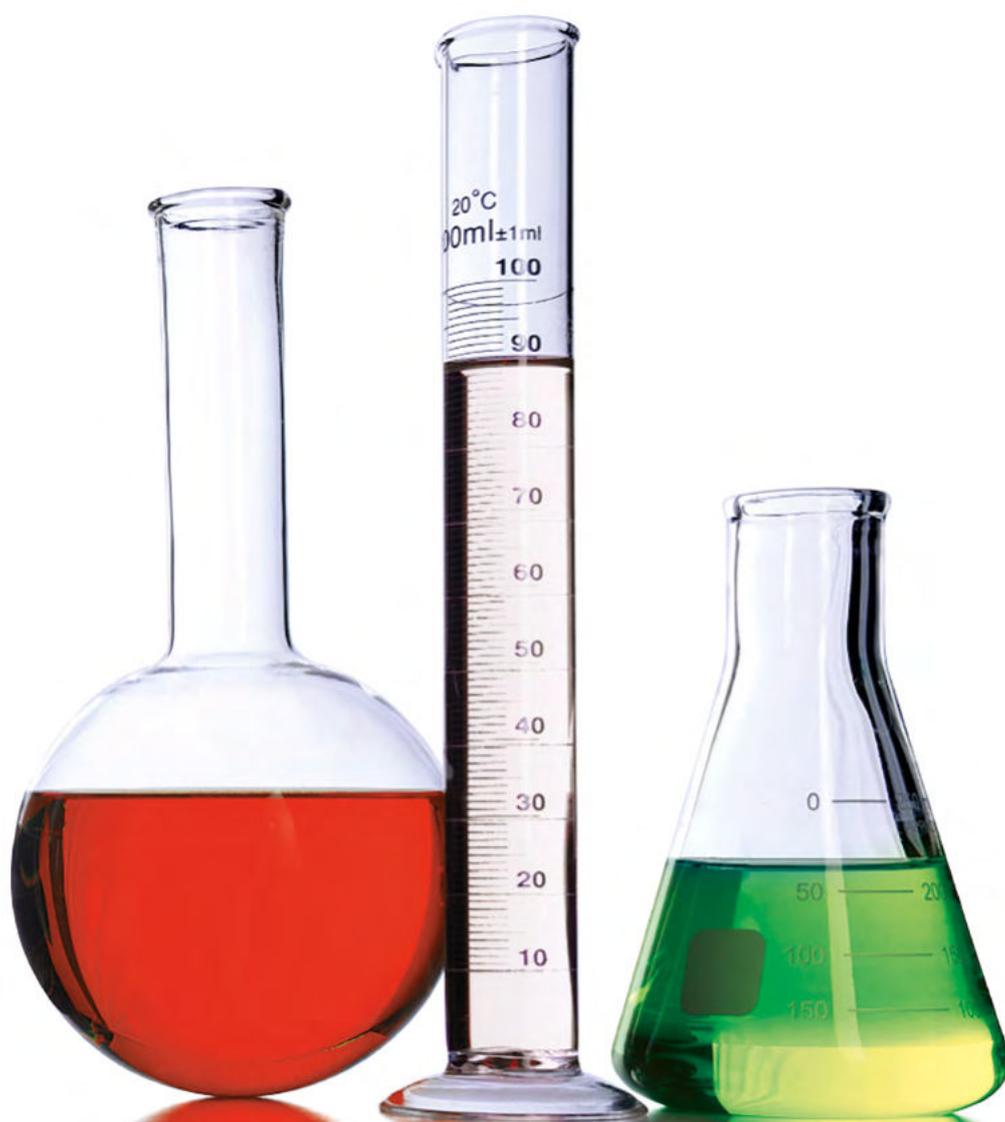


CHEMICAL INDUSTRY IN HUNGARY

25th Anniversary Publication of the
Hungarian Chemical Industry Association



1990



2015



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LECTORI SALUTEM!



Klement Tibor

president of the Hungarian
Chemical Industry Association

Twenty-five years is a long time in industrial history. A quarter of a century has passed since major players of the Hungarian chemical industry established the Hungarian Chemical Industry Association in 1990, which has been the most comprehensive advocacy organization of the chemical producers and trading companies in the country.

The anniversary is a good opportunity to stop for a moment, and at least take a brief look at what has happened in our industry since the early 20th century, when the then most important branches evolved. How was the beginning, the restarts and resumptions, and where is the Hungarian chemical industry today, in the second decade of the 21st century, after so much effort, creativity, and hard work of several generations?

With growing importance, the chemical industry became part of our lives over the past decades, its everyday importance can hardly be questioned. Modern and innovative products manufactured by the industry are essential and indispensable for almost every moment of our lives. An average person encounters thousands of contacts with such products on a daily basis from the household to the workplace. The development of the chemical industry has a positive impact not only on many other industries, being a major driving force in the global, European, and of course, Hungarian economic life, its products and solutions are also important factors for sustainable development. After all, whether it is energy saving, heat insulation, renewable energy devices, environmentally friendly automotive and electronics developments, or agricultural productions that secure the feeding of the world's population, without the high-quality products manufactured by the chemical industry, these developments would not be feasible.

In Hungary, the entire chemical industry, which besides the manufacturing of chemicals and chemical products, includes oil refining and the production of pharmaceuticals, rubber and plastic products, is traditionally one of the leading sectors of the economy because it employs 10 percent—more than 75,000 people—of the industrial workforce across more than 1,000 companies. In addition to raw material manufacturers representing the biggest economic weight in the sector, there are many other high-value-added product manufacturers as well. Due to investments in the chemical industry, the sector manages to deploy world-class technologies, for which continuous innovation is essential. Nearly 60 percent of the production in our country is exported - mainly to the markets of European Union member states.

Defying international trends, the chemical industry of Hungary performs better than the European average. Taking into account a longer time frame, it reports good results vis-à-vis the Hungarian industrial average as well. In spite of the difficult economic conditions and overregulations, the chemical industry is not only preserving its position, but also contributing to the development of the European and domestic industries through new investments, and to the evolution of favorable economic processes.

March 2015



ON THE MAIN PERIODS OF THE HUNGARIAN CHEMICAL INDUSTRY

THE BEGINNING AND RESTARTS 1900-1949

In the decades before World War I, the development of the then main branches of the chemical industry - the pharmaceutical and fertilizer industries - started in Hungary. The main obstacles to capacity expansion were the shortages of coal and raw materials. In the military-related industries, including the chemical industry, there was a significant 27.7 percent increase in manpower, which by then was close to 20,000.

The decision at Trianon (Peace Treaty) fatally weakened the domestic chemical industry. Because of the detachment of former Hungarian territories, important sources of raw materials and processing facilities were no longer part of the mother country, including 40 significant chemical manufacturing bases, not to mention four-fifths of the Austro-Hungarian Empire's 50-million consumer market. As a result, the chemical industry had to be rebuilt practically from ruins.

From 1920 onward, despite the difficulties in recovering and reorganizing the economy and the consequences of the global economic crisis between 1929 and 1933, the chemical industry managed to carry out significant advancements; its weight in the industry was 7 percent in 1929, while in 1938, it exceeded 9 percent. By this time, the chemical companies were capable of meeting the needs of all the domestic industries and agriculture.

The pharmaceutical industry developed the fastest. More than 20 pharmaceutical companies produced 20 million pengő worth of production value, and their products worth 3-4 million pengő were exported to many countries around the world. The domestic rubber industry gained foreign recognition for its excellent and high-quality products. It manufactured 25-30 million pengő worth of products; 10 percent of those were sold abroad. The industrial gas production and mineral oil processing industries were well developed as well.

During World War II, nearly one-third of the Hungarian chemical industry's production capacities were destroyed. However, after the war, as a result of massive reconstruction efforts, the production restarted again, and by 1949, the production exceeded the prewar values.

BROWSING BETWEEN THE FACTORY ESTABLISHMENTS

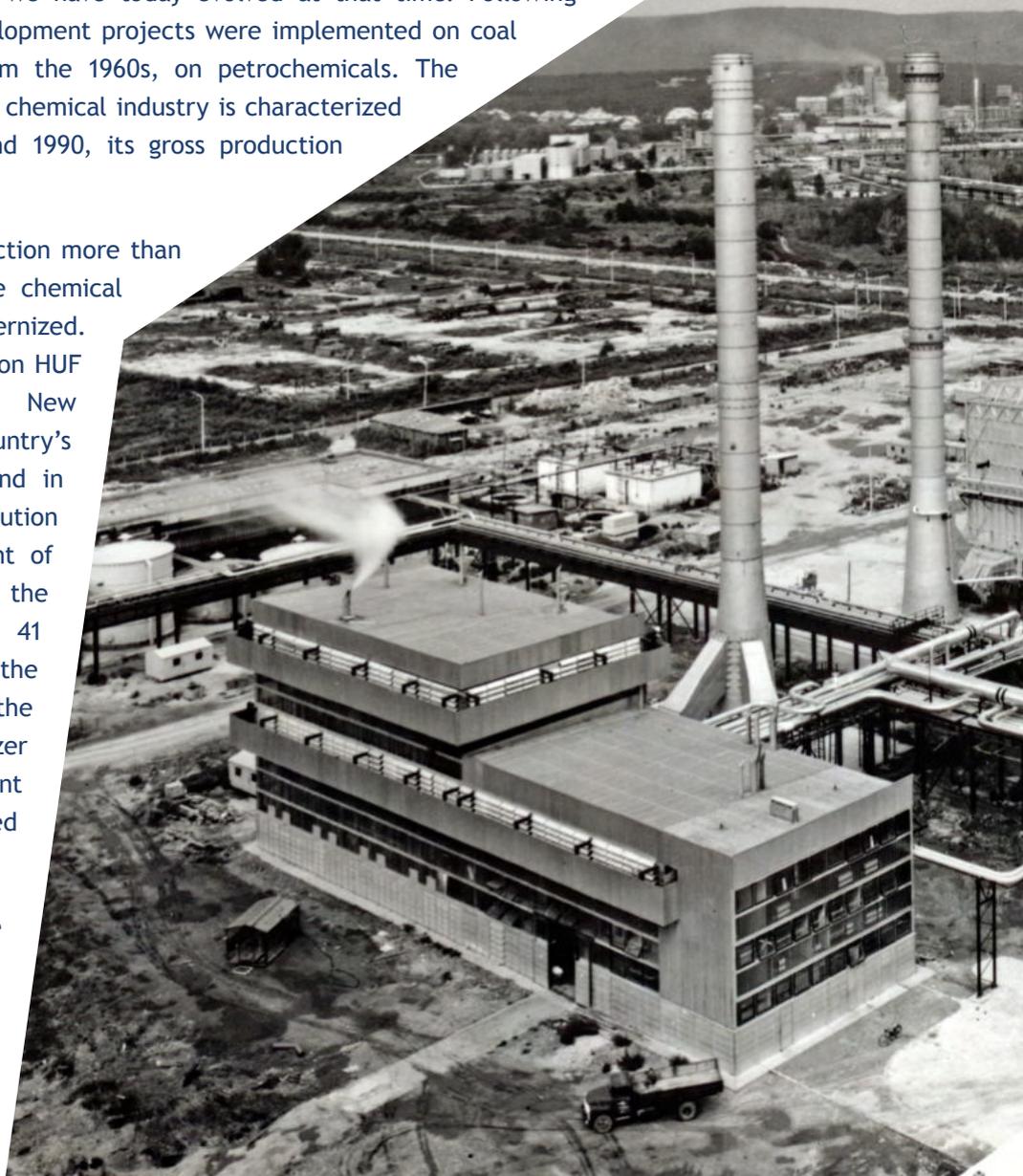
- 1905 Galenus Gyógy és Vegyigyár (predecessor of Reanal)
- 1906 Magyar Dissousgáz JSC
- 1907 Hungária Vegyiművek
- 1907 The plant was built at Kóbánya, which later gave place to Richter Gedeon Plc.
- 1910 ALKA Vegyészeti Gyár (Chinoïn from 1913)
- 1916 Viktória Vegyészeti Művek JSC (Budalakk's plant from 1968)
- 1917 Magyar Mezőgazdasági Vegyipari JSC (Magyaróvár)
- 1921 The Municipal Gas Company's liquid ammonia production plant
- 1921 Magyar Lőporgyárüzemi JSC, start of the successor, the Nitrokémia Ipartelepek
- 1922 Ipari Robbanóanyaggyár (Peremarton)
- 1922 Magyar Gomb- és Műanyaggyár (predecessor of Pannonplast)
- 1926 Alkaloida Vegyészeti Gyár JSC.
- 1929 Klotild-Acetic Első Magyar Vegyipari JSC (from 1966, division of the Egyesült Vegyiművek)
- 1931 Magyar Ammóniagyár JSC and Magyar Műtrágyagyár JSC (Pétfürdő), predecessors of Nitrogénművek Ltd.
- 1941 Magyar Viscosa-gyár JSC (Nyergesújfalu), predecessor of Zoltek Ltd.

INTENSIVE DEVELOPMENT AND RESTRUCTURING 1950-1970

Despite the fact that the chemical industry was among the fastest-growing sectors between the two world wars, it only gave 9 percent of the production of the whole manufacturing industry. After World War II, especially from 1960 onward, the industry's development accelerated, and most of the production capacities we have today evolved at that time. Following international trends, chemical development projects were implemented on coal basis, and later on, beginning from the 1960s, on petrochemicals. The spectacular growth of the domestic chemical industry is characterized by the fact that between 1950 and 1990, its gross production index increased 31-fold.

Between 1950 and 1955, the production more than doubled, and the structure of the chemical industry's production became modernized. During the three-year plan, 2.8 billion HUF were invested in the industry. New fertilizer plants were built in the country's northeastern region (BVK, TVK) and in Szolnok (TVM). In 1960, a resolution about the accelerated development of the industry was adopted. During the second five-year plan (1961-1965), 41 percent of the investments in the chemical industry went to the development of fertilizer manufacturing; also, a significant amount, 2.2 billion HUF, was invested in developing plastics production.

During these two decades, the Hungarian chemical industry was not only closer to the international average, but also, in some cases, belonged to the front runners.



INFORMATION ON THE DEVELOPMENT OF THE CHEMICAL INDUSTRY TO THE POLITICAL COMMITTEE 1959

The primary direction and aim of the development of our chemical industry is to significantly increase the production of fertilizers, together with the development of synthetic fibers and plastics production. The raw materials for these products are crude oil and natural gas.

From natural gas: nitrogen fertilizer, PVC, methyl alcohol, urea, formaldehyde, and aminoplast plastic

From crude oil distillate: benzene, phenol, caprolactam, polyethylene, perlon synthetic fiber, fenoplast plastic, and plastic softener will be produced

The above-listed chemical products are the backbone of the development in our chemical industry. In 1958, these products represented 4.6 percent of our chemical industry's production; by 1965, they will represent more than 22 percent.

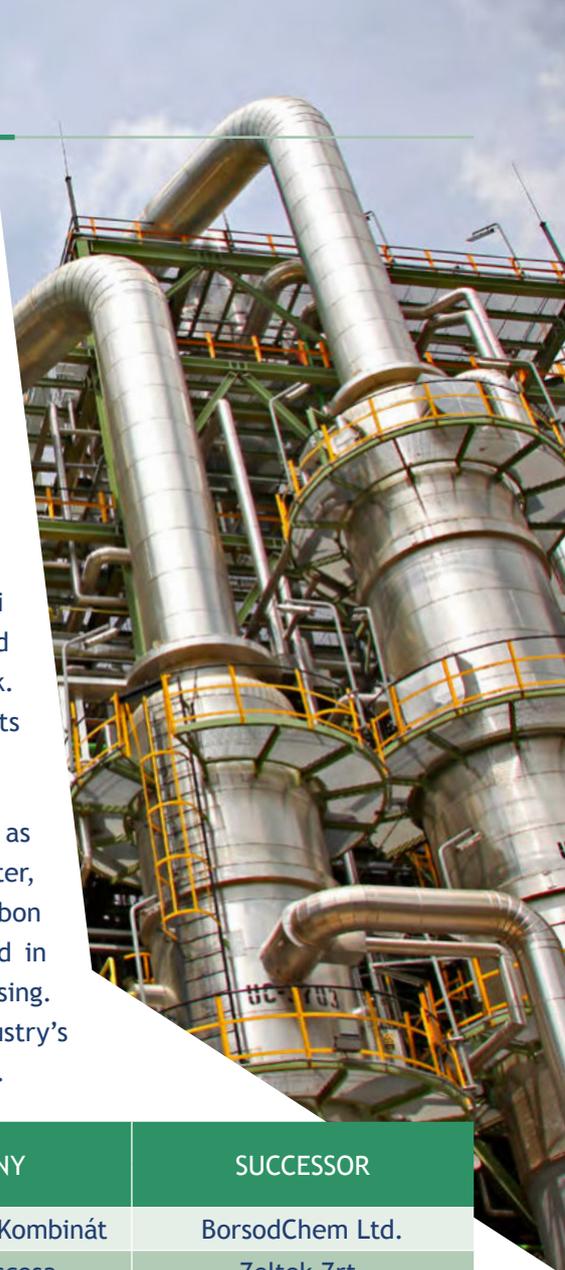
	Production (in tons)	1959 plan	1965 plan	Index
In 1965, the manufacturing of the most important chemical products would be most likely the following:	Nitrogen fertilizer	211 000	730 0000	346
	Phosphorus fertilizer	195 000	600 000	308
	Plastics total	7 300	50 000	683
	Synthetic fiber and yarn (without viscose)	300	3 500	1 170

PETROCHEMICAL INVESTMENTS 1971-1989

After 1970, the growth in the productivity of the chemical industry was outstanding, even by international standards; over the decade, it had been increasing by 8.8 percent every year, which was the highest among the CMEA countries. The main driver of the growth was the development of the Hungarian petrochemical industry.

The launch of the CMEA Complex Program was the decisive external factor in this development. The main goal of the program was the integration of petrochemicals into the industry. In Hungary, as part of the **Petrochemicals Central Development Program**, large investments were made: PVC plant at Borsodi Vegyi Kombinát, olefin value chain at Tiszai Vegyi Kombinát, poly-acryl-nitrile plant at Magyar Viscosa Works, and ammonia, pétság, urea, and mixed fertilizer plants at Péti Nitrogénművek. As a new chapter in the development of the industry, 18 chemical plants were built between 1970 and 1989.

As a result of the investments, other segments of the industry, such as fertilizers and synthetic fiber production, also increased. One decade later, based on synthetic fiber production, Europe's leading manufacturer of carbon fiber was born. With this, a new and significant plastic industry evolved in Hungary, including plastic raw material production and plastic processing. Among the chemical products and materials, the petrochemical industry's products have the highest ratio in terms of export sales to the present day.



Entry	PLANT		COMPANY	SUCCESSOR
	FERTILIZERS	PLASTIC		
1971		PVC-II.	Borsodi Vegyi Kombinát	BorsodChem Ltd.
		Danamid(PA6) silk	Magyar Viscosa	Zoltek Zrt.
1972	NPK complex artificial fertilizer		Peremartoni Vegyipari Vállalat	Several farmers
1973		Viscose yarn expansion	Magyar Viscosa	Zoltek Ltd.
		Poly-acryl-nitrile yarn		
1975		Olefin plant	Tiszai Vegyi Kombinát	TVK Plc.
	Ammonia plant		Péti nitrogénművek	Nitrogénművek Ltd.
	Pétság plant			
	Urea plant			
	Mixed fertilizer plant			
1977		Poly-acryl-nitrile yarn	Magyar Viscosa	Zoltek Ltd.
1978		PVC-III.	Borsodi Vegyi Kombinát	BorsodChem Ltd.
		PP-I.	Tiszai Vegyi Kombinát	TVK Plc.
1982		PA6 granules	Magyar Viscosa	Zoltek Zrt.
1983		PP-II.	Tiszai Vegyi Kombinát	TVK Plc.
1984	NPK complex artificial fertilizer		Peremartoni Vegyipari Vállalat	Several farmers
1986		HDPE-I.	Tiszai Vegyi Kombinát	TVK Plc.
1989		PP III.		

PRIVATIZATION AND STRUCTURAL CHANGE 1990-2000

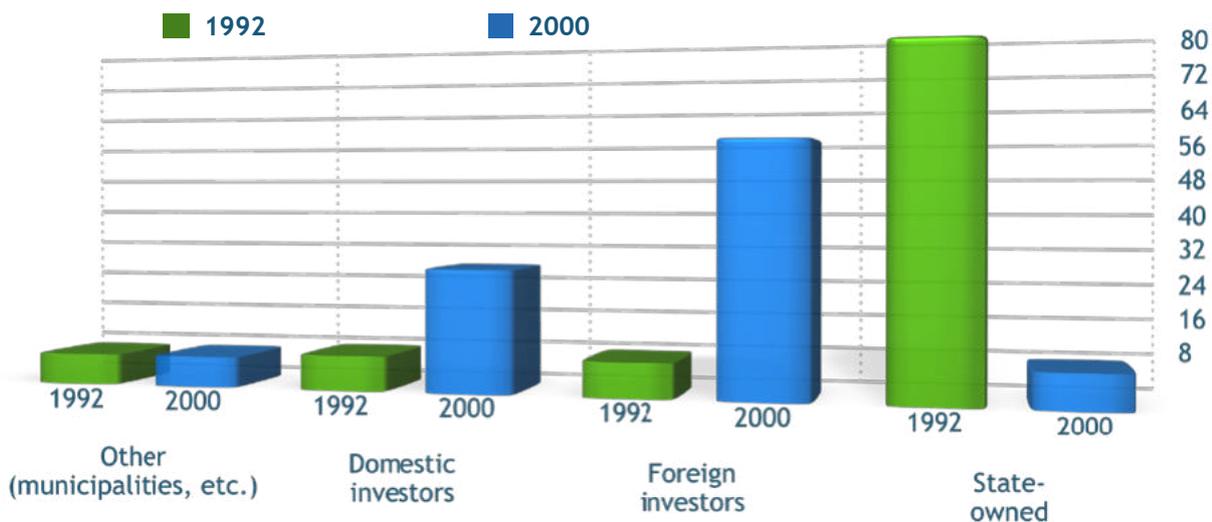
During the transition from planned to market economy, the chemical industry's performance declined - not independently from the overall economic processes that prevailed at that time in the country and the Central European region. In 1990 the chemical industry accounted for 21.2 percent of the whole industry, but by 1999 it was only 13.8 percent.

The transformation of the Hungarian agriculture created a situation where, suddenly, there was a radical decrease in the demand for fertilizers and plant protection chemicals. This sector of the industry suffered the biggest loss during the '90s.

The production volume in the crude oil processing segment declined the least, and significant refinery developments were implemented. The production volume of plastic raw materials remained the same, but from 1992 onward, its weight within the chemical industry started to increase, and by 1999, it was much higher than in other EU countries. Sixty percent of the products were exported to EU members and Central and Eastern European region.

The privatization of the industry's companies was implemented in several phases, and it ended by 1998. Most companies were acquired by professional investors, several companies' shares were introduced to the stock exchange.

THE OWNERSHIP STRUCTURE OF COMPANIES IN THE CHEMICAL INDUSTRY (%) 1992-2000



THE PROCESSES ASSOCIATED WITH PRIVATIZATION:

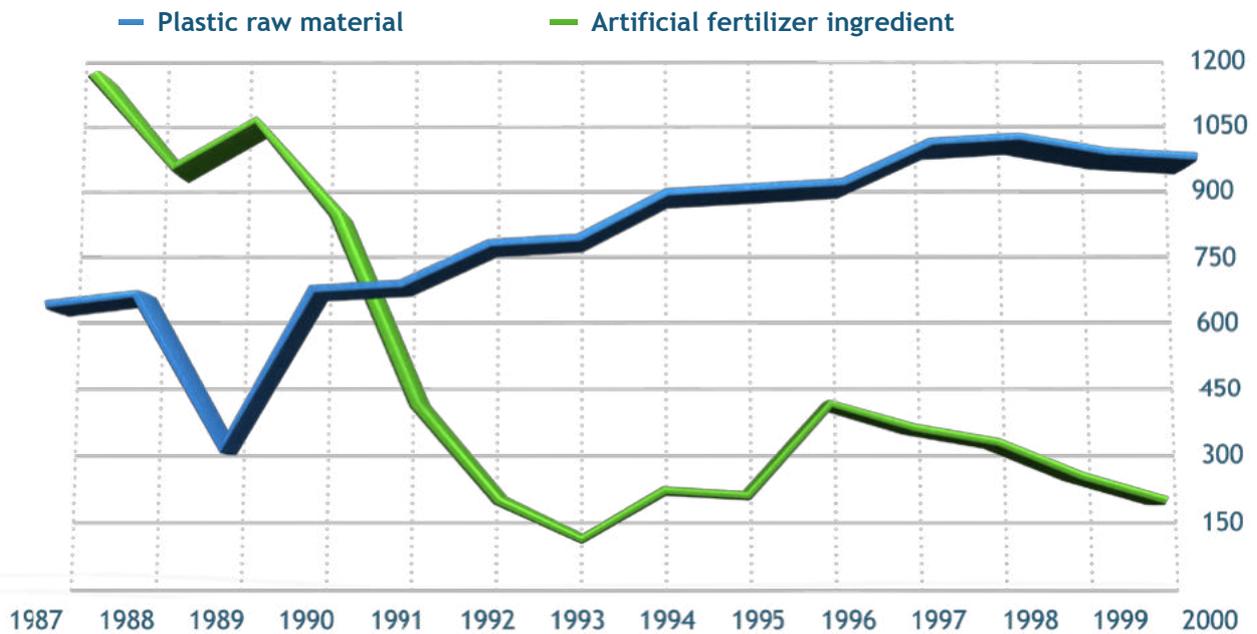
- Transferring state-owned lands and buildings to municipalities
- Ensuring state ownership (25+1% golden share), then gradual withdrawal (Alkaloida and MOL)
- Establishing holding companies (Pannonplast and Graboplast)
- Splitting companies, then selling the parts
- Separating the profitable and unprofitable parts (Nitrokémia)
- Cleaning profiles (TVK: plastic processing; MOL: gas business)
- Changing names (Nitroil: Huntsman; Viscosa: Zoltek)

THE PRIVATIZATION TECHNIQUES USED:

- Sell it as a whole to one or several buyers (Chinoin)
- Sell it as a whole to a legal entity formed by the workers under the employee stock ownership plan (Budapesti Vegyiművek, Egyesült Vegyiművek, Pest Megyei Műanyagipari Vállalat)
- Employee ownership through the conversion of chemical cooperatives (Első Vegyi Industria, Florin)
- After improving the company (with or without state assistance), sell the shares of the company to several financial investors through road shows (Richter, MOL, BorsodChem, TVK)

The market economy conditions, including privatization, inflow of foreign capital, import liberalization, and the radical decline of state ownership, drastically changed the structure of the Hungarian industry, including the chemical industry. This can be seen well by looking at the changes in the production volume of plastic raw materials and fertilizers during the decade.

PRODUCTION OF PLASTIC RAW MATERIALS AND FERTILIZERS (kt) 1987-1999



The changes during the '90s were complex and often controversial. Compared with other areas of the economy, the changes in the chemical industry were perhaps more spectacular and prominent, which radically rearranged the situation of the individual companies and of the chemical industry as a whole. As a result of these changes, the weight of the chemical industry declined. On the other hand, its largest companies raised to a level where that had a significant impact on the performance of the whole economy of Hungary.

Overall, one can say that despite the decline within the subbranches, including the manufacturing of household, cosmetic and plant protection products, the industry successfully managed the transition from a planned to a market economy.



WITHIN A EUROPEAN COMPETITIVE ENVIRONMENT 2001-2007

In 2001, the domestic weight of the chemical industry was significantly lower (14.2%) than the EU average (20.9%). However, by 2004, when Hungary joined the EU, the chemical industry became the second largest after the machine building industry. During the first half of the decade after the millennium, 26 percent of the investments went to the crude oil refining industry, 22 percent to the pharmaceutical industry and plastic raw material production, 17 percent to the plastic processing industry, and 4 percent to the rubber industry. Extremely high value investments were made at four companies (MOL, TVK, BorsodChem, Nitrogénművek).

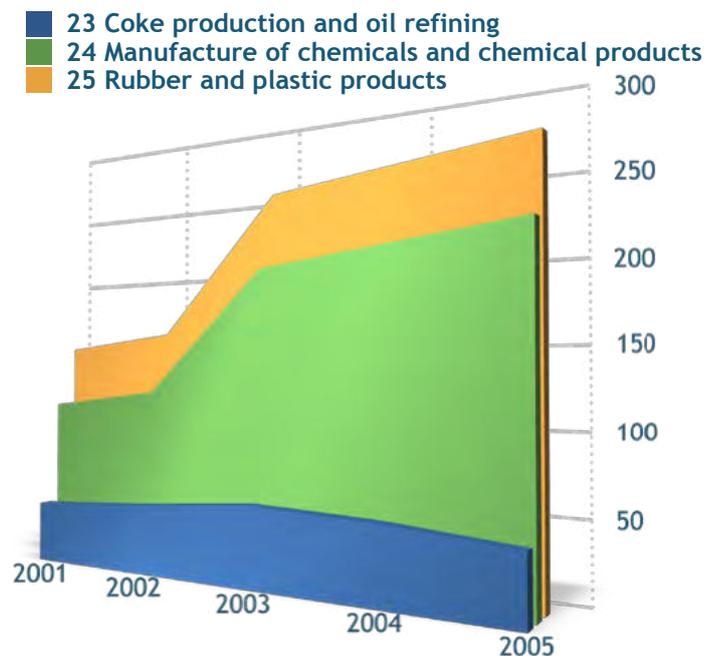
Throughout the decade, the efficiency and profitability indicators of the chemical industry were above the industrial average. However, due to the sector's environmental risk and impact, the regulatory compliance requires significant efforts from, and imposes considerable financial and administrative burdens on the companies.

During the years following the millennium, the chemical industry managed to get into second position because of significant investments, leading to the regional strengthening of the crude oil and petrochemical industries.

As a result of joining the EU and also due to global effects, Hungarian chemical companies had to reckon with factors shaping the global chemical industry, such as

- rising demand and expectations with regard to reducing environmental impact,
- profit expectations associated with globalization,
- increased expectations with regard to the quality of manpower, particularly in view of the rapid spread of new technologies

INVESTMENTS IN THE HUNGARIAN CHEMICAL INDUSTRY (BILLION HUF) 2001- 2005



In 2001, MOL put into operation a delayed coking plant, worth 55 billion HUF, to ensure its residual-free crude oil refining process. In 2005, the company finished a 60-billion-HUF project, which was carried out to improve fuel quality.

In 2002-2004 at TVK, in a petrochemical development project, 110 billion HUF were invested into a new olefin and polyethylene plant, and the PP-4 factory's production was intensified.

In 2003-2006 at BorsodChem 300 million EUR were invested, through which the capacities of VCM, PVC, and TDI plants were increased, and a new chlorine and MDI plant was built.

In 2005-2008 Nitrogénművek invested 100 M EUR in new nitric acid and fertilizer granulating plants. The nitric acid plant is the largest and most up to date production facility of its kind.

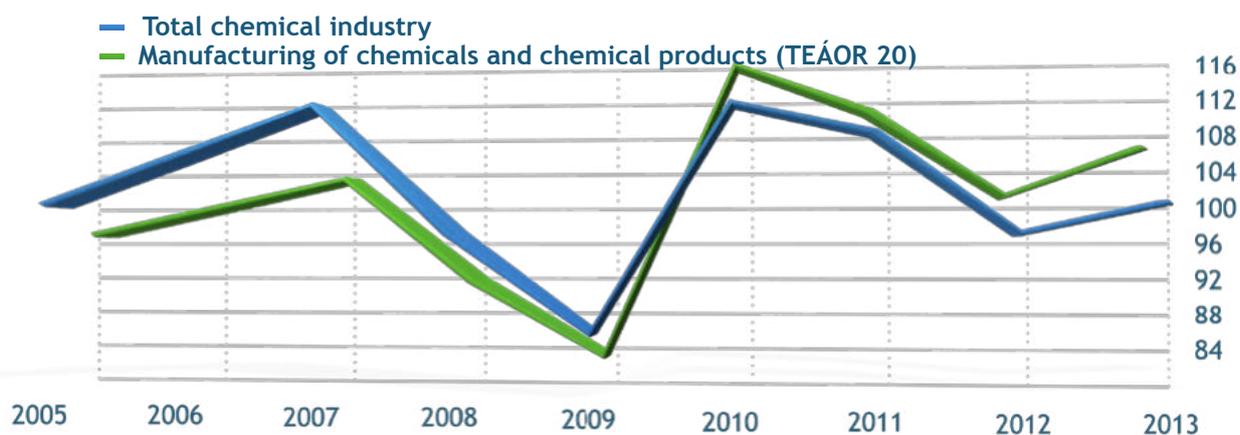
Chemical production in Hungary, even though it contributes significantly to country's economy, makes only a slight contribution to the overall European chemical industry output, representing only about 1 percentage point of the EU 28 production. In the last 15 years, the Hungarian chemical industry's biggest challenges were coming from the global economy and its commitments to the EU. To comply with European standards of environmental, safety and health performance is in fact an indispensable condition for the competitiveness and sustainability of the Hungarian chemical industry.

CRISIS AND RECOVERY 2007-2015

Between 2000 and 2007, due to investments in capacity expansions and the growth of the markets, the chemical industry was growing, and it made up 16 percent of the production of the domestic industry. However, the sector was hit hard by the financial and economic crisis starting from the second half of 2008. The chemical industry produces intermediate products for the automotive, electronics, construction, and other industries; and for that reason, the recession in those areas has a direct and immediate impact on the demand for chemicals and chemical products. This was the particular case in Hungary, where there was a decline in the production of plastic raw materials, which had 620 billion HUF worth of production value at the beginning of the crisis; and other important segments, such as agricultural chemical products, paints and coatings, and plastic processing, declined as well.

The companies tried to stabilize the situation and save their employees through taking prompt actions. They implemented immediate cost-reduction, energy efficiency and process improvement measures in the areas of technical and commercial activities. Their production technology processes were designed to be able to easily switch to products that were less exposed to the recession so that they were able to produce and sell more of those.

DYNAMICS OF PRODUCTION IN THE CHEMICAL INDUSTRY (previous year=100) 2005-2013 SOURCE: KSH



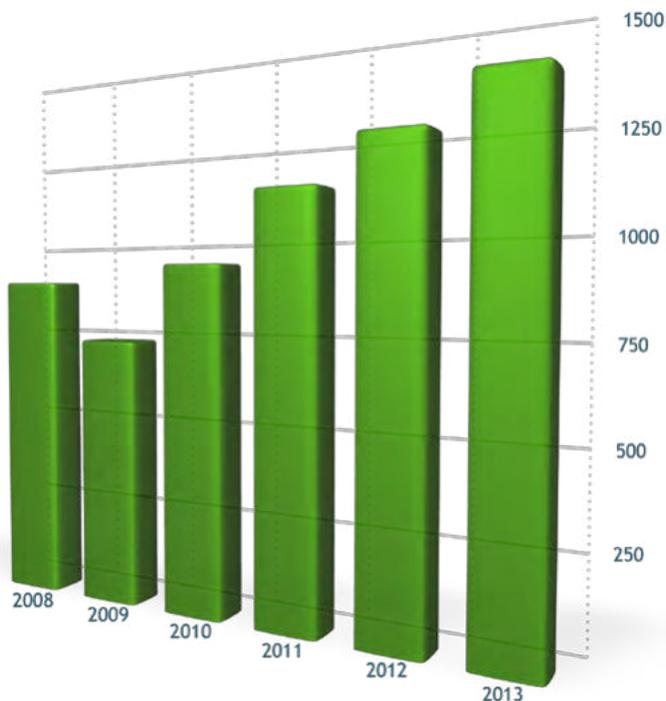
The corporate actions that were taken in order to mitigate the negative effects of the crisis soon appeared to be successful even at the sector level. Due to these measures and the positive developments in export markets, the Hungarian chemical industry's production was on the increase again in 2010 and 2011. However, it wasn't a linear curve considering the dynamics of the recovery, because there was a decline in 2012. Even though the data have been favorable in 2013 and 2014, one can only hope that the chemical industry will be on a stable growth trajectory, following similar, yet to be awaited, European and domestic economic trends.

Important decisions were made in order to further develop production capacities of companies. As part of a 100-million EUR development, at TVK there is an ongoing project to construct a 130,000 tons/year capacity butadiene plant (and a linked synthetic rubber plant). At BorsodChem, as a result of its TDI-2 project, which ended in 2011, the yearly production capacity increased to 160,000 tons. The MDI-2 project, which is now underway, will increase the yearly capacity from 150,000 to 300,000 tons. From 2012 Nitrogénművek has been investing 350 M EUR in expanding ammonium, nitric acid and fertilizer production. The company's present capacity of 1 million ton/year fertilizer production will increase to 1,6 million ton/year by 2017. Capacity expansion and energy efficiency projects were carried out also by Zoltek Ltd., the European market leader in carbon fiber production. These investments, aiming to extend the chemical industry's capacities and value chain, are to generate new growth in chemical industry in Hungary. For this to happen it is, of course, essential that the markets recover and that positive changes occur in the regulatory environment, too.

MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS

(billion HUF) 2008-2013

SOURCE: KSH



As the products manufactured by the chemical industry are used in all sectors of the national economy, the growth potential of the industry is fundamentally and substantially affected by the overall European and national economic trends. In 2009, Hungary has experienced a deep crisis when the recession approached the decline level seen at the time of transition to the market economy (1991-1995). However, from the point of view of the Hungarian economic processes, a remarkable fact is that the downward trends in the economic investments stopped in 2013, mainly because of public investments, and started to increase (according to Hungarian Statistical Offices data, it was 7.2 percent higher than in the previous year).

According to the macroeconomic indicators, recovering from the economic crisis began in 2009 in the larger economies of the EU when an economic expansion started. But by 2011 and 2012, the Eurozone crisis held back the development of the Western European economies again, so from 2013, the European economy recorded only modest growth.

TODAY THE CHEMICAL INDUSTRY IS A PROMINENTLY IMPORTANT PART OF THE HUNGARIAN ECONOMY

- The chemical industry is outperforming the European chemical and the Hungarian industry's average growth rate, and since 2007, it keeps its position despite the difficult economic conditions and overregulations.
- With a rational national industry strategy and the utilization of domestic opportunities, the industry could expand (not reduce) its portfolio, and therefore, it could substitute a significant portion of the import of chemical products, primarily in the consumer chemicals segment. For that purpose, a huge untapped infrastructure and intellectual potential are available in the sector.
- Proceeding from the above considerations the Hungarian Chemical Industry Association took its position on the question of the utilization of EU funds during 2014-2020, urging that government statements to the effect that 60 percent of both EU and domestic resources would be spent on economic development should become reality and the chemical industry would also benefit from them.



The chemical industry, particularly the manufacturing and sales of chemicals and chemical products, might be favorably affected by the expansion of the domestic production in some sectors of the processing industry, the construction industry and agriculture. The recession in the construction industry unfavorably affects the domestic sales of chemical products because a significant part of the building materials, such as insulation, paints and adhesives, plastics for windows, doors, and other building engineering materials, are produced by the chemical industry. It is particularly unfortunate that in recent years, state programs were insignificant or terminated for the outdated panel houses and generally for the energy saving renovation of buildings. With these programs, real and lasting energy cost reduction can be achieved through the modernization of heating systems, replacement of windows and doors, and installation of effective thermal insulation, while giving significant work to the small- and medium-sized enterprises in the construction industry and to the chemical companies manufacturing these products and thereby offering solutions.

Proceeding from economic realities, in the case of the Hungarian chemical industry export driven growth can be expected in the middle of this decade. Foreign markets have decisive influence on the stability, revenues, and profitability of the chemical companies, and particularly the Eurozone plus the central and southeastern European regions as major markets for the Hungarian chemical products will remain important factors for the perspectives of the Hungarian chemical producers.

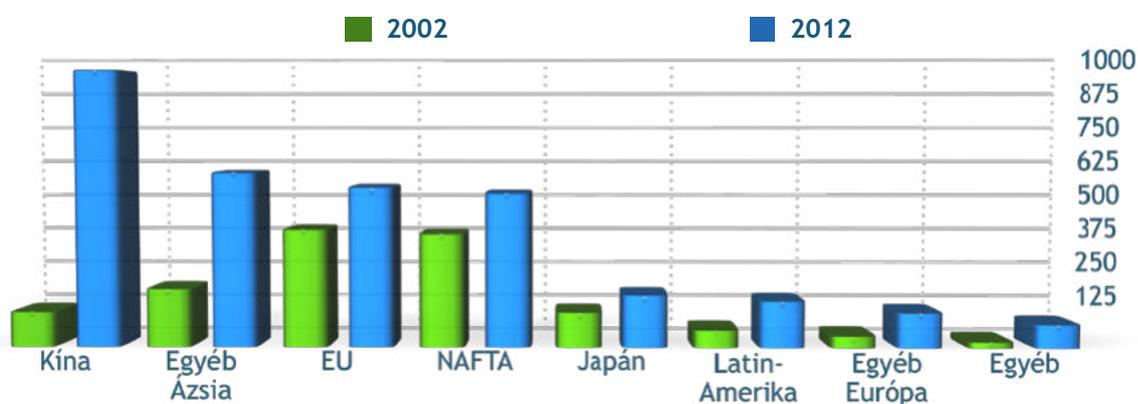


EUROPEAN CHEMICAL INDUSTRY TRENDS

MAIN MARKET TRENDS SHAPING THE CHEMICAL INDUSTRY IN THE WORLD AND EUROPE

The European chemical industry, like many other sectors, was largely affected by the globalization shifts over the past few decades. In 2002, the EU was still the leading chemical power, with 30.5 percent of the internal and external sales, but by 2012, it slipped back into third position with 17.8 percent. On the other hand, China's global chemical sales drastically increased (from a yearly 8.7 percent in 2002 to 30.5 percent by 2012). Also, the emerging regions' global presence increased, while at a greater or lesser extent, the global share of the EU, but also of the US and Japan drastically decreased. This relative decrease happened despite the increasing EU sales trends, meaning that the increase was stronger in the emerging regions. It is another issue that behind China's exploding growth, the main drivers were mostly European (and other developed regions') chemical companies. From this point of view, the loss in dominance—what could be derived from the sales figures—is only relative.

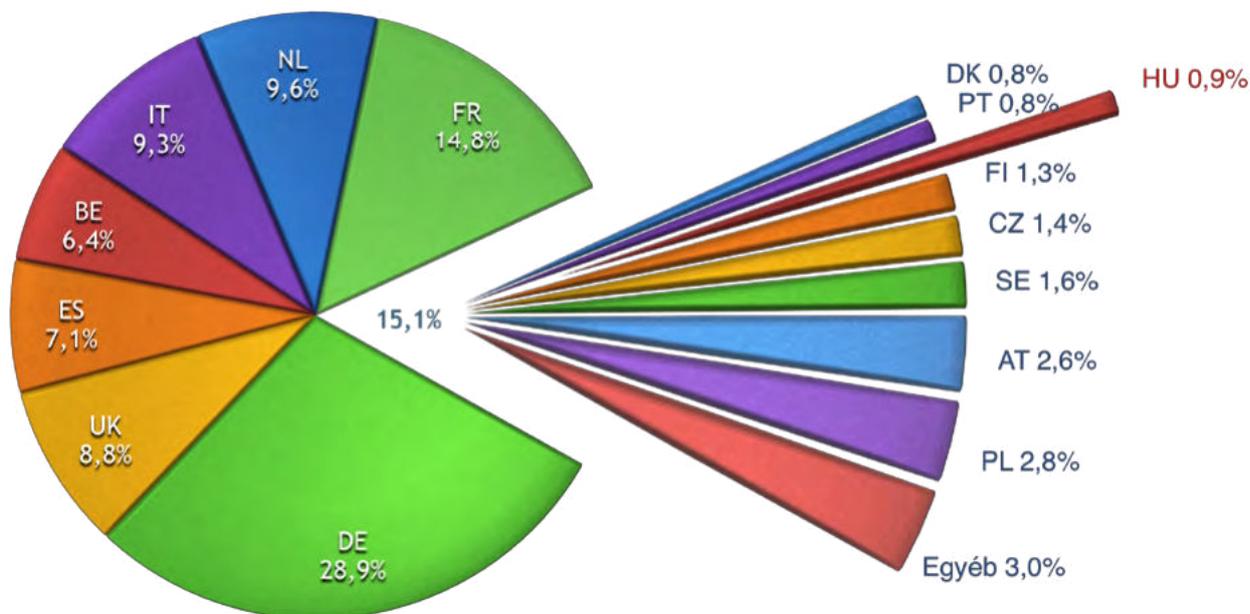
SALES VALUES OF THE CHEMICAL INDUSTRY BY REGIONS (billion EUR) 2002-2012 SOURCE: CEFIC



By countries: The United States is in second place behind China. Japan is in third; then comes Germany, the leading European chemical industry, accounting for 5.2 percent of the global sales. France occupies the sixth place with 2.6 percent.

Within the EU the chemical industry is relatively concentrated: In 2012, 85 percent of the total EU sales were linked to seven countries, mostly those that have dominant positions in the processing industry as well. Germany accounted for 29 percent, followed by France and the Netherlands. The former accounts only for half, while the latter accounts for one-third of the German output. Hungary is among the less important chemical producers with only 0.9 percent of the European total, in terms of output similar to the Portuguese and Danish chemical industries.

SALES OF THE EU CHEMICAL INDUSTRY BY COUNTRIES (%) 2012



Even though the global weight of the sales of the European chemical industry is declining, the sales volumes are still increasing. This is largely due to the sales between the EU countries and, to a lesser extent, to the sales outside the EU. Meanwhile, the sales in the individual countries declined by 18 percent between 2002 and 2012. This decline indicates the internationalization of chemical products, and tells that the globalization of the use of chemical products, either for consumption or for production purposes. The sales growth within the EU27 has been significantly affected by outsourcing production to new member states, and by integrating these countries into the global production chains of the chemical industry.

In terms of foreign trade of the chemical products, the EU is still a dominant player; the EU's export (external) accounted for 42 percent of the global exports in 2012 (the second was Asia with 35 percent). In terms of import, the EU accounted for 35 percent, which is behind Asia's 39 percent. As a result, the European chemical industry is recording trade surplus for the continent year after year.

The chemical industry has been a traditionally important export sector for the EU. In a broader spectrum (including crude oil processing, plastic processing and pharmaceutical industries), the chemical industry, in terms of both export and export surplus, is the second most important product group after the machines and automobiles.

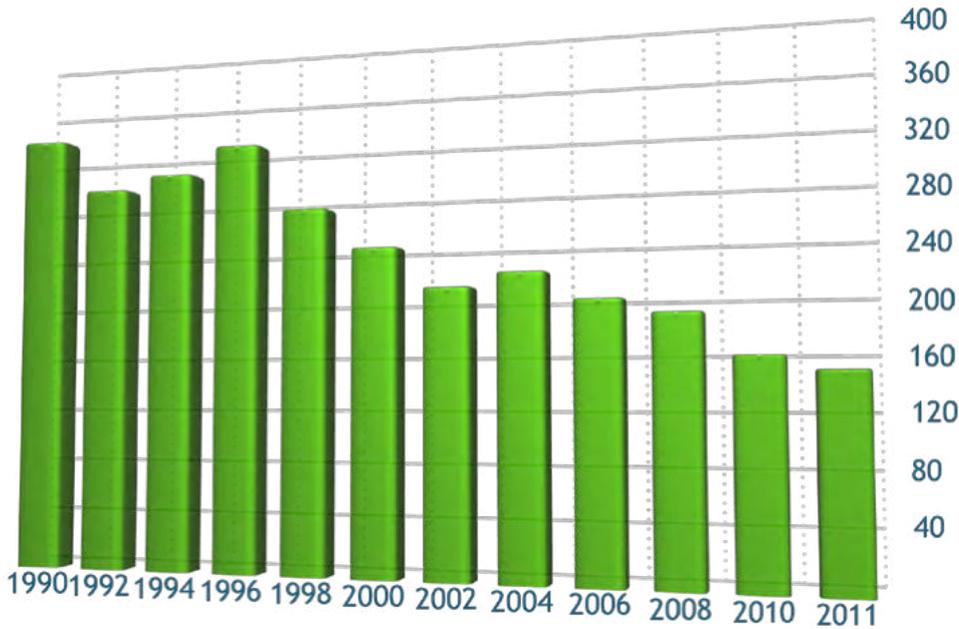
This growth in export and export surplus is due to the trade with the developing regions, while the trade with Japan and North America has not seen any expansion regarding chemical products. In view of the recent trends, Asia (even without including Japan and China) could soon take over North America's position as the second most important partner region.

For the future positions, it is an unfavorable circumstance that after 2006 the investment dynamics of the European chemical industry has been lagging behind the competition. In 2012, the broader EU chemical investments were only 2 percent higher than in 2006. Meanwhile, in Japan it was 32 percent, and in the United States it was 90 percent higher—not to mention China, where the value of the investments became almost fivefold.



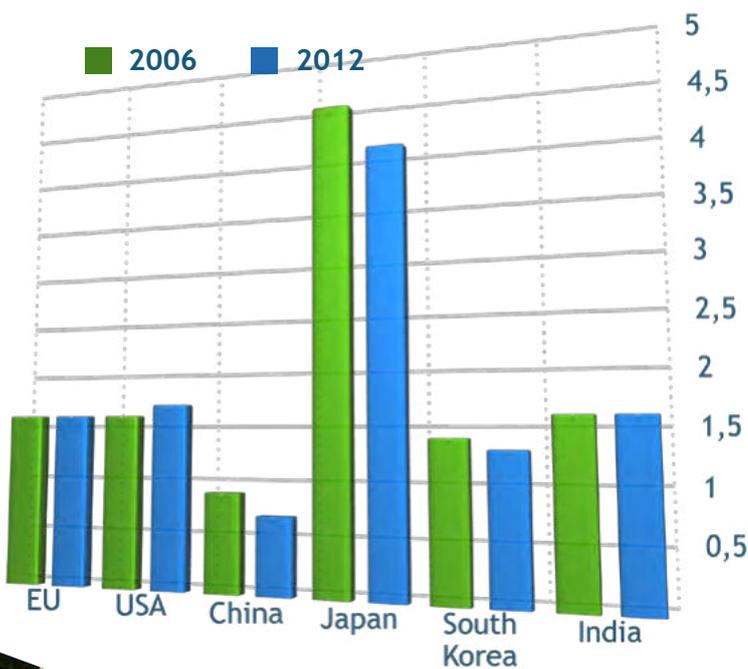
GREENHOUSE GAS EMISSIONS OF THE EUROPEAN CHEMICAL INDUSTRY (measured in CO₂ equivalents, million tons) 1990-2011

SOURCE: CEFIC



However, with regard to the absolute R&D expenditures, the European chemical industry is considered the leader. It was also true in 2012, despite the fact that the growth rate was lower, than for most of the competitors between 2006 and 2012. Strengthening the capacity for innovation was one of the primary objectives of the European chemical industry as well. In terms of intensity of the R&D expenditures (the ratio of expenditures to the sales), the EU is doing fine. However, it is far behind the leader, Japan, and the long-term trend is declining.

VEGYIPARI K+F INTENZITÁS (%) 2006-2012 FORRÁS: CEFIC



With regard to environmental sustainability, the European chemical industry is performing well; between 1990 and 2011, the greenhouse gas emissions declined by 53 percent (measured in CO₂ equivalents). This reduction took place parallel to the sector's production expansion, so therefore, the emission intensity (the average emission rate per product unit) has decreased even more significantly - by 71 percent between 1990 and 2011.



REGULATION, COMPETITIVENESS, AND SUSTAINABILITY

“SMART REGULATION” AND COMPETITIVE INDUSTRY

The chemical industry is a priority area for state regulation, not only in Hungary, but also in Europe and globally. This is primarily justified with the industry's technological characteristics: in chemical production special attention has to be paid to environmental, health, and industrial safety aspects, and compliance with production disciplines. However, it is impossible not to notice that behind these objectives intentions to push out others from the market appear from time to time.

As a result, the chemical industry is one of the most severely and thoroughly regulated sectors in the processing industry. Both the European and the national regulations are contributing to this. As with any severe regulations, the question arises with regard to its optimization. What are the regulations that are absolutely essential to the protection of the environment, health and safety within the sector, and which ones are unnecessary burdens? In other words, how does one create a regulatory environment in which it creates only minimal administrative burden for the companies in the industry to fully comply with the safety aspects? With regard to compliance, the president of the European Commission announced to carry out “smart regulation” as one of the objectives of the European legislative process. The implementation of this objective remains to be seen, although its enforcement would by all means contribute to launching more favorable processes in the economy and industrial development.

In several aspects, the conditions for chemical production in Hungary are more severe and bureaucratic than those in the EU. This puts extra burden on the companies, not to mention that it reduces return on investments, makes it harder to develop, and makes the products more expensive. For example, parallel with the REACH regulation a national registration and risk assessment system is maintained, or in the case of the implementation of the Seveso III directive the Hungarian regulation is wider in scope and puts excessive administrative burdens on the industry.

Competitiveness and long-term sustainability of the Hungarian chemical industry is threatened by the high energy costs, which characterizes the whole Europe.

In Hungary, the passing of the negative consequences of measures taken in this area on the industry has further exacerbated the problem, and it is not in line with the declared government objectives of strengthening the real economy, including the reduction of utility costs for industrial enterprises.



Considering the economic and social importance of the chemical industry, unloading the bureaucratic and administrative burdens would significantly improve its competitiveness. The European Chemical Industry Council (CEFIC) urges favorable regulatory changes as well. Overregulation and unnecessary administrative burdens afflict both large and small companies, but the latter are most critically affected by them.

It would be important to establish a supportive system that would effectively promote efforts in R&D and lead to the manufacturing of more innovative products. It is observed for a long time that despite the weight of the chemical industry in the national economy, this industry has not been given priority attention, it has not been among the “trendy” sectors. That is why it cannot be stressed enough how important it is that during the 2014-2020 EU budget period, the industry should receive funds that can help to deploy and use state-of-the-art technologies in order to further increase both energy efficiency and innovation capacity in the chemical sector.

To promote the competitiveness of the chemical industry, there is a need to develop a national industrial policy, which is currently missing, taking into account the emerging industrial strategy of the EU. This would significantly contribute to the positive future of the industry and would lead to new capital investments and production expansion, for example in the specialty and fine chemicals subsector that is less raw material and energy intensive.

The improvement of the national regulatory environment, the introduction of “smart regulation”, particularly in the environmental and industrial safety fields, has long been on the agenda in Hungary. The essence of this effort would be to harmonize the relationship between the objectives of the legislation with regard to sustainability and preserving the competitiveness of the industry. Without this, the re-industrialization of Europe, including Hungary, will remain only a political declaration.



SUSTAINABILITY AND INNOVATION: INDUSTRY OF THE PRESENT AND FUTURE

In terms of productivity and a skilled, and qualified workforce, in most EU member states, including Hungary, the chemical industry is an outstandingly strong branch of industry. Its economic importance lies in the fact that it delivers high-quality products for each sector of the economy such as the automotive, electronic, construction, or agricultural sector. Last but not the least, with its up to date products and services, the chemical industry offers solutions to climate protection, green energy production, energy efficiency, and sustainability in general.

Increasing the energy efficiency and reducing greenhouse gas emissions are both important goals for the European chemical industry since energy costs are factors of production and competitiveness that should not be underestimated. Between 1990 and 2010, energy consumption decreased by 20 percent, while the production in the European chemical industry increased by 70 percent. This means that the energy intensity has been reduced by more than 50 percent, together with greenhouse gas emissions. The products of the chemical industry offers energy-saving solutions in numerous areas such as building insulations, materials to reduce the weight of the vehicles, and devices for renewable energy utilization.

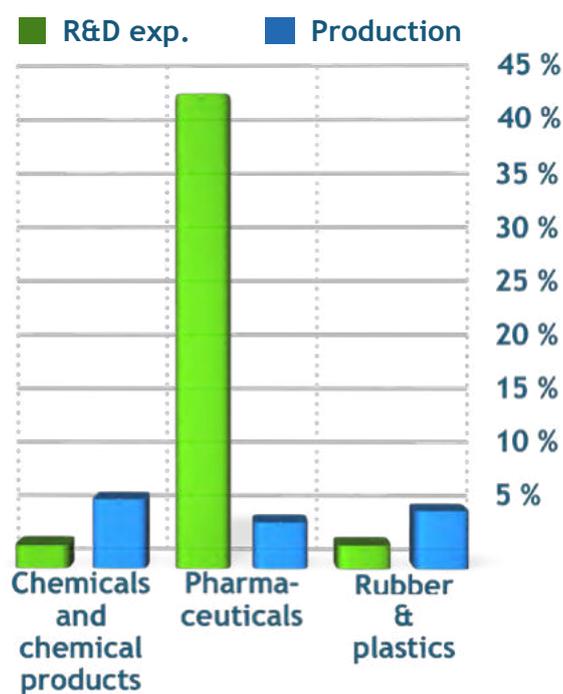
Thanks to the innovative capacities of the chemical industry, on one hand new raw materials and consumer goods are introduced, on the other hand new technologies are created that use energy, raw materials, and water more efficiently, making the production processes more environmentally friendly. According to official R&D expenditure data for 2012, close to 60 billion HUF were spent on R&D in three branches of the Hungarian chemical industry, which are the manufacturing of chemicals and chemical products, the pharmaceutical industry, and the production of plastic and rubber products. A big share of this money, 90 percent, was spent in the pharmaceutical industry, although in terms of output, this sector is the smallest among the three. Compared to the total sales, the R&D intensity of the manufacturing of chemicals and chemical products and the production of rubber and plastic products are small compared to the average in the processing industry. On the other hand, the pharmaceutical industry's intensity is excessively high, despite the fact that in the pharmaceutical industry, the production of generic products is more dominant than the manufacturing of new compounds.

Strengthening the innovation capability of the chemical industry is a key issue in order to preserve the industry's competitiveness at a time and under such circumstances when the competitors, especially companies outside of Europe, are operating in less strict and bureaucratic regulatory environment and with higher R&D expenditure rate. Due to such reasons, those companies can operate with lower energy and raw material costs. The compliance with increasingly stringent environmental regulations, meeting political climate targets, and the efficient utilization of environmentally friendly procedures would require the strengthening of the innovation capacities of European companies.

According to a report from the EU, the innovation capacity of Hungary is mediocre, which is generally true for the Central European region. It is good news that one of the primary objectives of EU's 2020 strategy is smart growth, which includes setting up a knowledge- and innovation-based economy. Linking up to this objective, Hungary has set to goal to increase R&D expenditure proportional to its GDP to 1.8 percent by 2020 (which is, however, still below the 3-percent target set by the EU).

During the 2014-2020 EU budget period, the Hungarian economy would also benefit if the chemical industry receives development funds according to its weight and potential. The support of environmentally friendly, energy-saving, and innovative chemical industry investments fits well with the EU's strategic objectives. Just to mention one opportunity:

SHARE OF THE CHEMICAL SUBSECTORS IN THE PROCESSING INDUSTRY'S R&D EXPENDITURES AND PRODUCTION IN 2012 (%)



the chemical industry possesses huge partially underutilized infrastructures based on which the Hungarian companies could extend their R&D and innovation activities more easily and with less costs than many of their competitors. Furthermore, a takeoff point could be the attraction of international chemical companies' research activities to Hungary or to serve the companies' innovative activities with Hungarian academic and research bases that are already there and exist for decades.



1990



2015

MAVESZ: REPRESENTING THE PROFESSIONAL INTEREST OF THE CHEMICAL INDUSTRY FOR 25 YEARS



On June 5, 1990, at the inaugural general assembly, 13 chemical companies unanimously adopted the resolution to establish the Hungarian Chemical Industry Association. In the following months, more than 30 companies joined the new association, which, since its foundation, accounts for 80 to 85 percent of chemical production in Hungary (without the pharmaceutical industry). Among its members, there are the Hungarian market leader petrochemical companies, fertilizer manufacturers, producers of plant protection chemicals, carbon fibers, specialty and fine chemicals, and also the major chemical distributors and importers. Beside these companies, associations such as the Hungarian Paint Producers Association (MAFEOSZ) and the Association of Plastic Pipe Manufacturers (MCSSZ) are also members of MAVESZ.

FOUNDING MEMBERS OF MAVESZ

Borsodi Vegyi Kombinát	László F. Kovács <i>chief executive officer</i>
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Vegyészet Múzeum	Dr István Kovács <i>director</i>
VEGYÉPSZER	Dr Ferenc Ambros <i>deputy director</i>
VEGYTERV	László Dobó <i>Chief executive officer</i>
Villamos-szigetelő és Műanyaggyár	Tibor Kárpáthegyi <i>chief executive officer</i>
Hungarian Chemical Industry Partnership	Dr Lajos Csurgai <i>Secretary General of MAVESZ</i>



The association joined CEFIC in 1992, which is the Brussels-based federation of the European chemical companies and associations, and in 2005, it joined the European Chemical Employers Group (ECEG).



OBJECTIVES AND MISSION

According to the main objectives and mission of MAVESZ, which have been laid out in the statutory document of the association a quarter century ago::

MAVESZ shall represent the specific professional interests of enterprises carrying on activities in the chemical sector in Hungary, interpreted without regard to the limitations by the statistical classification system, provide liaison between and among its members, furthermore follow both domestic and external development, production, commercial and economic processes on an ongoing basis to supply its members with professional information on the basis thereof.

MAVESZ shall initiate, coordinate and organize concerted actions in connection with the issues which may arise in connection with the promotion of the interests of its members.

For doing so, the representation functions and sub-domains of particular importance shall include as follows:

- representation of professional interests in legislation (parliamentary committees),
- representation of professional interests at and with institutions acting as authorities),
- sectoral representation of the employer's interests,
- international professional representation of interests of the chemical industry,
- operation of information systems to promote the general interests of chemical industry and the special interests of MAVESZ member companies, publication of regular informative documents, organization of seminars and conferences,
- coordination of environment protection, occupational and industrial safety and health activities of the chemical industry, including the formation of public opinion associated therewith,
- coordination of the general trading policy of the chemical industry (customs, etc.),
- improving the general public opinion about the chemical industry and maintaining relationships with the mass communication organizations.



The association carries out tasks along the priorities established by the board:

- Environmental, health, and safety regulations (EHS)
- Issues of the general economic and financial regulatory environment
- EU and international relations
- Statistics and data reporting and communicating the performance of the chemical industry to the public
- Employer interests representation

Throughout the implementation of its goals and objectives, the association monitors legislative processes, expresses opinions about them, or initiates changes. Through maintaining relations with state and government agencies, authorities, and the press, the association formulates, represents and promotes the interests of the industry.

Since Hungary is an EU member state, numerous advocacy activities are carried out at the European level, mainly in the context of European environmental protection and chemical and industry safety regulatory projects and their implementation. The standpoint of the Hungarian chemical industry, with regard to these questions, is continuously communicated to the Hungarian representatives, officials, and experts in the European Parliament and Council. MAVESZ closely cooperates with CEFIC and ECEG, and with the partner associations operating in the Visegrád countries (V4).

One of the special features of MAVESZ is sectoral employers representation, which is not typical for other European partner associations. In several countries this function is performed by legally separate entities. In 2005, MAVESZ and the Chemical Workers Union of Hungary (VDSZ) established the Sectoral Social Dialogue Committee for the Chemical Industry. Later, associations from the pharmaceutical and aluminum industries joined the committee, and since then, it successfully conducts negotiations between the employers and employees, exchanges information, and offers professional consultations contributing to a partnership and continuous dialogue between the two sides. With the support of the Committee, studies have been conducted on topics such as employment trends, professional training of skilled workers and technicians, the situation of companies in the chemical industry, and others. A tender was issued by the Committee in 2011, in the International Year of Chemistry, for vocational school students interested in the industry. During the past decade, several sectoral wage agreements have been signed between the two sides.

ABOUT THE ANCESTORS

The Hungarian Chemical Industrialists Association (VEGYOE) has been established in 1904, two years after the establishment of the National Industrialists Federation (GYOSZ). The association has been established in order to represent the interests of the chemical industry with regard to custom policies, transportation, state contracts, and social policies. Altogether, 47 company-delegated representatives to the inaugural meeting of the association. The adopted constitution has been modified in 1910, and after the suspension and reorganization in 1919, the association operated according to these rules till World War II. The membership of the association was divided into four categories: member, founding member, honorary member, and corresponding member. The association's responsibilities were executed by the 15 different sections, at the time it was operational for 25 years. The organization was also involved in industrial development, trade regulations, state scrutiny, and the competition of state-owned factories. The association was also involved in customs, transportation and sociopolitical issues, of course from the employers' point of view. From time to time, they released a detailed evaluation about the development of the Hungarian chemical industry. With such information, the association tried to influence the development of the industry and encourage the companies to comply with the needs of the existing market, rather than unnecessarily competing. The association supported the education of chemists and chemical engineers. The association had its own journal from 1906, the Vegyészeti Lapok, which has been published until 1919. The Hungarian Chemical Industrialists Association ceased to exist in 1949 due to the political changes after World War II and the elimination of independent civil organizations.

SOCIAL RESPONSIBILITY: MAVESZ'S RESPONSIBLE CARE® PROGRAM

The “Responsible Care” program is an international voluntary initiative of the chemical industry. The industry has committed itself to strict self-controls in order to promote improvements in all aspects of health, safety, and environmental performance.



The governing body of the program, the International Council of Chemical Associations (ICCA), defined eight basic criteria of the program:

1. A formal commitment on behalf of each company to a set of Guiding Principles signed, in the majority of cases, by the Chief Executive Officer (CEO)
2. A series of codes, guidance notes, and checklists to assist companies to implement the commitment
3. The progressive development of indicators against which improvements in performance can be measured
4. An ongoing process of communication on health, safety, and environmental matters with interested parties inside and outside the industry
5. Provision of forums in which companies can share experiences on implementation of the commitment
6. Adoption of a title and a logo that clearly identify national programs as being consistent with and part of the concept of Responsible Care
7. Consideration of how best to encourage all member companies to commit to and participate in Responsible Care
8. Systematic procedures to verify the implementation of the measurable (or practical) elements of Responsible Care by the member companies

Responsible Care was launched in Canada in 1985 by the national chemical association, which developed the guiding principles of the program. Shortly thereafter CEFIC adopted the program with the aim of implementing it through the national chemical associations in Europe.

In Hungary, MAVESZ and its member companies joined the program in the early 90s, and currently, more than 30 chemical producers and distributors with chemical storage capacities are participating in it. The executives of these companies also signed the 2006 Responsible Care Universal Declaration.

Chemical companies that meet the requirements of the program receive the “Responsible Care” certificate. The Hungarian Chemical Industry Association launched a program of independent RC audit for its members in 2014. Under the program external auditors certificate the performance and compliance of companies with RC requirements. Through this program MAVESZ strengthens the commitment of its members to the Responsible Care® principles.

In order to qualify for Responsible Care®, the companies must fulfill the exact certification requirements laid out in Responsible Care’s guiding principles and other relevant documents.

From the introduction of the certification process in 2014, the independent auditors look through and evaluate about 300 issues involving areas such as energy usage, transportation, warehousing, health protection, industrial accident prevention, and environmental protection.

ISO 14001 and/or EMAS certifications are recognized by the program. Companies that have these certifications have already fulfilled a part of the requirements of the Responsible Care® program. Compliance with legal requirements is one of the primary conditions. To pass the RC audit, the company must make a minimum score of 80 percent of the additional questions/requirements. The certification process must be conducted on each of the company’s premises. Upon completion of the process, the company, if all requirements were met, will receive Responsible Care® certificate from the association. The company may use the logo and name for five years in accordance with the relevant terms and conditions about the RC logo usage.

FOR THE EXPERTS OF THE FUTURE

In order to support the training of chemical engineers at the Budapest University of Technology and Economics (BME) and the University of Pannonia in Veszprém (PE), the Board of the Hungarian Chemical Industry Association founded the “**For Excellent Chemical Engineering Studies**” Award in 2013. In every year, it is given to one MSc graduate student in chemical engineering, recommended by the universities, at BME’s Faculty of Chemical Technology and Biotechnology, and at the University of Pannonia’s Faculty of Engineering. The agreement between the universities and Mavesz contains the following selection criteria as follows:

- consistently good academic results during the university studies,
- positive evaluation of the student’s performance during corporate/factory practice
- outstanding final dissertation
- involvement, initiative, and creativity in the R&D activities of the university/student research societies

The winners receive a plaque and 100,000 HUF prize money, which are given out to the students by a board member of Mavesz at the graduation ceremony of the universities.

ORGANIZATION, BOARD, AND PROFESSIONAL FORUMS

The main fora of **MAVESZ** are the general assembly, the board and the committees. Ad hoc working groups and workshops are also participating in the preparation and elaboration of the opinions and standpoints of the association.

The secretariat of **MAVESZ** is responsible for the preparation of draft resolutions and decision making, day-to-day administration, and implementation of the resolutions.

The controlling commission is responsible for controlling the conformity of **MAVESZ** activities with statutory provisions, its financial management and the implementation of general assembly resolutions.

From the beginning an important and traditional professional event of **Mavesz** is the annual Chemical Industry Conference on Environment Protection and Industrial Safety held in Eger, which offers a unique forum for dialogue, opinion, and information exchange between representatives of government agencies on the one hand and industry representatives on the other. At least in every two years, **MAVESZ**, together with the Hungarian Disaster Prevention Authority, also organizes SEVESO industrial safety expert days. By monitoring the changes in chemical trends and the regulatory environment, the association often initiates similar forums for other topics, such as dangerous goods logistics, chemical industry logistics, innovation in the chemical industry, and other subjects.

The professional programs of the association help the member companies getting prepared for, and adapting to new regulations, such as the REACH/CLP preparation program for small- and medium-sized enterprises in 2014. During this program, companies participated in small workshops and consultations, with the involvement of government officials and external advisors, and received detailed information about tasks related to the implementation of the regulation, and also on such practical and no less important matters like how to handle and fill out the new safety data sheets.

Through its international relations, **MAVESZ**, besides the already mentioned cooperation within the European organizations, places great emphasis on keeping connections between the Central European industries and their associations. In this respect, the Hungarian-Slovakian Chemical Industry Forum was an outstanding event in the spring of 2013 in Budapest.

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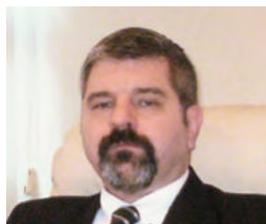
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Sectoral Social Dialogue
Committee

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1.	AGROKÉMIA SELLYE ZRT.	7960 Sellye, Sósvertikei út 1. www.agrosellye.hu	Regular
2.	AGROTERM KFT.	8182 Peremarton-gyártelep hrsz. 06/116. www.agroterm.hu	Regular
3.	BIGE-HOLDING KFT.	5000 Szolnok, Tószegi út 51. www.bigeholding.hu	Regular
4.	BORSODCHEM ZRT.	3700 Kazincbarcika, Bolyai tér 1. www.borsodchem-group.com	Regular
5.	CLAUDIA IPARI ZRT.	9700 Szombathely, Alkotás út 43-45. www.claudart.hu	Regular
6.	CNI NYOMDA ÉS CSOMAGOLÓIPARI SZOLG. KFT.	3580 Tiszaújváros, Ipartelep hrsz. 2092. www.cni.hu	Regular
7.	COVERIS RIGID HUNGARY KFT.	9700 Szombathely, Puskás T. u. 6. www.coverisrigid.com	Regular
8.	CSC JAKLEKÉMIA HUNGÁRIA KFT.	1117 Budapest, Infopark sétány 1. I ép. 2.3A www.csc-jaekle.com	Regular
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29.	HUNGÁRIA VESZ.ÁRU MÉRN. IRODA KFT.	1181 Budapest, Üllői út 365. www.hvesz.hu	Associate
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31.	KOVÁCS ÉS TÁRSA KFT.	1118 Budapest, Pannonhalmi út 57. www.kovacsestarsa.com	Associate
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47.	HUNTSMAN CORPORATION HUNGARY VEYIPARI ZRT.	8105 Pétfürdő, Gyártelep hrsz. 2387/7. www.huntsman.com	Supporting
48.	LANXESS CENTRAL EASTERN EUROPE s.r.o.	81106 Bratislava, Stetinova 4, Szlovákia, 1124 Budapest, Csörsz u. 45. Branch O. www.lanxess.hu	Supporting
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LITERATURE

Árpád Olvasó: A magyar vegyipar 100 éve,
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