

# SCIENCE-DRIVING ALTERNATIVE PLASTIC PIPES BECOMING MORE POPULAR THAN METAL ONES IN HOUSING, UTILITIES AND OTHER INDUSTRY SECTORS

**Plastic pipes are improving their position in the market – a fact acknowledged by competing metal pipe manufacturers. The most advanced metal suppliers are now including plastic pipes and fittings in their catalogues. Metals of Eurasia International industrial magazine published the following interview with Miron Gorilovskiy, Director of POLYPLASTIC Group, in Issue No.1 of 2013.**



*– Your company is a great example of the development of a science-based business using in-house innovations to target complex areas such as housing and utilities. How was the POLYPLASTIC Group created, and how was your choice of direction made?*

– POLYPLASTIC Scientific and Production Enterprise was registered on 19 August 1991. The main activities were composite materials production and plastics processing. This is because we, the founders of the company, were working at PLASTMASSY Scientific and Production Corporation and were professionally and passionately involved in these issues. Production of polymeric composites in USSR did not exist but there was a

great need for it. We planned to fund our main business by plastics processing which was very profitable at the time.

We rented molding machines that were on standby (most of the equipment then was unused) and started production of various things – hangers, clothes pegs, fly swatters etc.

Of course, the idea of creating our own science based production seemed crazy. The inflation was 100% per month! However we were lucky enough to meet the right people. Our initiative and enthusiasm attracted the attention of prominent specialists from NII Plastmass (Plastics Science and Research Institute) like Vladimir Tochinn, Igor Aizinson and Eugeni Artiss. It is thanks to them we achieved

our own formulations and trademarks for the polymer composites that are widely used in different sectors today.

We started cooperation with large plants such as Stavropolpolymer (Buddenovsk), Sintezkauchuk (Togliatti) and Ufaorgsintez, Polypropylene (Atyrau, former Guriev, Kazakhstan) which were standing idle with no funds, raw material resources and no markets. We sourced and paid for raw materials including monomers, straight-run naphtha and propane-propylene fraction. We then paid for delivery to the plant and processing, into ready plastics, part of which are used for composite material production. It could be said that we saved several companies from closure. For example, the Atyrau plant received all

raw materials from us for 5 years, which was almost 2.5–3 thousand tonnes per month. In fact we were a system integrator of the polymeric industry of the former USSR. The processing business gave us a significant income, part of which was used for investment projects.

We started manufacturing in 1993 at the rubbish disposal site in Ochakovo, Moscow, near the heating power station and the small AND Gaztrubplast Plant. The plant manufactured plastic pipes and was in a poor state: lines were not working to their full capacity and employees had been laid off for 6 months. We bought this plant 2 year later and began new business activity. We understood that it was a prospective business and much work was required, especially as customers were not too sure about plastic pipes even though they had

many advantages. Since then we have constantly educated about plastic pipes and continue to fight the 'metal lobby'.

By 2002 our pipe production activity was so successful that we began to build new plants.

Klimovsk Pipe plant was one of the first plants. Today it is the largest and one of the most modern plants in Europe. A number of plants were opened in other regions of Russia, Ukraine, Belarus and recently in Kazakhstan. Currently there are 12 plants producing pressure and non-pressure pipes, fittings and PE manholes. We also have trade houses and representation offices ensuring smooth delivery of everything required for PE pipeline construction.

Our composite activity is also successful. Our production capacity allows us to make 80 thousand tonnes

of polymer composite materials per year. Production is based in 3 locations – Moscow (Ochakovo), Saratov (Engels) and Samara (Togliatti). Our polymeric composite materials range is very wide and meets the requirements of a range of home industries.

**– What is the production structure of the Group and what is your place in the market?**

– The Group operates 15 plants in total. Ten plants produce PE pipes for gas, water and sewerage, as well as CORSYS type pipes for HDPE pipelines. Two plants, AND Gaztrubplast and BelPOLYMERTEPLO, produce flexible insulated pipes for heating systems, a unique product with no alternatives in Russia. Three enterprises are working in composite materials production. Nine trade houses and branches provide sales. There are also two research and de-





velopment centres dedicated to composite materials and pipes, a training centre and a design institute.

The Group has processed over 300,000 tonnes of polymers and sold over 230,000 tonnes of pipe products within the last year including about 1000 km of flexible insulated pipes and over 70,000 tonnes of polymeric compounds. The major consumers of pipes are the companies working in the housing and utility sector, contractor companies to Gazprom, and construction companies working on large Federal projects (construction in Sochi, APEC summit and others). Composites are used in many sectors. We have developed new generation materials with enhanced durable properties (modulus of elasticity, impact resilience etc.), frost resistance, stable shrinkage, and special properties (low emissivity level, high scratch resistance etc.) for the car industry. These are not only used for domestic car manufacture but also by foreign manufacturers such as Ford, Volkswagen and Renault. Special types of low combustible polyamides are successfully deployed in electronics components including Schneider Electric products. Polypropylene based mate-

rials are widely used in construction finishing materials and components of household appliances produced in Russia by Indesit, LG, B/S/H (Bosch–Siemens), Beko, Vestel and Candy.

Our pipes are produced using certified pipe (light-stabilised) grades of PE 80 and PE 100 made in Russia and abroad. Composite enterprises mainly use home raw materials (PP, PA-6) and imported additives-modifiers.

The combined turnover of POLY-PLASTIC and POLYMERTEPLO in 2012 was around 30 billion rubles. Plastics processing is not a very profitable business compared to the oil and gas industry (our standard EBITDA profit is 8–12%) but stability and great growth potential make it very attractive.

**– How strong is the competition between plastic pipes and metal ones and how do the main performance properties compare e.g. operational properties, quality, price, maintenance and supply lead time?**

– The advantages of plastic pipes have been well known for a long time. They are resistant to corrosion and most aggressive chemical compounds found in the pipelines and have great hydraulic properties. Be-

cause of these properties the pipes serve longer – at least 50 years. Plastic pipes are easy to install and more reliable in operation because they are abrasion resistant and don't fail when frozen. The cost of PE pipes in the most popular sizes (up to 630 mm) is cheaper than metal ones. If you compare the “pipeline in the ground” prices including operating life, maintenance and repairs rather than the price per lean metre, the difference becomes very obvious.

Of course currently there is no alternative to metal pipes for oil, gas and heating pipeline construction in big diameters with high pressures and high temperatures. I would say for the time being, there are new materials and technologies emerging and polymers today are used where it was impossible to imagine even a short while ago. No one wanted to hear about PE gas pipelines 20–30 years ago but now PE pipes have almost replaced steel pipes in gas infrastructure development projects. A similar situation occurred in the heating supply industry. 10 years ago after a big effort, we started to deploy PEX pipes in distribution networks and today they are used for the modernisation of heating pipelines in large cities. We can offer pipes that withstand 135°C at 10 bar, which was impossible 10 years ago.

**– Can mass implementation of plastic pipes solve the problems of the housing and utility sectors and make network operation more reliable and safe?**

– There are about 500,000 kilometres of water pipeline in Russia; heating pipelines – 250,000 kilometres, gas pipelines – 300,000 kilometres. The rate of wear of the utility pipeline networks is estimated at 80% with over third of the networks needing immediate replacement. The rate of aging of the existing pipelines is higher than the rate of their renovation, which means that it is time to

talk about their complete degradation. Modernisation at such an enormous scale cannot be achieved by just using steel pipes, at least technically.

In most of the cases, the rate of construction or renovation of the pipelines using plastic pipes is significantly (sometimes several times) higher than traditional renovation. It is possible to increase the rate of renovation per construction season. Our Group goes further offering a completely different solution to the problem of modernisation project financing by offering housing and utility companies a long-term credit repayment achieved through the savings made: emergencies are stopped and there is no need to pay for extremely expensive emergency repairs. The scheme has been tested in 15 cities, villages and rural settlements and showed good results.

**– Does research and development still play big role in the Group's activity?**

– Both our composite and pipe divisions are science based. One of our research and development centres provides science based production of polymer composites, development of the formulations, selection of raw materials, quality control (of materials and final products), and resolves many other polymer chemistry issues. The other centre develops new types of pipes, improves production processes and creates the necessary regulating documents. The effectiveness and significance of these two departments is very obvious to us. It is thanks to them that we have developed and implemented a wide range of composite thermoplastic materials for different purposes – over 350 types and modifications, including 90 coloured materials. We launch new types of pipes every year and most of them don't have analogues in Russia. Coordination of the two Re-

search and Development Centres and production allows us to enhance the efficiency of pipe production. We also plan to create a Research Institute at the Research and Development Centre with wider fundamental research and processing tasks.

**– What are the prospects for industrial use of polymer composites?**

– The consumption of polymer composites per capita in Russia is 3–5 times lower than in developed countries. This is due to underdeveloped car manufacturing, production and goods and other industries using special plastics. All these industries will eventually develop further.

**– Does the industry which POLYPLASTIC Group works in need government support?**

– This question has been answered with the comments about the need for tougher standards and material requirements in the housing and utility sectors. Clearly, we support it but generally nothing should be prescribed to anyone except the cases related to the safety and welfare of the people. The housing and utility sector needs new principles of governmental participation. No one is interested to safe funds under the current subsi-

dising model. Why would the head of a heating supply company deploy resource-saving technologies, or care about return on investment if he gets irrevocable governmental funding? He is only interested in inflating his repairs budget. It is time to switch the industry to modern economic relations with long-term repayable credits. The housing and utility companies will then have no choice but to switch to modern technologies that ensure long-term cost-effectiveness.

**– POLYPLASTIC Group most definitely has a strategic development plant. What are the main priorities?**

– The Group's development programme is aiming for a long-term 10–15% per year production increase with a presence in all regions of Russia, Ukraine, Belarus, Kazakhstan and other CIS countries. The strategy is also integration (at reasonable scale) with the leading European producers to attract the best experience and technologies and their deployment in the post-Soviet area.

Our long-term priority is to increase our share of innovative and highly efficient products of our own design and implementation into the world's advanced technologies.

