OSTCHEM

STiROL

PJSC “Concern Stirol” is the largest producer of mineral nitrogen fertilizers in Ukraine.

The enterprise was founded in 1933 and was the first in the country to make ammonia from coke gas.

Today PJSC “Concern Stirol” is the national leader in ammonia and urea productions that is 1 470 000 and 940 000 tonnes per year correspondingly.

Moreover, the enterprise manufactures ammonium nitrate, different sorts of polystyrene, organic resins, mineral acids and salts.

PJSC “Concern Stirol” has a significant market share in the Ukrainian nitrogen fertilizers industry. Almost 85% of products are exported.

According to “Forbes” (August, 2012) PJSC “Concern Stirol” comes second on growth rate among all the Ukrainian companies.

PJSC “Concern Stirol” is one of the oldest chemical enterprises in Ukraine.

Having appeared on the country map in the 1930s Horlivka nitrogen fertilizer plant was the first to make ammonia from coke gas. Since then much has changed, however, our enterprise has still been realizing its main mission to manufacture the products people need around the globe.

Our plant remembers the socialistic construction projects, evacuation and hard postwar time. We experienced the Soviet Union breakup and became the leading chemical enterprise in independent Ukraine. “Stirol” history keeps the evidences of courage and selflessness of builders and soldiers of the Great Patriotic War as well as heroism of people who restored the production, constructed new shops and mastered modern high-powered equipment.

We are proud of our grandfathers and fathers’ heritage and contemporary plant’s achievements. We always remember the simple but significant truth whichever high-tech sites and equipment are, the core is personality, skilled specialist, professional. Selfless labour of all concern’s generations contributed to winning of plant’s honor and fair name.

Today “Concern Stirol” continues its biography in a strong family of leading Ukrainian producers of nitrogen fertilizers. “Stirol” employees used to rely upon themselves and now we feel our partners’ support. Consolidation in the OSTCHEM group implies mobility, supply diversification and common agreed pricing policy on the global markets. OSTCHEM group is reliable enough to overcome any hardships.

Sergey Pavlyuchuk

PJSC “Concern Stirol”
Chairman of the Board

PJSC “Concern Stirol”

1%
of the nitrogen fertilizers global production

6,5 UAH billion
products realization sum in 2012

61%
of the fixed emission standard

4500
people employs PJSC “Concern Stirol”

History

Ammonia synthesis shop (the 1940s)

Construction (in the 1950s)

"Concern Stirol" represents the history of the chemical industry in the USSR. It goes back to the period of the first five-year plans when the new-born state was searching for the resources for its development. In 1929 the geological exploration and chemical plant engineering were begun in Horlivka. Foreign experts took part in the enterprise's construction.

Nitrogen fertilizer plant, that was the name of "Concern Stirol", started operating on 23 April, 1933. Enterprise was the first to manufacture ammonia from coke gas in the former USSR. In two years the plant reached its planned production capacity. By 1940 the production of ammonia had increased 5 times and the production of nitric acid had risen 30 times.

In October 1941, after the beginning of the Great Patriotic War, the plant had to move from Horlivka to the home front on the east. The production site in Horlivka was destroyed.

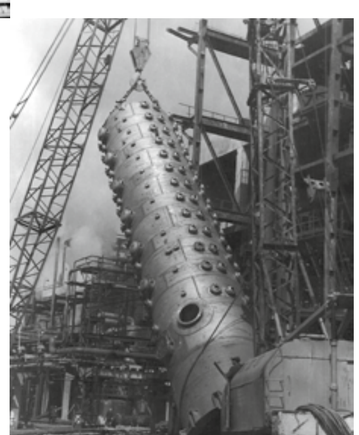
Return to active work and initial capacity restoration in the post-war period is related to new shops launching. After the war the production of ethylbenzene and medical nitrous oxide was put into operation for the first time in the country.

"Stirol" (the 1960s)

The Order of the Red Banner of Labour

The sixties were the period of organic chemistry formation and development. Moreover, the site of polystyrene manufacturing was put into operation. In March 1966 the new production facilities of mineral fertilizers were launched. It was the shop 3A manufacturing granulated ammonium nitrate with initial production capacity 590 000 tonnes per year.

On 4 May, 1966 Horlivka nitrogen fertilizer plant was awarded Order of the Red Banner of Labour.



Ethylbenzene shop (the 1960s)

Northern area (the 1970s/80s)

The turn of the 1970s and the 1980s was the time of the plant's rebirth. The new large-tonnage sulfuric acid production units were put into operation. There was the shop SK-24 (1970) with manufacturing capacity amounted to 720 000 tonnes of ammonia per year. New sites 1-B (December, 1978) and 1-V (May, 1979) of ammonia production were launched. The planned capacity of each site was 500 000 tonnes per year.

In 1979 the section No. 3 on prilled urea production was put into operation at the United Urea Plant, its manufacturing capacity amounted to 510 000 tonnes per year.

After these projects realization the ammonia production increased three times and the nitrogen fertilizers manufacturing was doubled.

In 1976 the plant was renamed Industrial Association "Stirol".

The years 1987–1988 became another milestone. That was the time of acids and salts production shops launching. The planned manufacturing capacity of sodium nitrate and sodium nitrite productions was 65 000 tonnes at each unit. Non concentrated nitric acid production under the pressure of 7.3 atm had the manufacturing capacity amounted to 120 000 tonnes per year.

Since the late 1980s Industrial Association “Stirol” initiates changing of ownership form. In February 1993 the lease concern “Stirol” was registered and two years later in September 1995 JSC “Concern Stirol” was founded. Thus the enterprise entered the next phase of its development.

At the initial stage of Ukrainian independence “Stirol” found the means to develop the new business areas which strengthened its economy. In 1995 urea-ammonium nitrate production was put into operation. Liquid mineral fertilizers were in great favour in the USA, Canada and France. One year later, in 1996 the pharmacological production was launched under GMP standards at “Stirol”.

On October 2001 PJSC “Concern Stirol” has implemented closed cycle technologies completely. Since then there is no sewerage in Donbas rivers from the enterprise.

PJSC “Concern Stirol” was the first in Ukraine to get ISO certificate in 2002 that guarantees the environmental management compliance with the international standard.

Ammonium nitrate and ammonia compression shop

United Ammonia Plant

In autumn 2010 “Concern Stirol” changed its owner. The enterprise was included into Dmitriy Firtash’s group of assets. Today it is a part of OSTCHEM that consolidates the largest Ukrainian nitrogen fertilizers producers such as PJSC “Azot” (Cherkasy), PJSC “Rivneazot” (Rivne), PrJSC (Severodonetsk) and the Estonian enterprise AS “Nitrofert” in Kohtla-Jarve.

Production capacities

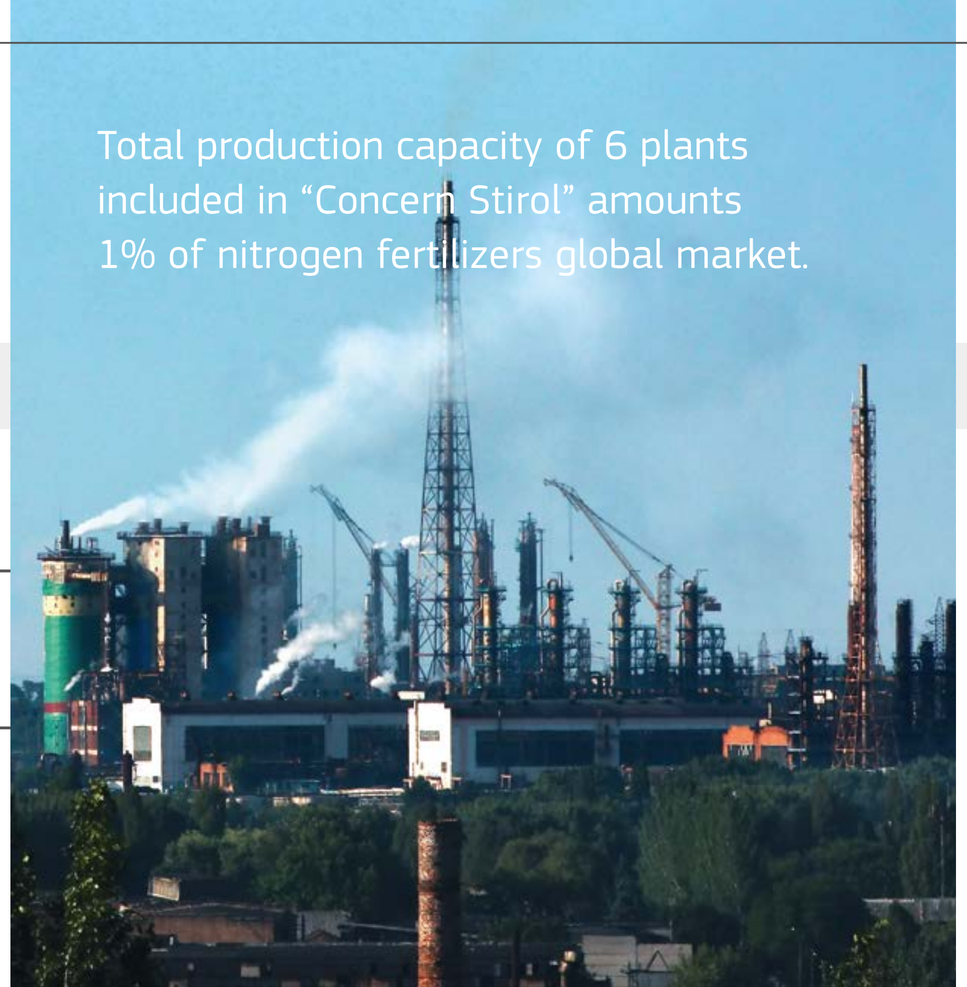
PJSC “Concern Stirol” is the oldest enterprise of Ukrainian chemical industry. Majority of innovations being still effective were implemented here for the first time. Regular equipment upgrading and modernization make “Concern Stirol” the contemporary leader with strong production potential.

Today “Concern Stirol” produces nitrogen mineral fertilizers, acids and salts as well as organic synthesis products. Most of them are manufactured for export to 50 countries worldwide.

“Concern Stirol” supplies high level processed products abroad. The enterprise comes second among 100 largest domestic exporters of not raw materials in the list made up by the “Ukrainian investment newspaper”.

Main production capacities

Total production capacity of 6 plants included in “Concern Stirol” amounts 1% of nitrogen fertilizers global market.



Mineral fertilizers production	Number of sites	Total capacity (million tonnes per year)	Global production	Global export
Ammonia		1,47	1,01%	2%
Urea		0,94	0,76%	3%
Ammonium nitrate		0,69	1,56%	5%

Polymers production

High impact polystyrene (HIPS) and general purpose polystyrene (GPPS)

58
tonnes per year

The mineral fertilizers such as ammonia, urea, ammonium nitrate and urea-ammonium nitrate (UAN) are of great favour around the globe. PJSC “Concern Stirol” is the leader in ammonia and urea production.

Organic synthesis products include polymers, consumer goods and construction materials.

PJSC “Concern Stirol” manufactures a wide range of products (more than 10 items).

PJSC “Concern Stirol” is the only producer of polystyrene in Ukraine (58 000 tonnes per year) and one of the four manufactures of high impact polystyrene in CIS.

Owing to the constant renovation, capital and current repairs all the enterprises are in perfect state.

“Concern Stirol” is connected with the ammonia pipe line “Tolyatti-Horlivka-Odessa” which is the unique transporting facility able to transfer up to 2 900 tonnes of ammonia per day to the sea port “Yuzny” (Odessa Port-Side Plant). This is the strongest ammonia pipe line across Ukraine.

The enterprise produces 4 800 tonnes of ammonia per day. The significant share of it is processed to mineral fertilizers such as urea, ammonium nitrate and liquid fertilizers such as urea-ammonium nitrate.

“Concern Stirol” daily production capacity

Ammonia	4 800 tonnes
Urea	3 000 tonnes
Urea granulated	2 000 tonnes
Ammonium nitrate	1 900 tonnes
Urea-ammonium nitrate	1 000 tonnes
Polymers	200 tonnes

The first in CIS line of granulated urea production operates at the United Urea Plant (section No.1)

Today urea production modernization is still going on. The projects were developed by Swiss company Urea Casale. The upgrading is aimed to grow the productivity of each site by 500 tonnes per day and expand the granulated products manufacturing.

The plant producing the prilled ammonium nitrate mastered the manufacturing of the products with magnesium additives. The planned capacity of the site is 710 000 tonnes per year.

In the 2000s the production of expandable polystyrene was renovated under the American experts' programs. It led to the improvement of product quality and capacity growth up to 50 000 tonnes per year.

After the reconstruction the plant started producing high impact polystyrene which is a high quality plastic widely used in food and engineering industry, medicine as well as in production of sanitary ware, commercial and exhibition equipment.

The capacity of high impact polystyrene production is 12 500 tonnes per year.

Since 2010 the enterprise's traditional shops have experienced an intensive renovation wave. Having become a part of OSTCHEM group, "Concern Stirol" has invested 700 UAH million into modernization and development of production facilities. Ammonia plant No.1 and "Granas" plant of ammonium nitrate production renewed its operation after long term conservation. Moreover, a number of innovative programs aimed to increase large-tonnage production capacity and to reduce natural gas and electricity consumption were launched.

Mineral fertilizers production complex

Ammonia production

(3 sites)

Plant No.1
(site AM-76)

United Ammonia Plant

- section No.1-B
- section No.1-V

Urea production

(2 sections)

United Urea Plant

- section No.1
- section No.2

Ammonium nitrate production

Ammonium nitrate and ammonia compression shop

Nitrite and nitrate salts production

Sodium nitrate production shop

Sodium nitrite production shop

Non concentrated nitric acid production

Urea-ammonium nitrate production

Polymers production and processing

Organic production

Polystyrene production

Disposal containers and packaging production

Construction goods production

Service departments

- Repair and renovation shop
- Repair and mechanical shop
- Monitor and measure equipment and automation shop
- Electricity supply shop
- Railway shop
- Heat and water supply shop
- Quality department
- Construction Management
- Transport shop
- Communication shop
- Improvement and landscaping shop

Main products

Nitrogen fertilizers

Product	Standard
Ammonium nitrate	DSTU 7370:2013
Liquid ammonia technical (anhydrous ammonia)	GOST 6221-90
Liquid nitrogen fertilizers (UAN)	TU U 24.1-00203826.024-2002
Urea	DSTU 7312:2013
Urea granulated	TU U 24.1-05761614-060:2007

Other products

Product	Standard
Sodium nitrate technical	GOST 828-77
Sodium nitrite reagents (food grade)	GOST 4197-74
Sodium nitrite with anti-caking agent	TU U 05761614.014-98
Technical sodium nitrate which does not cake	TU U 24.1-05761614-015:2011
Technical sodium nitrite	GOST 19906-74

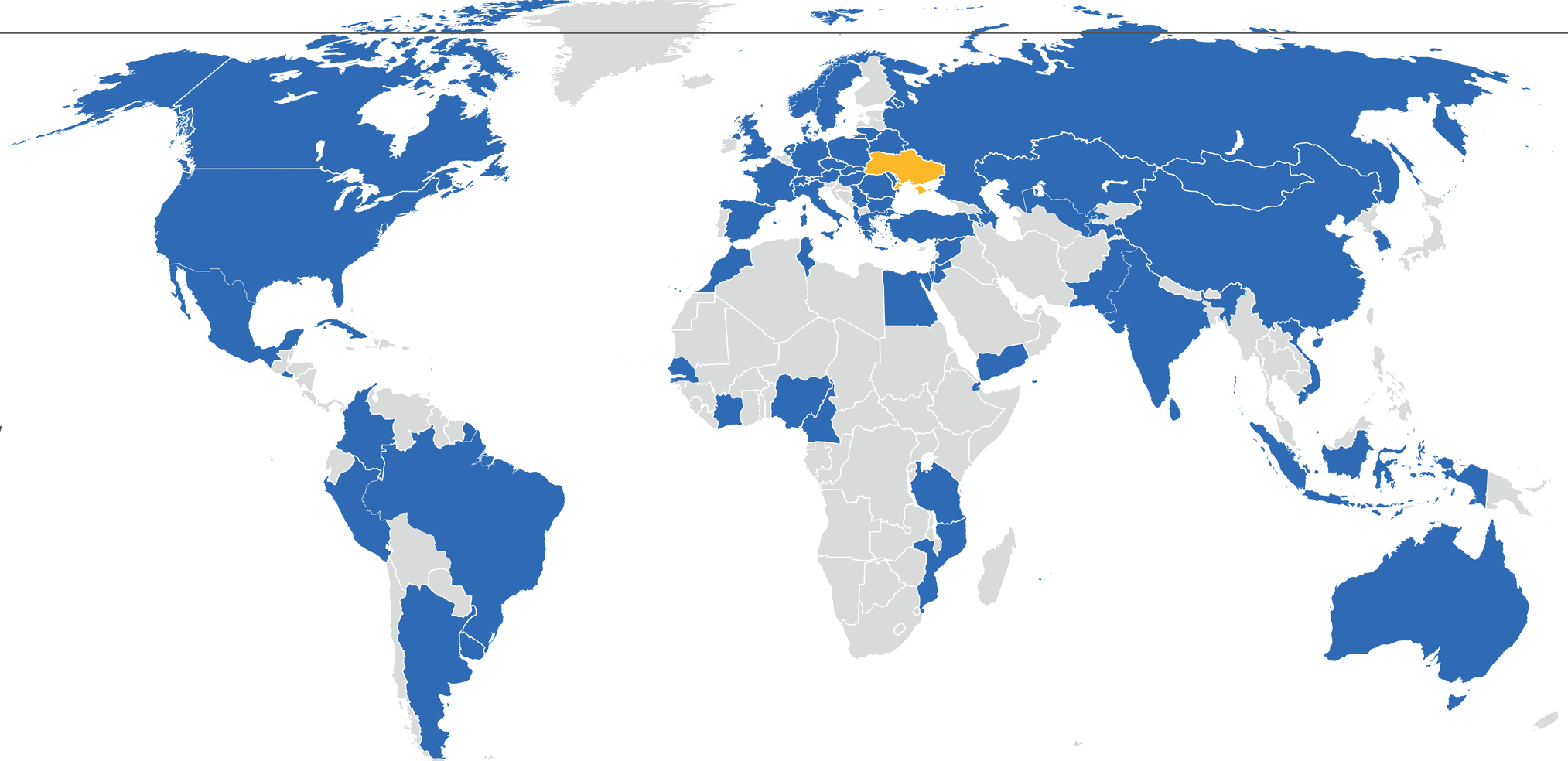
Organic products

Product	Standard
Urea-formaldehyde resin "Kafomid"	TU U 24.1-05761614.044-2002
Urea-formaldehyde resin KFS	TU U 24.1-05761614-006-2007

Polymers and polymer products

Product	Standard
Expandable polystyrene	TU U 24.1-05761614-017:2008
Foamed polystyrene plates	DSTU B V.2.7-8-94
Foamed polystyrene products for fixed timbering	TU U V 2.7-25.2-31615086-004:2006
General purpose polystyrene	GOST 20282-86
General purpose polystyrene	TU U 24.1-05761614.058-2004
High-impact polystyrene	TU U 24.1-05761614-65:2010
Products made of polystyrene for packing food	TU U 14338211.001-95

Geography



“Concern Stirol” products are well-known for customers in 50 countries worldwide.

Country	Ammonia	Ammonium nitrate	Urea	UAN	Urea-formaldehyde resin KFS	Urea-formaldehyde resin "Kafomid"	Sodium nitrate	Sodium nitrite	Polystyrene
Australia				●					
Austria							●		
Azerbaijan									●
Albania		●		●					
Argentina			●						
Armenia									●
Belarus					●	●	●	●	●
Bulgaria		●	●	●			●		●
Brazil		●	●	●					
Cameroon			●						
Canada			●						
China			●						
Colombia			●						
Côte d'Ivoire			●						
Cuba			●						
the Czech Republic							●	●	●

Country	Ammonia	Ammonium nitrate	Urea	UAN	Urea-formaldehyde resin KFS	Urea-formaldehyde resin "Kafomid"	Sodium nitrate	Sodium nitrite	Polystyrene
Denmark									●
Djibouti			●						
Egypt		●		●					
El Salvador			●						
France	●						●		
Germany							●	●	
Greece	●	●	●	●					
Hungary			●			●	●	●	●
India	●	●	●	●			●	●	
Indonesia							●		
Israel	●		●						
Italy	●		●				●	●	●
Jordan	●								
Kazakhstan							●		
Lithuania							●		
Malaysia							●		

Country	Ammonia	Ammonium nitrate	Urea	UAN	Urea-formaldehyde resin KFS	Urea-formaldehyde resin "Kafomid"	Sodium nitrate	Sodium nitrite	Polystyrene
Mexico			●						
Moldova							●		●
Mongolia							●		
Morocco	●	●		●			●		
Mozambique			●						
the Netherlands								●	
Nigeria			●						
Norway	●								
Pakistan			●						
Peru			●						
Poland							●	●	●
Romania			●				●	●	●
Russia							●	●	●
Senegal	●		●						
Serbia							●	●	●
Slovakia							●		

Country	Ammonia	Ammonium nitrate	Urea	UAN	Urea-formaldehyde resin KFS	Urea-formaldehyde resin "Kafomid"	Sodium nitrate	Sodium nitrite	Polystyrene
South Korea	●								
Spain	●		●				●	●	
Sri Lanka			●						
Sweden	●						●	●	●
Switzerland			●						
Syria		●	●	●			●		
Tajikistan							●		
Tanzania			●						
Tunisia	●	●		●					
Turkey	●	●	●	●			●		
the United Kingdom		●	●	●				●	
Uruguay		●		●					
USA	●			●					
Uzbekistan							●		
Vietnam							●		
Yemen							●		

Quality Management System

PJSC “Concern Stirol” has developed and implemented the quality management system in accordance with ISO 9001, ISO 14001 and OHSAS 18001.

The quality management system covers all stages of the product life cycle — from its manufacturing to service and customer support.

PJSC “Concern Stirol” obtained the certificate ISO 14001 in January, 2002. Thus, it is the first Ukrainian enterprise of chemical industry that was recognized at the international level.

In course of project realization enterprise’s top management and internal auditors were trained in environmental management system. “Concern Stirol” specialists visited several companies which had already implemented 14000 standards and obtained the practical experience. The development and integration of the system were carried out by the Standardization and Certification Department, the Environmental Department and other structural subdivisions.
As a result the system of environmental management was developed and implemented efficiently.

The quality management system certification is one of the fundamental bases of the enterprise efficiency because it shows the strategic devotion to quality principal.

On 16 January, 2012 the quality management system at “Concern Stirol” was certified by Bureau Veritas Certification, an international technical society, which acts in 150 countries.

Since 2007 “Concern Stirol” products are regulated by EU regulation on registration, evaluation, authorization and restriction of chemicals No. 190/2006 EU (REACH) regarding their production and distribution on the EU market.

REACH key purpose is to provide the high level of human health and environment protection including implementation of alternative methods of chemicals risk evaluation. Moreover the regulation covers the free movement of chemicals within the internal EU market increasing the competitiveness of EU chemical industry and assisting with innovative technologies application. To implement REACH there is a procedure of substances registration in the central data base of the European Chemical Agency. PJSC “Concern Stirol” registered five of their products: anhydrous ammonia, urea, ammonium nitrate, sodium nitrate and sodium nitrite.

Key results

2010—2012

Since 2010 the main products manufacturing which are the core of the enterprise's economy is steadily increasing.

Financially these rates are expressed through production and sales volumes in fixed prices*.

Ammonia production

increased by
628
UAH million

comparing to 2011
(by 44%)

Ammonium nitrate production

increased by
313
UAH million

comparing to 2011
(by 33%)

Urea-ammonium nitrate production

increased by
117
UAH million

comparing to 2011
(by 183%)

* current selling prices

6,2 UAH billion

Production volume of commodity output in fixed prices in 2012 is by 16% more than the previous year rate.

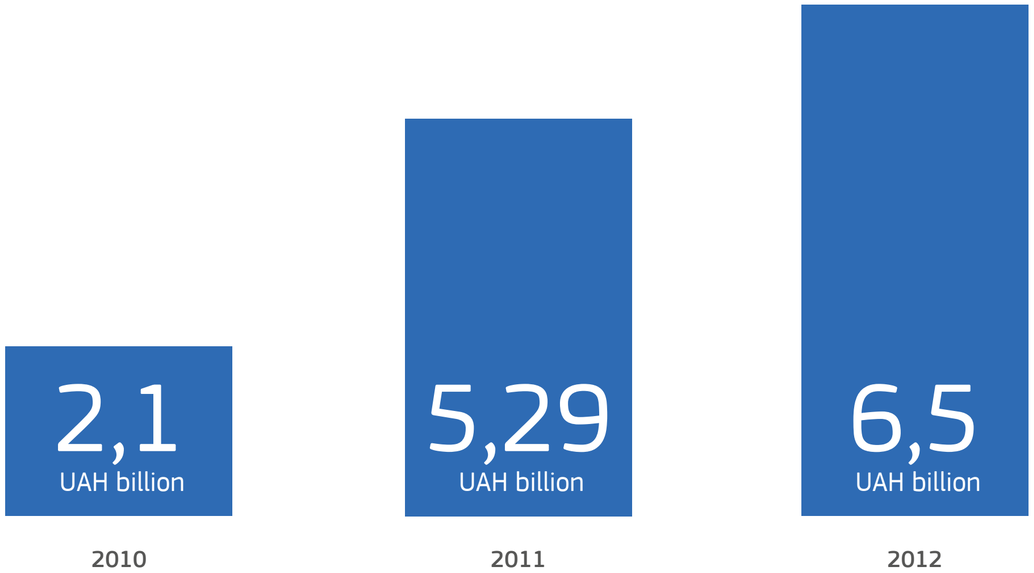
6,5 UAH billion

Sales volume in fixed prices in 2012 is by 23% more than the previous year rate.

82%

The sum of realization in 2012 received from export sales.

General sale dynamics in 2010–2012



Investments and modernization

Since “Concern Stirol” joined OSTCHEM in 2010 a new phase of the enterprise modernization has begun. This stage needed quite a lot of human efforts and finances resources.

A number of the long-term innovative programs were launched. Most of them were directed to large-tonnage production capacity increasing and natural gas and electricity consumption reducing.

During 2012 there were realized 6 capital and preventive repairs of large-tonnage production: ammonia (shop No.1, sites 1-B, 1-V), urea (United Urea Plant, section No.1, section No.2) and ammonium nitrate. 264 UAH million was allocated for the capital repairs in 2012.

Realized repairs lead to the productivity increase.

The results of repairs held in 2012

Shop	Average production per month, tonnes	
	Before repair	After repair
Shop No.1 (capital repair period) 25 May–23 June 2012	**40 159**	**45 898**
United Ammonia Plant 1-B (capital repair period) 1 October–25 November 2012	**37 113**	**49 676**
United Ammonia Plant 1-V (capital repair period) 05 July–07 August 2012	**40 784**	**46 802**
United Urea Plant, section No.1 (capital repair period) 06 July–24 August 2012	**39 584**	**40 956**
United Urea Plant, section No.2 (capital repair period) 4 October–3 November 2012	**37 323**	**41 217**
Ammonium nitrate (preventive repair period) 15–31 October 2012	**47 760**	**52 841**

The further reconstruction
and modernization program
is planned to be realized during 2012–2015.
The upgrading projects are aimed to:

- reduce electricity consumption
and guarantee production safety;
- increasing ammonia processing in order
to reduce the share of commercial ammonia;
- decrease the emission
of hazardous substances.

700 UAH million was spent on the reconstruction of the certain plant's sectors in 2011–2012

450 UAH million was appropriated for the enterprise's reconstruction and modernization in 2013

At the plant No. 1 (AM-76) the following projects were realized: reconstruction of synthesis column, replacement of synthesis column catalyst, launching of saturation sector. It allowed increasing ammonia production up to 1 700 tonnes per day and reducing natural gas consumption by 1 tonne up to 1020 cubic meter.

According to the developing modernization program the liquid ammonia warehouse will be completely renewed in order to reduce ammonia losses in the process of transporting and storing. The project is expected to be complete by 2015.

In 2013 the installation of two new screw compressors and new station to condensate gaseous ammonia as well as the implementation of microprocessor based management system were started.

The works have to be completed and the sites have to be put into operation in 2014.

In 2012 a number of project were realized at United Ammonia Plant. This contributed to increase of ammonia production capacities above 1 600 tonnes per day.

In 2013 in order to reduce natural gas consumption coefficient on 1 tonne of ammonia and provide site's safe operation there was realized the replacement of reaction pipes and catalysts of the initial reforming in 1-B sector as well as modernization of technological air compressor.

Investments on production sites in 2013:

39	UAH million	Plant No.1 (ammonia production)
11,7	UAH million	ammonia warehouse modernization
74	UAH million	United Ammonia Plant
30	UAH million	United Urea Plant

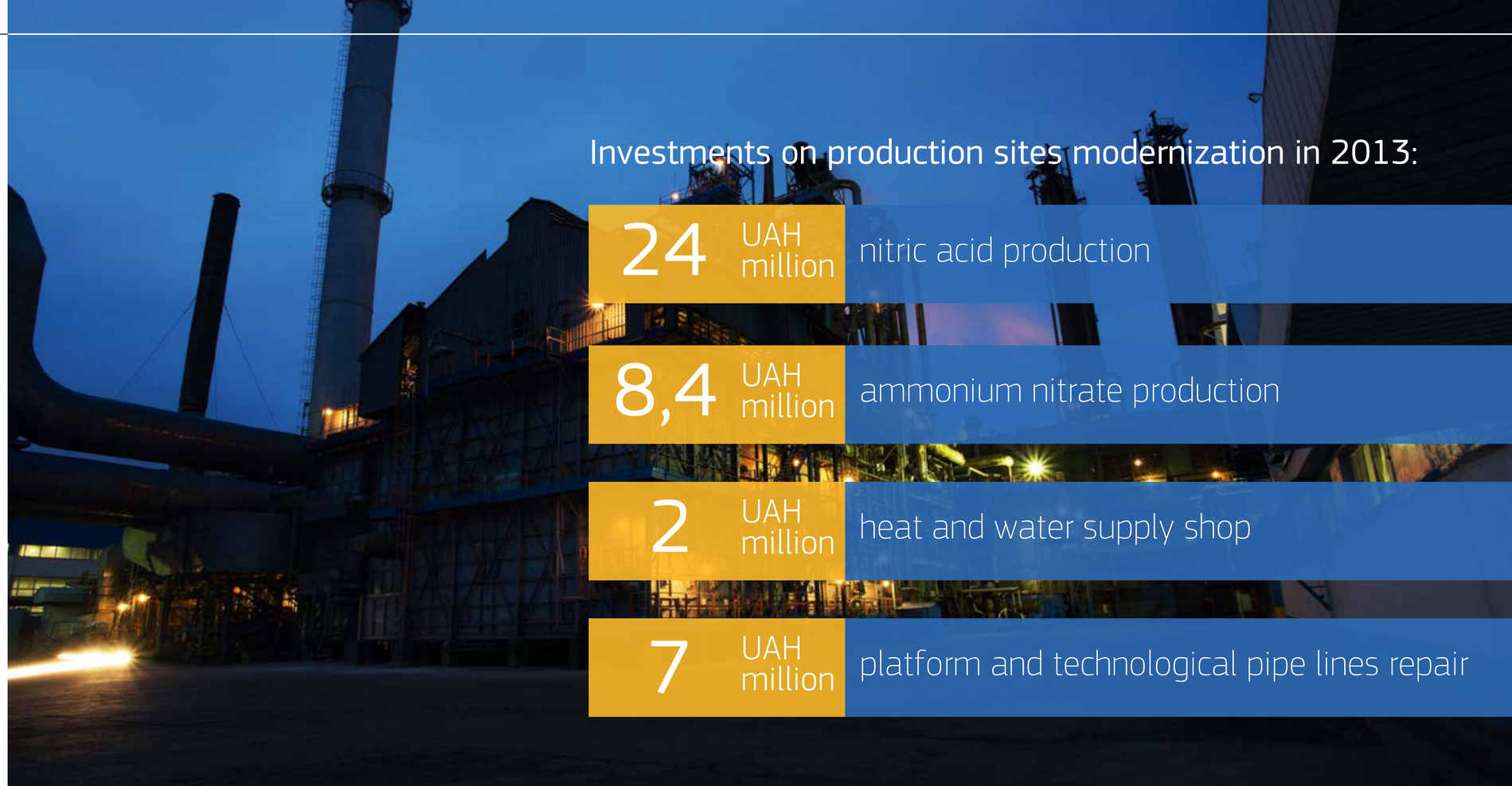
In 2013 a complex of projects were realized at the United Urea Plant in order to reach the stable operation of 2 sites with daily working load 1 500 tonnes per each. The key steps were directed to the reconstruction of stimulation control and protection system SD-4800 kilowatt of turbocompressor K-104 (section No.2) and compressor K-102C renovation (section No.2) as well as implementation of microprocessor technique based Distributed Control System.

In 2013 to provide stable operating of UKL-7 sites in nitric acid production there was realized renovation of sites to replace tail gas heaters and two refrigeration condensers as well as repair of catalyst purifications reactors.

Moreover, the water cycles renovation was continued at heat and water supply shop in 2013.

The same year the reconstruction of ultrafiltration and nanofiltration sites was realized at heat and water supply shop in order to provide the production facilities with the chemically prepared water considering growth in main products output.

In 2013 the loading platforms and technological pipe lines continued being repaired at “Stirol” industrial areas.



Investments on production sites modernization in 2013:

24	UAH million	nitric acid production
8,4	UAH million	ammonium nitrate production
2	UAH million	heat and water supply shop
7	UAH million	platform and technological pipe lines repair

Social responsibility

“Concern Stirol” is not just a core of employees’ professional life but the center of cultural, sport and leisure activity.

The enterprise plays a significant role in social sphere in Horlivka and Donetsk region in general.

The primary focus of “Concern Stirol” social policy is to provide financial support to the employees’ large families and low-income ones, pensioners as well as war and labor veterans. PJSC “Concern Stirol” assists children’s foundations, medical and social institutions in Horlivka. The enterprise also contributes to social infrastructure development, medical service improvement and employees’ rest organization.

PJSC “Concern Stirol” supports the participants of national school Olympiads. Moreover, the enterprise maintains the mini-football team “Stirol-Children’s and Youth Sports School No.2” participating in a number of international and national competitions.

Investments on social infrastructure development:

2011

8,5
UAH million

2012

16,8
UAH million

including 6 UAH million was spent on purchase and maintenance of the buses for “Concern Stirol” employees

2013

50
UAH million

was spent on Culture Center repair in Horlivka

Environmental commitment

RESPONSIBLE CARE®
OUR COMMITMENT TO SUSTAINABILITY

Nowadays “Concern Stirol” is among the leaders on both production rates and environmental safety criteria.

According to State Administration of Environment Protection in Donetsk region the emission level at “Concern Stirol” is by 39% less than permissible level. This index meets the requirements of EU regulations.

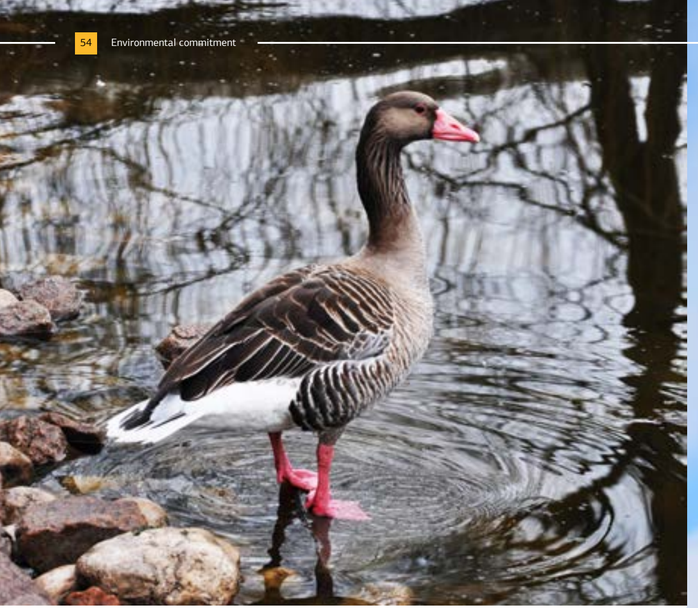
The “Concern Stirol” joined Responsible Care Global Charter along with all OSTCHEM enterprises and implements its own measures in accordance with the “Responsible Care of the Chemical Industry in Ukraine” program.

Since 2002 the enterprises has been using closed cycle production technologies. The atomized environment control system operating at the enterprise is the only one in Donetsk region.

The so-called wastes of 1st and 2nd hazard class are entirely directed to the specialized enterprises to be processed. Waste catalysts, auto tyres, rubber wastes, used batteries, plastics wastes, waste paper and scrap metal are utilized. The process of utilization is carried out under all the environment care rules. PJSC “Concern Stirol” engineering management controls each contractor and is responsible for their observance of the regulations.

“Concern Stirol” environmental efforts were noted by the European Bank of Reconstruction and Development. Enterprise was recognized as one of the environmentally cleanest and safest chemical plants in Europe.

In 2013, the year of its eighties anniversary, “Concern Stirol” spent on environment protection 50 UAH million. Since 2010 the enterprise has already invested about 140 UAH million to eco-projects confirming the European level of environment management at “Concern Stirol”.



The Zoo corner at the plant's territory contributes to the favorable image of "Concern Stirol". There are over 600 birds and animals. It was built 19 years ago and over this period thousands of people, mainly students and schoolchildren from Horlivka and other Donbass cities visited it.

Today the atomized system of environment control is established at the enterprise. It monitors meteorological parameters and provides them online on “Concern Stirol” web site.

The system using the five posts located in the zone of enterprise influence in the distance from 1.5 to 3.5 km takes measurements every 10 seconds and provides clear and reliable information on hazardous emissions in atmosphere.

Following environmental protection policy as a key one, “Concern Stirol” constantly improves enterprises’ equipment and internal systems’ operation.

The projects that made the most significant environmental effect in 2013:

- **designing and implementation of steam-air purification system in ammonium nitrate production shop that enables to reduce nitrate dust emissions 20% less,**
- **liquid ammonia warehouse modernization along with the installation of two new screw compressors and a new station to condensate gaseous ammonia,**
- **renovation of machines at the shop of non concentrated nitric acid, nitrate and nitrite sodium production.**

Employees development

Today “Concern Stirol” employs more than 4 500 people. 40% of them received higher and uncompleted university degree education. The rest 60% were trained in the professions required at the plant.

In the last two years “Concern Stirol” employees’ age structure has changed. In 2010 the average age of the enterprise’s personnel was forty two and in the anniversary year it lowered to thirty eight due to young specialists employment.

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