

Chemical industry



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Dear Reader,
It is my great pleasure to introduce you to our new publication about attractive sectors of Ukraine, made in partnership with Deloitte.

We developed these brochures to make information about sectors of Ukraine accessible and easy to understand. The booklets provide analysis of economic attractiveness, as well as comparative characteristics and undiscovered opportunities.

Ukraine enjoys a long industrial tradition, robust transportation and technical infrastructure, rich natural resources, strong secondary and tertiary education, a broad network of research and development institutes, and a large pool of technically skilled labor. As a WTO member since 2008 and having signed International Agreements for the Avoidance of Double Taxation with 63 countries, Ukraine is a fair player in the business world, a transparent and predictable partner.

InvestUkraine offers individual support to investors and is here to assist potential investors with setting up production in Ukraine. We offer professional support in obtaining information and analysis, legal advice, site visits, site selection services, assistance in communication with local authorities, and an aftercare program.

I encourage you to consider Ukraine as a place for your future business and discover all the benefits of locating your company's operations in our country.

I look forward to welcoming you in Ukraine.

Sergiy Yevtushenko,
Head
InvestUkraine
State Agency for Investment and
National Projects of Ukraine



A favorable geographic position, vast consumer market, ample resources and high level of education – all these factors ensure great investment potential for the economy of Ukraine.

At present, Ukrainian market is at the development stage. There are many niches and opportunities for introducing new players and strengthening the positions of existing ones. However, most of Ukraine's industries lack investments, though international investors are highly interested in them. We believe that foreign investments will be very successful and promote economic growth if a favorable investment climate is created in Ukraine.

To assist you in determining the most promising areas to invest in and get an insight into Ukrainian market, Deloitte experts in cooperation with InvestUkraine have conducted this research.

We hope that this overview will be useful and interesting for all companies interested in investing in various industries of our country.

Vladimir Vakht,
Managing Partner
Deloitte

Table of contents

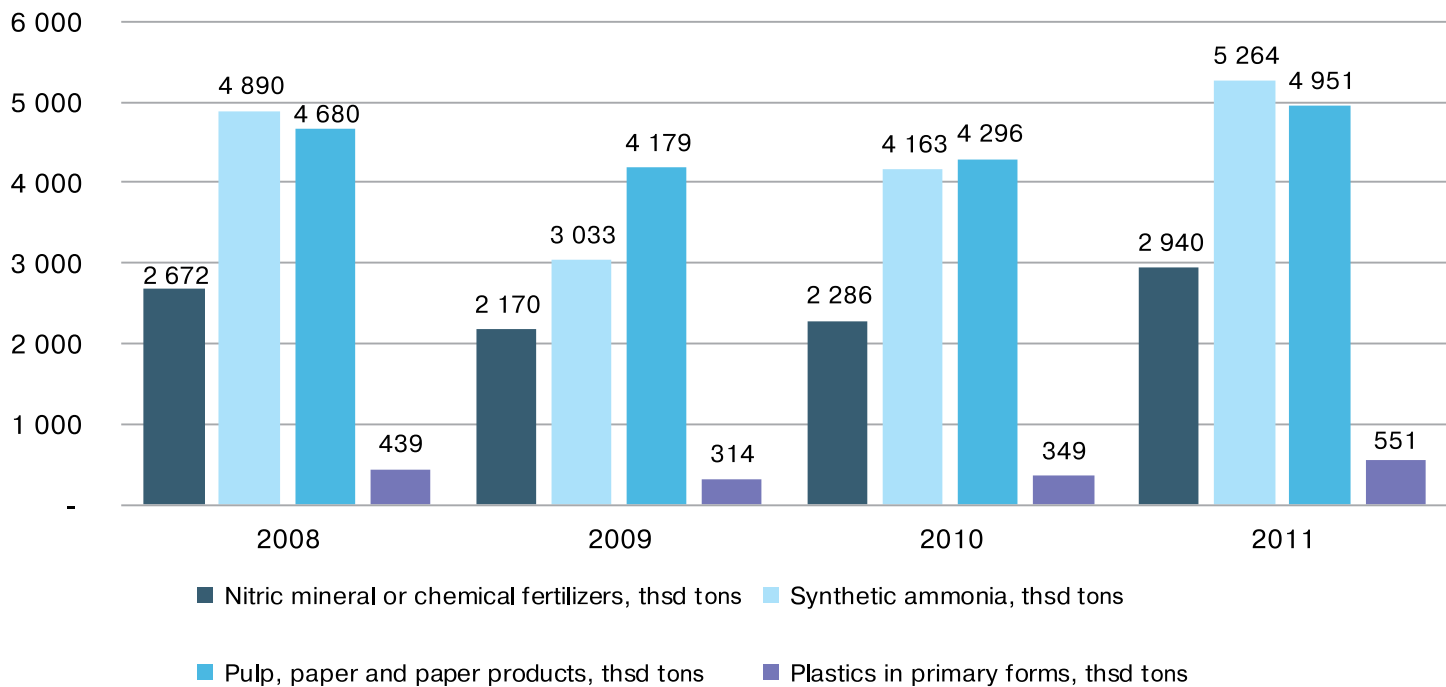
1. Executive summary	5
2. Industry overview	8
3. Trends and developments	14
4. Leading players	16
5. Legislation	19
6. Organizations and associations	20
7. List of references	20

1. Executive summary

Chemical industry is one of the principal sectors of the Ukrainian economy. It has more than 200 associations and enterprises, producing more than 20 thsd major and 100 thsd auxiliary chemical products.

As can be seen from the graph below, output of basic chemistry products has been rising during 2010-2011 after decrease in 2009. In 2011 production of synthetic ammonia and chemical fertilizers increased by 26% and 29% respectively, while production of plastics in primary forms and of pulp, paper and paper products rose by 15% and 58% y-o-y respectively, compared to 2010.

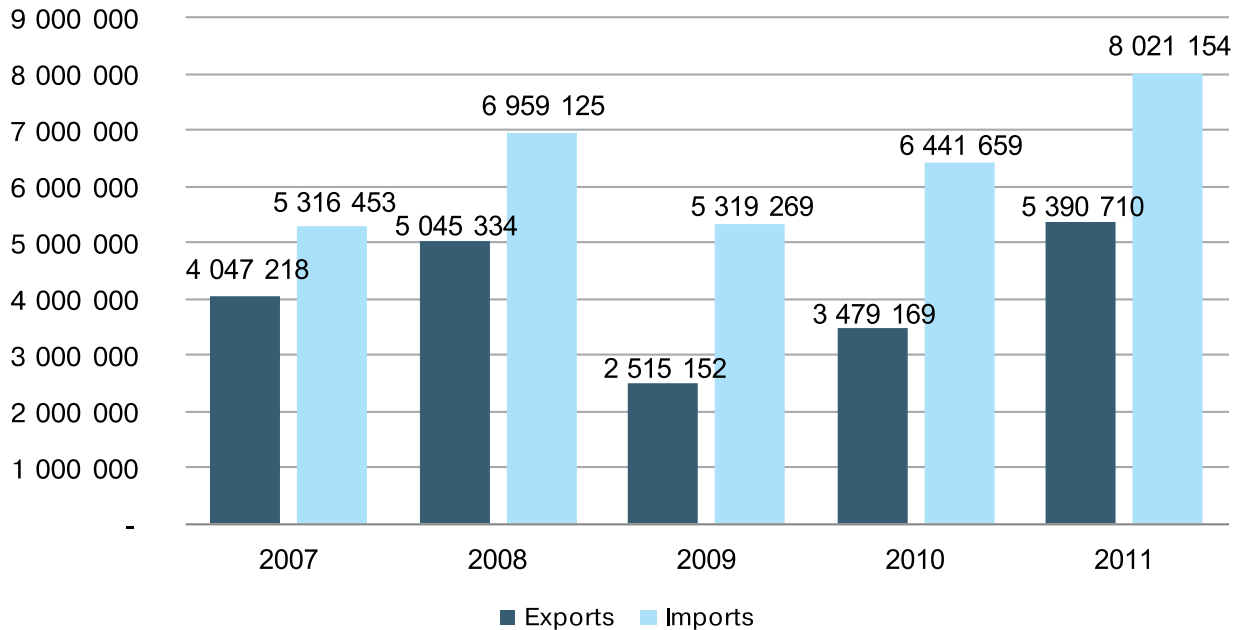
Dynamics of basic chemistry products output in 2008-2011, thsd tons



Source: ukrstat.gov.ua.

According to the data of the State Statistics Committee the share of chemical and allied industries products in the structure of Ukrainian exports in 2011 comprised 7.9%.

Dynamics of products of chemical and allied industries exports and imports in 2007-2011, thsd USD



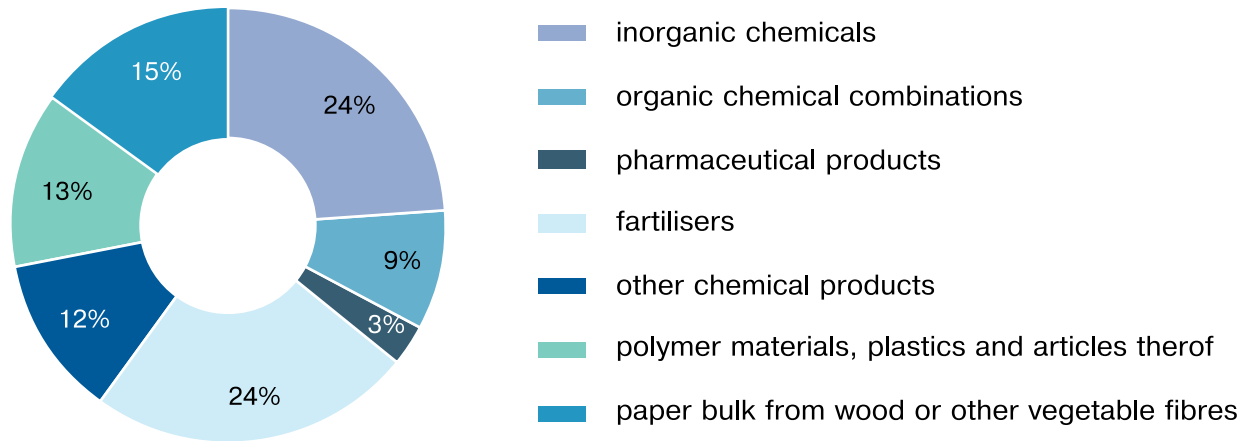
Source: ukrstat.gov.ua.

As can be seen from the graph, above there was a significant decrease of chemical industry exports in 2009-2010 compared to the previous years.

Due to the fact that Ukrainian chemical industry is export-oriented (in 2008 29% of produced ammonia, 35% of ammonium nitrate, 87% of urea, 52% of soda ash, 86% of titanium dioxide and 40% of tires were exported), industry's condition consider-

ably depends on the global market conjuncture. The reason for significant exports reduction of Ukrainian chemical products in 2008-2009 was unfavourable external market conjuncture. In 2009 the largest exports decline was seen in the segments of ammonia (86% decline) and ammonium nitrate (62% decline), due to high production costs (due to gas component) and, consequently, low price competitiveness on the global market.

Structure of chemical industry exports in 2011, %

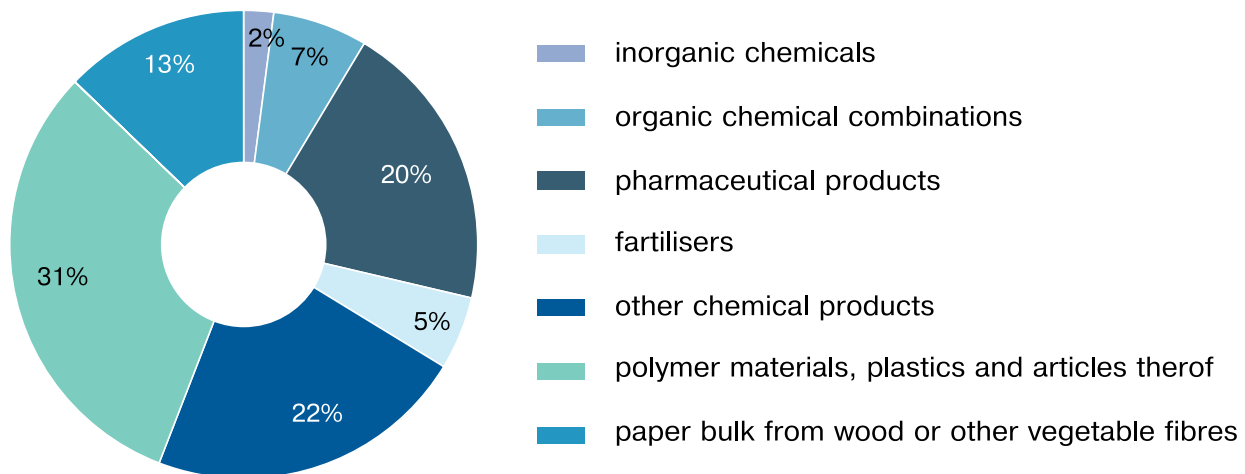


Source: ukrstat.gov.ua.

According to the data of the State Statistics Committee, the share of fertilisers in the structure of chemical industry exports in 2011 comprised 24%. Mineral fertilizers and ammonia have been strategic staple

of Ukrainian exports for a long time. Ukraine is one of the top exporters of nitric mineral fertilizers in the world.

Structure of chemical industry imports in 2011, %



Source: ukrstat.gov.ua.

Key import products in 2011 were polymer materials, plastics and articles thereof (31% in imports volume) and pharmaceutical products (20%). Considering lack of own raw materials for polymeric output, development of processing production facilities is the only way of import substitution.

2. Industry overview

The chemical industry develops and produces a widest variety of products. On one hand the chemical industry produces primary products for other industries such as polymer processing. On the other

2.1. Output and consumption trends

2.1.1. Fertilizers production

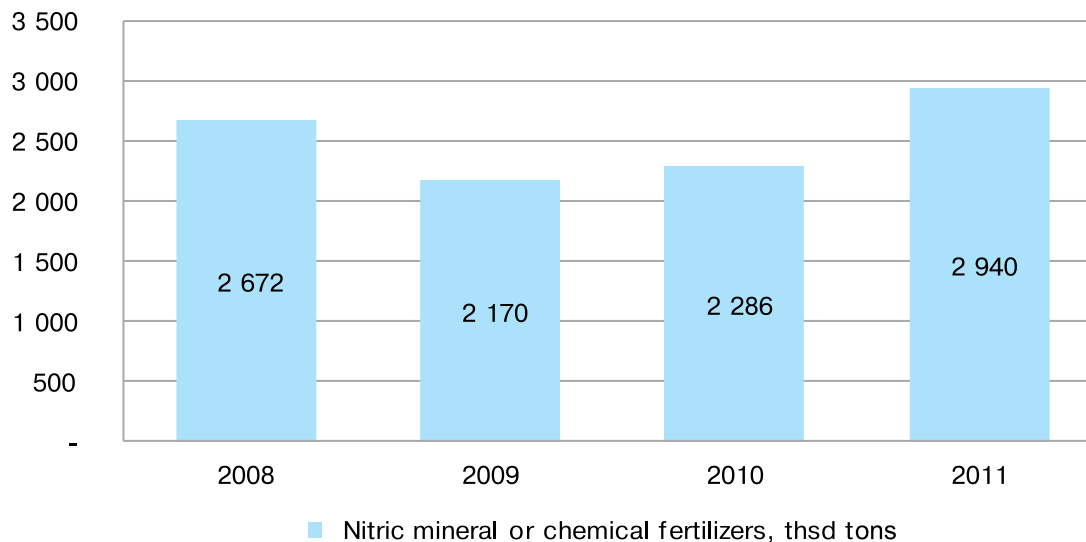
Fertilizer production in Ukraine is represented by nitrogenous, potash, and phosphate fertilizers. The basis of Ukrainian chemical industry is nitrogen companies that produce ammonia and mineral fertilizers.

The chemical industry as a whole remains heavily exposed to economic cycles and pretty much all of the industry's underperformance of the last few years can be put down to the economic turmoil. The global economic meltdown led to a weak industrial demand for chemicals, which led to significant regional and global production overstock, resulting in a dramatic fall in operating profits across the world.

hand, chemical finished products are being used in the food and pharmaceutical industry, in environmental protection or cosmetics industry.

According to the State Statistics Committee, fertilizers production in 2011 has increased by 29% in comparison to 2010 and reached 2,940 thsd tons.

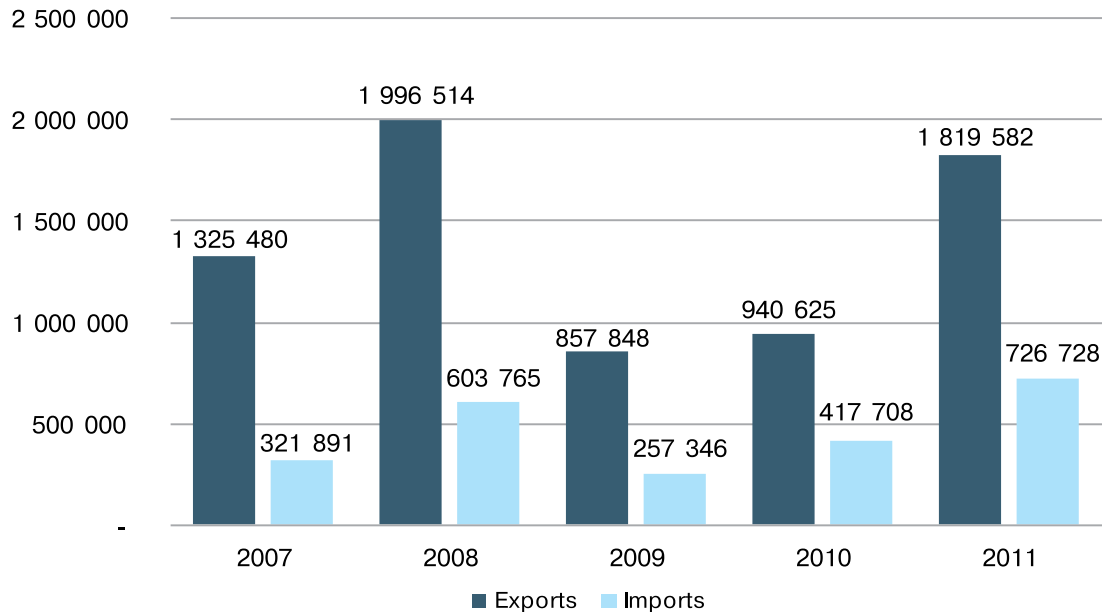
Dynamics of fertilizers production in 2008-2011, thsd tons



Source: ukrstat.gov.ua.

Naturally, Ukraine is not able to consume the entire volume of fertilizers produced. Almost all of the urea is exported. A large percentage of ammonium nitrate is also exported; the rest of fertilizers are being actively sold on the domestic market.

Dynamics of fertilizers exports and imports in 2007-2011, thsd USD



Source: ukrstat.gov.ua.

2.1.2. Petrochemistry

Ukrainian benzene market

In 2011, Ukraine produced 131,098 t of benzene with purity above 95%, nearly 21,000 t more than in 2010. The increase in output was made possible by Karpat-

neftekhim's renewed production and maintenance of plants belonging to Ukratnafta.

Ukrainian polyvinylchloride (PVC) market

The Ukrainian polyvinylchloride (PVC) production increased sharply in 2011 following the start-up of the new PVC plant in Kalush by Karpatneftekhim. In 2011 consumption of PVC in Ukraine increased by 38% y-o-y. In order to support domestic production, the Ukrainian government has decided to impose 5% duty of customs value on imported PVC. This measure is designed to support the domestic producer of PVC.

Imports of PVC have declined since the start-up of the Karpatneftekhim, but still remain an important part of the Ukrainian market. In the long term, Karpatneftekhim plans to increase its market share at the expense of imported material.

Polystyrene market

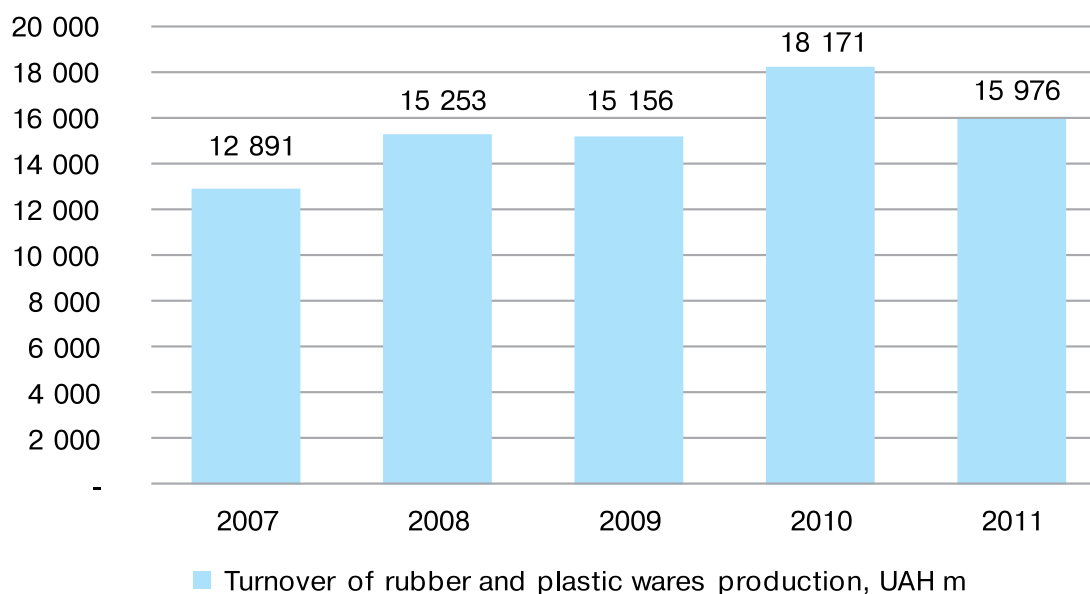
From 2005 through 2008, polystyrene consumption in Ukraine grew fairly rapidly. Thus, the rate of growth in 2006 was 14%, in 2007 nearly 17% and in 2008 it was 11%. The following year marked a significant downturn in the construction industry; in view

of this the use of polystyrene as a basic insulation element for structures fell by 13%. In 2010 there has been some recovery in demand, characterized by 7% y-o-y growth.

Petrochemical end-products market

As can be seen from the graph, turnover of rubber and plastic wares production has decreased by 12% in 2011 compared to 2010 and reached UAH 15,976 m.

Dynamics of turnover of rubber and plastic wares production in 2007-2011, m UAH

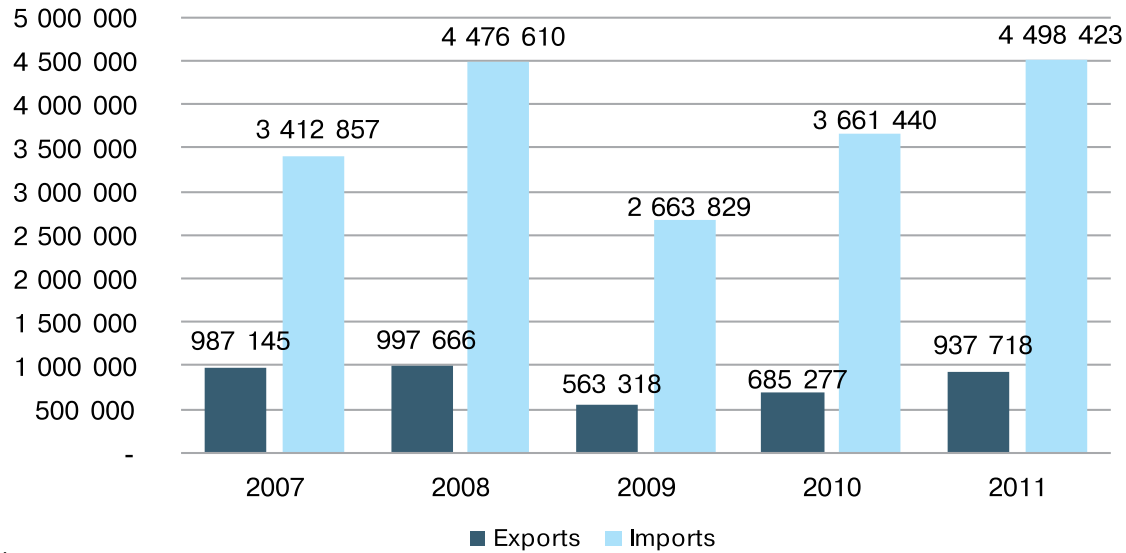


Source: ukrstat.gov.ua.

Polymer materials are key import products of Ukrainian chemical market. The graph shows, that after the significant decrease in 2009, the volume

of polymer materials imports was increasing rapidly in 2010-2011.

Dynamics of polymer materials, plastics and articles thereof exports and imports in 2007-2011, thsd USD

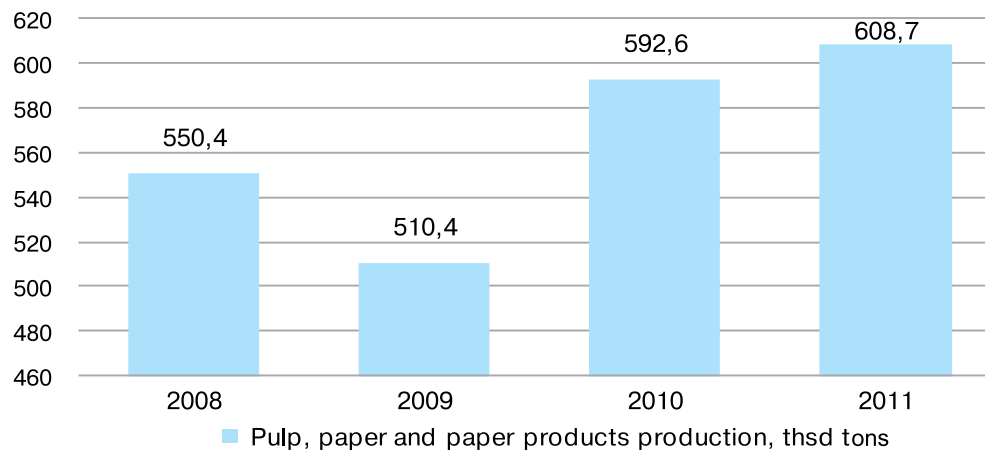


Source: ukrstat.gov.ua.

2.1.3. Pulp-and-paper industry

Dynamics of pulp, paper and paper products production in 2008-2011, according to the State Statistics Committee, were positive despite a significant decline in 2009, caused by world economic crisis and increased prices on Russian natural gas.

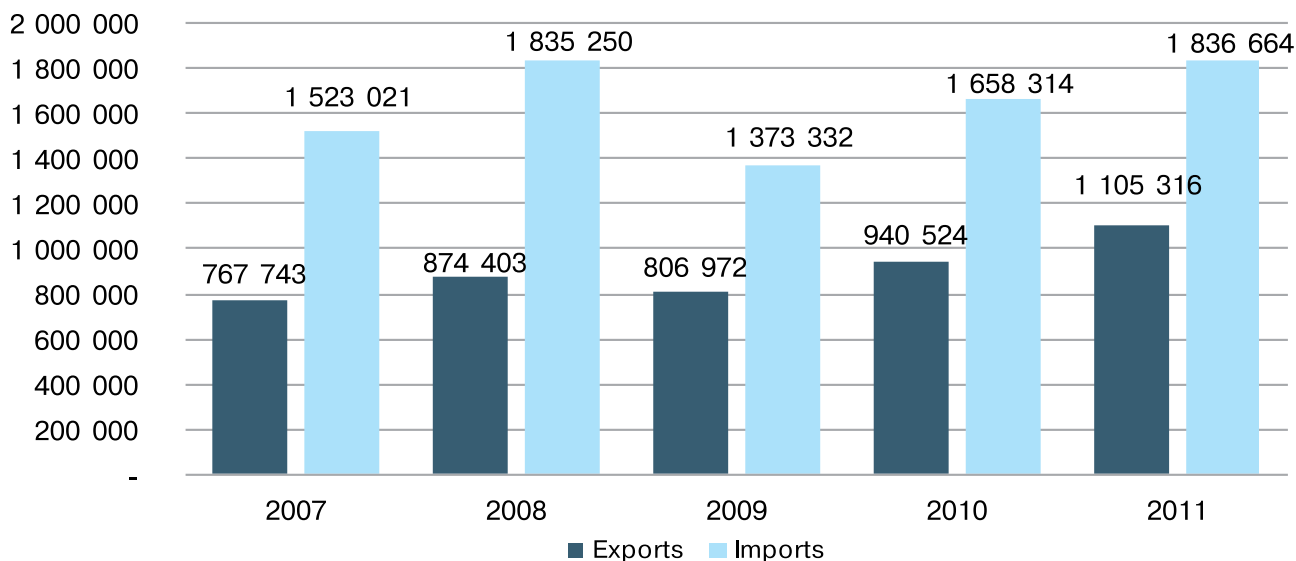
Dynamics of pulp, paper & paper products production, thsd tons



Source: ukrstat.gov.ua.

Nevertheless, as can be seen on the graph above the decrease in pulp & paper production in 2009 was accompanied by the increases in the amounts of pulp & paper imports the same year.

Dynamics of pulp, paper & paper products exports and imports in 2007-2011, thsd USD



Source: ukrstat.gov.ua

2.1.4. Plastic packaging

In the nearest future, building of PET production lines in Ukraine is not expected. In 2011, imports of PET granulate to the Ukrainian market declined by 9.6%. The local market still can not reach pre-crisis figures, due to reduced production of beer, soft drinks and mineral water. The largest consumer of PET in Ukraine is Retal Group.

Overall consumption of granulate was also affected by the reduction of the average weight of PET preforms. In 2011 the average weight of the preform became lighter by 2% and was about 34.1 g.

The largest supplier of granulate to the Ukrainian market is China. In 2011 Chinese producers supplied about 90,000 t of bottle PET, which was equivalent to 60% in total consumption. At the same time the supply of the Korean PET decreased by 16% to about 16,000 t. Some converters said, that next year they would shift to the purchases of the Middle Eastern and African PET. Shorter logistics and acceptable prices in comparison to Asia contributed to this.

2.1.5. Other chemicals production

Ukrainian titanium dioxide market

The Ukraine-based company Crimean Titan is the biggest titanium dioxide producer in Eastern Europe. In 2010, titanium dioxide output was estimated to be 105,682 t. In 2011, the number has grown up to 108,071 t. The company manufactures over 88% of the total titanium dioxide supply in the country. More than 69% of its output is exported.

High demand on the global titanium dioxide market and rarity of raw materials for its production have con-

tributed to the beginning of large-scale investment in titanium assets in Ukraine. Not long ago a new plant at Crimean Titan was completed, that will almost double its present capacity of 105,000 t per annum.

The domestic market remains small but is constantly growing. Exports will continue to play important role for domestic producers of titanium dioxide due to high demand on the world market.

Pharmaceutical market

The overall output of the pharmaceutical industry of Ukraine is insufficient to meet growing demand for drugs. Dependence on import is a distinctive feature of the pharmaceutical market of Ukraine. In addition, Ukrainian pharmaceutical production is highly dependent on imported raw materials. The sluggishness of the innovative sector results in a lack of modern, original drugs and a small variety of home-produced medicine, leading to a preference of generic drugs production.

During 2009-2011 Ukrainian pharmaceutical market showed strong growth reaching pre-crisis level in volume terms. Total Ukrainian market was estimated to be USD 3bn in 2011.

The pharmaceutical market has significant potential for further growth due to currently low total healthcare spending as compared to other countries in Central and Eastern Europe and increase of real income in the long run.

Imported medicines account for c.70% of Ukrainian pharmaceutical market. However, local producers have been steadily increasing their share from 24% in 2008 to 29% in 2011. It was mainly due to higher demand for cheaper substitutes produced by local manufacturers.

3. Trends and developments

The chemical industry is a large consumer of oil, natural gas and electricity, that are widely used as an energy and feedstock input. Unfortunately, Ukraine does not have enough energy resources and therefore has to import oil and natural gas from Russia and Central Asia.

Cost of natural gas constitutes circa 70% of ammonia and nitrogen fertilizers cost. In addition, oil and natural gas constitute almost two thirds of petrochemical manufacturing costs. Therefore, increases in prices of energy resources have significant impact on the chemical industry.

3.1. Fertilizer production

Fertilizer production in Ukraine is represented by nitrogenous, potash, and phosphate fertilizers. The basis of Ukrainian chemical industry is nitrogen companies that produce ammonia and mineral fertilizers.

The production of nitrogenous fertilizers is based on ammonia as a raw stock, which in turn is produced of natural gas. Unfortunately, Ukrainian proven natural gas reserves are limited and it is exported mainly from Russia and Central Asia. Nevertheless, there

3.2. Petrochemicals

Polymer materials are key import products of Ukrainian chemical industry.

This sector of chemical industry is believed to be a very promising area by some experts. Ukrainian

In 2011 Ukrainian fertilizers production was not so dependent from prices of Russian natural gas, as 4 out of 6 fertilizers producers, owned by Dmytro Firtash Group DF, imported lower priced gas from Turkmenistan.

Another Ukrainian fertilizer producer Dniproazot (Dniprodzerzhynsk), during 2011 was using much cheaper Ukrainian natural gas, bought directly from UkrNafta.

is now interest in prospecting for shale gas in the Ukrainian portion of the Black Sea.

After Ukrainian nitrogen enterprises consolidated their assets (4 out of 6 fertilizers producers in Ukraine are owned by Dmytro Firtash's DF Group), they managed to increase their production from 20% of capacity to 110%, and were able to recapture 30% of the domestic market from Russian competitors.

businessman Dmytro Firtash, who controls four out of six nitrogen enterprises in the country intends to invest USD 2.8 bn over five years in developing petrochemical production.

3.3. Pulp-and-paper industry

Many foreign experts consider, Ukrainian market of cardboard and paper products a prospective one from the point of view of investments and real profitability.

Cardboard production in January grew by 80.1%, to 20,000 t, including an 81.6% rise in container board, to 11,470 t and a 78.2% rise in box cardboard, to 8,530 t.

Paper output grew by 3.6%, to 6,180 t. The mill boosted toilet paper output by 27.1% in January 2011, to 28 m rolls.

3.4. Plastic packaging

There is no PET production in Ukraine and in the nearest future, building of new production lines in Ukraine is not expected. Therefore, in 2011 Ukraine was a

3.5. Other chemical production

Other chemical production in Ukraine includes: pharmaceutical production, production of soap, washing and surface-active organic matters, paint & varnish materials production, production of photo and cinema articles, tires, etc.

Ukraine accounts for about 10% of discovered world titanium mineral reserves. Currently ilmenite and rutile concentrates are produced in Ukraine by 3 enterprises: Crimean Titan (at leased Irshan-

According to the association, cardboard boxes production in January in Ukraine rose by 19.1%, to 53.23 million m², while paper and cardboard output soared by 45.2%, to 74,500 t.

Among the problems that pulp, paper, and cardboard producers face is first of all the problem of raw stock supplies for paper and cardboard manufacturing. The problem is not new, and its solution is to create a pulp manufacturing enterprise in Ukraine. Thus, today the primary task is to support development of the secondary raw stock market – that is, the market of scrap paper.

net importer of PET granulate. The country imported more than 300,000 m tons of polyvinyl chloride (unmixed) and PET in total through 2011.

sky and Volnogorsky Mining and Processing Plant), Valki-Ilmenite (Irshansk area), and Ukraine Minerals (tails at Volnogorsky Mining and Processing Plant). Country's average annual production during past five years was about 500 thsd tons. High demand on the global titanium dioxide market and the lack of raw materials have contributed to the beginning of large-scale investments in titanium assets in Ukraine.

4. Leading players

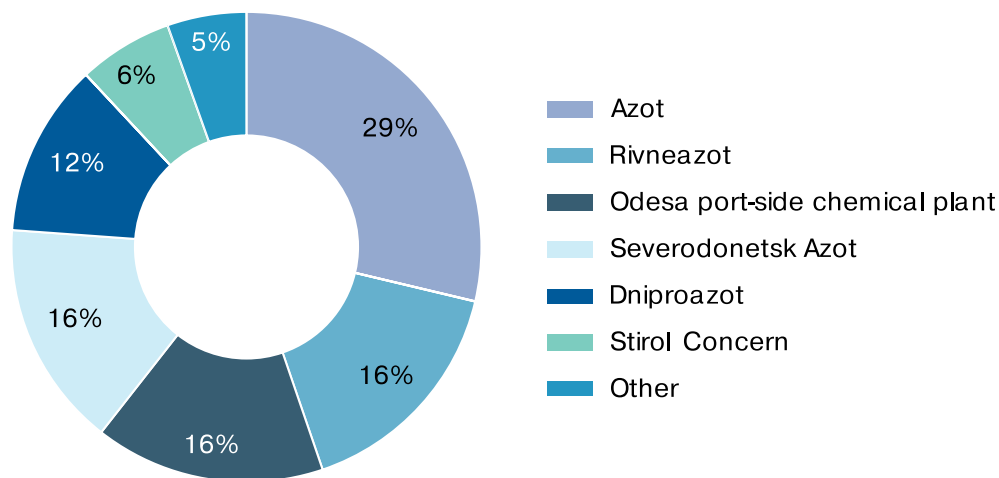
Considerable structural changes are thought to be under way in the chemical industry. State-owned enterprises represent less than one-fifth of the total number of chemical industry enterprises manufacturing about one-third of the products. The remaining enterprises are in collective ownership, with open and closed joint-stock companies being the predominant form.

The competition in the chemical industry of Ukraine is not high, as chemical production is very diversified and companies specialize on different types of products.

4.1. Fertilizers production

Ukraine has eight large producers of fertilizers, of which six specialize in the production of nitric fertilizers and are the cornerstone of export and production potential of the country.

Market shares of top Ukrainian fertilizers production enterprises in 2010, %



Source: ukrstat.gov.ua.

Moreover, in geographical terms Ukrainian chemical enterprises that produce similar goods, are situated in different regions of the country, which helps them not to compete against each other, but at the same time makes each a natural monopolist in its own region.

In addition, recently years 4 major chemical producers of ammonia and fertilizers were integrated in one group OstChem Holding AG (a part of Group DF).

Dmytro Firtash's Group DF owns four out of six Ukrainian nitrogen fertilizers producers:

- Severodonetsk Azot (Luhansk region),
- Rivneazot (Rivne region),
- Azot (Cherkasy),
- Stirol Concern (Horlivka, Donetsk region).

Group DF is also interested in purchasing Ukraine's last state-owned nitrogen enterprise - Odesa port chemical plant - if the decision is made to privatise it.

4.2. Petrochemistry

Leading producers of primary petrochemicals in Ukraine are:

- Karpatneftekhim (part of Russian Lukor-Neftekhim),
- Rivneazot (is a part of International Holding OstChem AG (Austria),
- Azot (OstChem AG).

The following producers of polymers operate in Ukraine:

- LiNOS (TNK-Ukraine),
- Karpatneftekhim,
- KhimProm (Pervomaysk) (state-owned),
- DneproAzot (Dneprodzerzhinsk) (controlled by PrivatGroup, Ukraine),
- Concern Stirol (Gorlovka)(a part of OstChem AG).

Odesa Port Plant is one of the largest chemical enterprises in Ukraine. It is fully owned by the state so far. The company specializes in producing ammonia, liquid nitrogen, carbon dioxide, liquid oxygen and urea (the second largest production in Ukraine). Unquestioning trump and the main advantage compared to other chemical enterprises - a monopoly position in the market for handling ammonia. The plant has its own port, which is designed for handling this product and its derivatives.

Main commodities produced in Ukraine are polypropylene (LiNOS), polyethylene (Lukor), and polystyrene (Concern Stirol).

Ukrainian companies involved in processing of polymers into plastics are:

- Hecro-trade,
- KPD,
- DPA,
- Polymer materials Plant (Dnipropetrovsk).

4.3. Pulp-and-paper industry

The leading players of Ukrainian paper and cardboard market are as follows:

- **Rubezhnoye Cardboard and Packaging Mill** (47% market share) is an integrated complex unit for production of liner and fluting, corrugated board and corrugated boxes.

- **Kyiv Cardboard and Paper Mill** (20% market share) is one of the largest producers in Europe of cardboard and paper products. Capacity for processing of secondary raw materials is more than 850 t per day. Around 500 companies in Ukraine and abroad buy goods of Kyiv Cardboard and Paper Mill every year. Pulp Mill Holding GmbH (Austria) holds 95% of the shares of Kiev Cardboard and Paper Mill.

4.4. Plastic packaging

Ukrainian leading producers of PET-preforms and polymer packaging films are:

- HEKRO PET (PET-preforms),
- Retal-Dnepr (PET-preforms) (a part of Russian Retal Industries Ltd.),
- UniPlast Ltd (PET-preforms),

- UKRPLASTIC (polymer films, membranes from aluminum foil, etc.),
- DPA (flexible roll packaging, brand and serial shopping bags, secondary granules),
- LENBUD (polymer films).

4.5. Other chemical production

4.5.1. Leading players of pharmaceutical market

There are the following main local producers:

- Arterium Corporation (Kyivmedpreparat, Galychpharm),
- Farmak,
- Borshchahivskiy Chemical Pharmaceutical Plant,
- Pharmaceutical Firm Darnitsa,
- Yuria-Pharm.

However, significant market share also belongs to foreign companies that do not have production capacities in Ukraine. Leading Ukrainian producers are Farmak (4.9% market share) and Arterium Corporation (3.5%), among foreign companies the most significant are Berlin-Chemie Menarini (4.2%) and Sanofi-Aventis Ukraine (3.6%).

5. Legislation

Production of chemicals does not require a license, unless dangerous chemicals included in the special list approved by the Cabinet of ministers of Ukraine, are to be produced for which license is needed.

It should be also mentioned that opening each chemical production facility (factory/plant/store etc.) requires obtaining permissions of authorities controlling labour, fire and ecological safety issues.

General management of industry is carried out by the Cabinet of Ministers of Ukraine. Specialized authorities do not exist. However, partly as potentially hazardous for environment, it is regulated by the Ministry of Ecology and Natural Resources of Ukraine.

The main regulatory acts for the industry are:

- The Law of Ukraine “On extra-hazardous objects”,
- The Law of Ukraine “On ecological safety”.

The mentioned laws are dealing with ecological safety issues. Other relations in the industry are regulated by general legislation.

Ukraine is the participant of the United Nations Framework Convention on Climate Change and the Kyoto Protocol under which industrialized countries are obliged to reduce their collective emissions of greenhouse gases. The actual Ukrainian emissions are significantly lower than the limit mentioned in the protocol, therefore Ukraine is selling its quotas to other countries each year.

With regards to corporate income tax (CIT) there is no special treatment of the activities connected with chemical industry. CIT is currently calculated at a flat rate of 21%. It will be reduced to 19% from 1 January 2013 until 31 December 2013 and to 16% from 1 January 2014 onwards.

Value added tax (VAT) is currently levied at a 20% rate of the taxable value of domestic supplies, imported goods and auxiliary services. The VAT rate will be reduced to 17% from 1 January 2014.

As of 1 January 2012, a zero excise tax rate for oil products produced in Ukraine and used as raw materials in the chemical industry was introduced.

The government currently discusses the probable increase. In case the import duties shift takes place, the taxes on ethylene, propylene and styrene copolymers will reach 6.5%. The ones on polyvinyl chloride (unmixed) and vinyl chloride copolymers will be escalated to 5% from current 0%.

The duties on PET will also go up. They will be estimated at 6.5%, in comparison with valid at present 1%. Besides, the taxes on polymer products will move up to 10%, opposing to the existing level of 6.5%.

As a result, the national budget will acquire additional UAH 2 bn or USD 0.25 bn per year.

Production processes of the companies operating in chemical industry in Ukraine are in most cases attested as hazardous environment. Therefore such companies are obliged to compensate the Ukrainian State Pension Fund for pensions that are paid by the State to former employees of the companies who worked in a hazardous environment (list of professions: “Privilege I” and “Privilege II”) and, therefore, are eligible for early retirement and pensions until the normal retirement age as defined by the statutory regulations.

6. Organizations and associations

In the end of 2003, 14 leading enterprises and organizations of Ukraine operating on the national market of pulp and paper products created UkrPapir (Ukrainian Paper) Association of Ukrainian pulp and paper enterprises. The goal behind creating the Association is improvement of the efficiency of its members, representation and protection of their interests and contribution to the economic and social development of pulp and paper enterprises and organizations in Ukraine. The main direction of the Association's activities is to develop and implement the complex state program of pulp and paper industry development till 2020.

Also, well-known are such associations as:

- Technological Park Institute of Monocrystals,
- Ukrainian Association of Polymer Profiles Producers,
- Union of Ukrainian chemists.

Technological Park Institute of Monocrystals uses the funds of its members to finance innovative activities within the alliance.

7. List of references:

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3. Market shares of top Ukrainian detergents production enterprises in 2010

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