state body under the jurisdiction of the Republic's Ministry which performs the functions of developing and implementing state policy and regulatory legal regulation in this area. Many experts justified the proposal to create a new state Executive body-the Committee for environmental regulation and control whose main functions will include-among others.

Implementation of the unified state policy in the field of chemical safety. Organization of state environmental expertise; regulation of the quality and level of permissible impact on the environment and licensing activities in this area; assessment of the ecological state of territories; providing public authorities and citizens with reliable information about the state of the environment.

The proposed set of organizational measures to improve the system of state environmental management in the field of chemical safety involves the redistribution of powers in the field of environmental protection between the Ministry of ecology, Geology and natural resources of the Republic of Kazakhstan, the environmental supervision and the created environmental regulation and control and at the same time assigning it

certain functions of state management in the field of chemical safety which were not adequately reflected in the regulations on state Executive bodies[21].

Interaction of the unified state Executive authority with similar bodies in the Republic of Kazakhstan will significantly improve the effectiveness of the General state environmental management and create an integrated state system of management and control in the field of chemical safety.

In Kazakhstan, there are about 211 organizations of Supervisory (control) bodies in the field of chemical safety which of course, need to be equipped with controls, modern equipment and consumables in order to monitor the state of public health and the environment. A decrease in the overall level of professional training of technical and maintenance personnel can be one of the key reasons for violating the rules and procedures for ensuring the physical protection of hazardous facilities for the production, storage and other handling and disposal of hazardous chemicals[22].

Here, we should give another argument in favor of creating a special Agency. As we know from long and sad experience, the lack of proper coordination and duplication of individual activities of state Executive bodies in any management area and ensuring chemical safety is no exception leads to national and inefficient spending of Federal budget funds.

Another problem that needs to be solved is information support. Special attention should be paid to the fact that the absence of development of integrated automated data banks, chemical threats do not allow for effective planning of comprehensive measures to counter such threats. This reduces the effectiveness of state environmental management in ensuring the chemical safety of the population, other environmental objects, its components protected by law (property, rights and freedoms, etc.) in the face of increasing chemical threats. A tragic example: an accident at the fire safety tests of a nuclear submarine which resulted in the death of many people from freon-an inert gas, i.e., a dangerous chemical substance. It is necessary to revive the municipal administration in the field of chemical safety. In particular, Executive environmental control over local objects should be restored. Without control powers in the field of chemical management, local governments cannot implement effective environmental policies at the local level and are not responsible to citizens for the environmental situation in this area in municipalities.

Thus, the study of the problem of environmental management in the field of environmental protection from chemical pollution has revealed a whole range of situations that require immediate solutions. At the same time, some of them are generated by objective organizational and legal difficulties associated with the complexity of the object of management activity while some are mainly the result of subjective factors. The former include the variety of applications of chemicals (and hazardous chemicals), their volumes, difficulties in identifying potential risks and so on. The second category includes frequently changing public administration structures, constantly redistributed functions (and competence) of specially authorized state environmental management bodies and contradictions between the interests of government bodies at the levels of state and local self-government entities. This is typical not only for the topics covered in this paper. However, identifying specific negative consequences of an improperly functioning management system in the field of environmental protection from chemical pollution requires, in our opinion, the adoption of such measures as the creation of a specially authorized body the level of either the sanitary and epidemiological service of the Republic of Kazakhstan (which will be more effective) or the Committee for environmental regulation and control (which will solve at least some of the issues with the exception of control, supervision and some others).

In addition, in our opinion, is urgently required to solve the issue of the transfer of powers in the field of chemical safety entities of the RK, it may contribute to more rapid and effective response to threats arising from the production and effects of chemicals on the environment (on the model of competence in the field of emergency situations, etc.). Finally, it is equally important to address the question of information support of environmental management in this segment, i.e., the creation of a modern infrastructure.

RESULTS AND DISCUSSION

This research paper reflects the development of legislation on the handling of chemicals over the past 3 years. At the same time, not only trends in changes in Kazakhstan's legislation are indicated but also those changes that have occurred in international environmental law and in Foreign legislation, primarily the EU and the most important partner of Kazakhstan, Germany and other EU member States. The result of the study also consists in a critical analysis of the provisions of the Kazakh legislation and making additional arguments to the proposal made in the environmental law of the Republic of Kazakhstan on the need to adopt the state government law "on the handling of chemicals". In addition, the paper highlights the issues of effective application of such legal instruments as registration, admission and risk assessment in the handling of chemicals that have not been sufficiently studied before as well as updates the information available to specialists on the features of standardization, control and responsibility in the handling of chemicals, the specifics of prohibitions and restrictions. If the main results of research work are used in practice, the indicator norm of chemicals looks like this (Table 1).

Table 1: The main results of research work

Name of the indicator	Norm for the hazard class			
	I	II	III	IV
MPC of harmful substances in the air of the working area (mg m^{-3})	<0.1	0,1-1,0	1,1-10,0	>10.0
Average lethal dose (LD50) when administered to the stomach, mg per 1 kg of body weight	<15	15-150	151-5000	>5000
Average lethal dose when applied to the skin, mg per 1 kg of body weight	<100	100-500	501-2500	>2500
Average lethal concentration in the air (mg m^{-3})	<500	500-5000	5001-50 000	>50,000
Coefficient of possibility of inhalation poisoning (KVIO)	<300	30-300	29-3	>3
Zone of acute action	<6,0	6,0-18,0	18,1-54,0	>54,0
Zone of chronic action	<2,5	4,9-2,5	10,0-5,0	>10,0

CONCLUSION

Having conducted a comprehensive analysis of the entire set of regulatory legal acts in the field of chemical management and related legislation directly or indirectly related to the area we are studying as well as having studied the experience of countries that have built an effective system for managing chemicals, we believe it is possible to draw the following conclusions.

In Central Asia the legal regulation of the treatment of chemical substances is unsatisfactory in many parameters. In particular, there is no legislative act of proper legal force, that is, the state law “on the handling of chemicals”. As a result, there is not only a significant gap at the level of state legislation but also instability, mosaic and gaps in bylaws.

The Current situation in the field of handling chemicals indicates an urgent need for the adoption of a special law “on handling chemicals” or the introduction of a corresponding section on handling chemicals in the Environmental code of Central Asia. At the same time, the establishment of criteria for the classification of chemicals, requirements for their safe handling and measures to reduce risks should comply as much as possible with the requirements of international law and take into account the experience of the European Union.

Analysis of legislative and other regulatory legal acts has revealed the need for a clear distinction between mandatory restrictions and prohibitions on the production, use (use), storage and other handling of chemicals and individual administrative acts that restrict or prohibit the introduction into circulation of a specific chemical, or a chemical produced in inappropriate quantities (imported from the state but not received the appropriate permission), at a prohibited time or in a prohibited place, or using “dirty” technologies.

Analysis of legal liability measures for violation of the rules and requirements in the field of chemical management show that chemical substances act as tools and means of committing offenses or-in relation to environmental and other crimes-as the subject of a crime or administrative offense. This should be taken into account both when qualifying violations of the law and when distinguishing related elements of environmental and other crimes, crimes and administrative offenses as well as when making proposals to amend and Supplement the articles of the criminal code and the code of administrative offenses.

To date in this sphere of legal regulation resulted in a rather difficult situation. It is characterized by such moments: the existence of international law on certain types of chemicals, for example, ozone-depleting substances the absence of General rules recognized by the international community on the handling of many types of chemicals, including dangerous ones; the need for clear regulation of the most stringent requirements for the production, import and other handling of chemicals the lack of proven methods and requirements agreed between individual countries to ensure the safe handling of chemicals in order to protect human health and the environment; differences in the system and structure of sources of law governing the handling of chemicals, even within relatively uniform legal systems: within the EU, there are still some contradictions between the provisions of directives and national legislation of countries members of the Union not only about the definition of the term “chemical”, their classification, prohibitions on the introduction of certain substances that are particularly dangerous from an environmental or health point of view but also in connection with the introduction of certain restrictions, obligations of producers and importers, necessary control measures and, perhaps most importantly, methods for calculating risks resulting from the admission of new chemicals to the market or the reduction of the use of old chemicals.

Analysis of international and foreign legislation shows that it is necessary to harmonize not only the legal instruments for handling chemicals but also the means of their effective use in accordance with international practice. Here, the priority tasks are to coordinate risk assessments, bring standards into compliance, develop hazard indicators and so on. At the same time, such measures in the case of the application of these legal

instruments have a pronounced environmental and administrative character but at the stages of handling chemicals they are characterized as complex, combining a variety of legal means from environmental to civil and even criminal law. This requires taking into account the complex relationships between individual legal instruments and the stages of chemical management. Thus, control as a total legal instrument is used at all stages without exception and registration is used only at the initial stages of putting a chemical into circulation.

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