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Sergei Mamykin: “Sanctions Pushed Us To Develop World’s Best Technologies”

The “CUPPER Environmentally Friendly Lubricants” project has recently won an award of the Mayor of Moscow in the “Innovative Leaders” nomination. What was it specifically that this well-known Russian company was awarded for at this high level? Sergei Mamykin, CUPPER Group of Companies Founder and Chief Technology Officer answered this and other questions in his interview to BM.Moscow Foresight magazine.

- Based on a unique approach to development of lubricants, the one-of-a- kind CLAD copper cladding technology, devised by the CUPPER team, was awarded by the Mayor of Moscow as a leader in technology solutions in the area of transport and logistics. We have managed to achieve something that was considered almost impossible – we provided high level protection of friction mechanisms with minimal environmental impact.

Our company is the first in the world to develop copper ion-based oils and lubricants and to successfully adapt them for wide use. Our products not only extend service life of equipment, but also exclude use of hazardous substances, such as sulphur, phosphorus and sulphated ash. Recognition by the judging panel confirms that we are going in the right direction.

Owing to this award and the overall support by the Moscow Government, we have started testing our oils in small aircraft, it is a new and ambitious challenge for our young company.

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Is it true that the history of CUPPER company started with an OKA car and a vial of antiseptic green dye?

Yes, this is true, though the vial only used to contain antiseptic green dye, but at the time it was filled with a copper solution, which was of a similar green color.

In early 1993 I worked at a small firm, hardening automatic couplers for the Russian Railways, and used to drive for about 100 km per day in my OKA car. Its engine was rather worn out after 70 thousand kilometers and we planned to overhaul it. But a young researcher proposed to pour a mysterious liquid into the motor, assuring that it “would not make things any worse”. I decided to give it a try, poured it in and forgot all about it.

After driving for 50 km, I was shocked — the engine started working as a new one. This was a real discovery for me! Later I met Dmitry Nikolayevich Garkunov, a leading Russian tribologist, who explained to me in great detail what tribology is and what is the role of copper in all of this. This event became a turning point, which opened the world of technologies for me.

What makes the CUPPER brand technology of developing lubricants so unique? What benefit would a motorist get by replacing his regular oil with CUPPER?

In 2012 I founded a company, naming it with Cuprum Performance in mind. Copper has a unique feature: it integrates a metal structure and provides long-term protection, activating self-repair processes during operation of mechanisms. The oil production technology (CLAD (c) (Cuprum Lining Antiwear Defense) is a completely patented Russian development. This technology enables improving efficiency of machines, extends their service life and significantly reduces maintenance costs. It also ensures maximum environmental value of oils at NO SAPS level — no sulphur, no phosphorus and minimal sulphated ash. This makes our products more environmentally friendly and safer versus traditional solutions, which use these hazardous substances for wear protection.

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What is happening today, under sanctions, with production and sales of motor and gearbox oils, improvers and lubricants, how do domestic manufacturers of these products feel in this situation?

The latest two years have brought significant changes to the market of oils and lubricants under sanctions. Russia did not have any active developers of domestic improvers, and supplies from leading Western manufacturers became unavailable at one point, the market was flooded with components from a number of unreliable manufacturer countries, which had an impact on product quality.

Restricted access to global oil and improver production technologies creates issues for domestic manufacturers. They have to develop their own compounds and process technologies, which is very costly and time-consuming.

We have been prepared for this better than others, since our anti-wear improver technology differs from anything available on the market, and we produce those by ourselves. The component shortage, which has been an issue for many, had no impact on us.

Given the shortage of imported goods, companies started active development of in-house capacities, increasing production volumes. We, for example, have ramped up our production capacity by four times.

Sales also have gone through changes: more oils are sold through marketplaces, increasing their availability, but involving risks, because up to 50% of products on the market are counterfeit. Customers have to carefully inspect products to avoid filling their engines with low-quality products. In this situation CUPPER products are more protected owing to a special greenish color of our oils and lubricants.

Some time ago CUPPER announced of establishing its own oil and lubricant production facilities at Pushkino and Orekhovo-Zuevo. How efficient are these assets?

We started operations at two sites at Pushkino and Orekhovo-Zuevo, but in 2023, to improve efficiency and logistics, we focused on the Orekhovo-Zuevo site. Owing to government support tools for small innovative companies, we invested a lot of effort into procuring equipment, units and components, required for production of industrial-grade oils and lubricants.

Since 2023 we have been producing entirely new products, including gearbox oils, which are already in use with specialized mining equipment.

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Did you buy the equipment for your plants in the West or developed it on your own?

We, being a Russian manufacturer, inherently understand the importance of being independent from imported components, including production equipment, this is why we selected the equipment for our plant only in Russia. We brought some from makers in Novosibirsk, Saint-Petersburg and other regions, but not all solutions were readily available, we had to develop some equipment on our own.

It is great to have passionate employees at our production facilities. Our guys assembled and fine-tuned the solutions for our current needs in no time. So this way we did not only mitigate our risks, related to equipment maintenance, but made our own contribution into local economy development. I understand the importance of this better than anyone else.

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How much motor oil under your brand is manufactured by your facilities per month?

Starting from 2023, we are working on expanding our production facilities and currently their output exceeds 5000 tons of products per year. The segment of motor oils as of late does not have the largest share, unlike other products used in industry and transportatione.

How many employees are there in the company now?

We have expanded our team now, and the team has about 100 people. These people are really passionate to make a product which could be a real contribution to saving both natural resources and people. These are professionals with extensive experience from R&D to building sales channels.

I regularly conduct research together with the team, we have a well-equipped lab, where we run daily tests and new product development. We have set up a customer office at our point-of-sales in Moscow, where one could see the product range and get a personal consultation. We are working very hard to create high-quality products and services, which is reflected in the performance of our team.

There is a lab of your company operating in Moscow's Kalibr technopark. What does it do specifically?

This is our research and production lab, and of course, it plays a key role in ensuring high quality of manufactured products. The primary objective of the CUPPER lab is new product development. Now, for example, we are working on development of a high temperature chain lubricant.

Its second, but no less important function is extra quality assurance at all production phases. This allows us to timely identify possible faults and guarantee conformity of every product to the established standards.

Which industries are already using CUPPER brand motor oils?

First of all, it should be understood that industries mostly demand gearbox, compressor and other oils, and not motor oil. Mining industry is one of the key areas where our oils are actively used. It is critical for this sphere to extend service life of parts and to prevent equipment failures, when downtime could cost as much as several million roubles per day. For this purpose, we are closely cooperating with engineers and users directly at their sites, to adapt our product to their needs. And it

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is our unique technology that makes us one of the few companies on the Russian market that are capable of resolving challenging tasks. Moreover, for our oil production we use the third, fourth and fifth group of base oils to ensure the highest quality of end product.

Besides, CUPPER oils are actively used by railway transport. Here our oils are used in compressors and traction gearboxes of locomotives and high-speed electric trains. Over the latest years we have created a unique 75W-90 gearbox oil – a product, which extends service life by two-three times versus similar products.

Recently we have had another managed maintenance session at the rolling stock of a major industrial company. We have achieved an outstanding result. We have managed to reduce oil consumption by 7-10% by just replacing the oil!

Now CUPPER oils for maritime and river transport are used not only in Russia but abroad as well. In this segment we have discovered yet another positive outcome of our oil performance – reduction of vibration level caused by uneven engine piston operation. This became possible due to a technology which curbs the hydrogen wear, and copper, incorporating into the crystal grid, raises efficiency.

Are your motor oils known abroad? To what countries to you supply your products?

CUPPER company is well-known in the CIS market and is actively ramping up its sales there. At present we distribute our products not only across Russia, but in Belarus in Kazakhstan too. We have gone out to these markets primarily by word of mouth. The message about a “green liquid” has rapidly crossed the borders of Russia, and we started getting queries from motorists from other countries. This way, step by step, our product has come to these markets.

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What is the oil change period for CUPPER oil?

When we speak of oil change periods, we need to understand that it largely depends both on operating conditions and on quality of car fuel. Our oils are made from synthetic base highly refined VHVI, PAO, Esters oils, and all else being equal, maintain their performance properties significantly longer. But on the average, our oils keep their viscosity by one and a half-two times longer, but of course, depending on a product line.

Recently a representative of your company said that oils by CUPPER are “completely biodegradable”, they could be collected, purified and “re-used in production”. Sergei Mikhailovich, could you please comment on this?

We have oils that contain ethers, they are biodegradable by their properties. Other oils could be re-used, if you drain oil after 300 service hours, purify it properly, add a package of improvers, then it could be used again with some changes. This way our oils could work for about 3-4 operation cycles. Today we are implementing these options in practice and running tests at the experiment block of our production site.

The green color of your motor oils, is its purpose only to differentiate from others by color?

The green color on the one hand is our unique feature, but I would like to dispel the myth that we are using colorants. The specific color is determined by copper salts, which are used as anti-wear package components.

In your view, how would the oil and improver market develop in Russia?

This depends on a large number of factors, including further implementation of the import substitution policy, easing of the sanctions pressure and many others. Over the latest years we have observed growth of the car fleet in Russia. With growing numbers of modern cars with sensitive fine systems, there is a growing need for high-quality synthetic oils due to their superior physical and chemical properties.

We should keep in mind the importance of environmental protection; in this case we are talking not only about electric cars, which, I believe, are ill-adjusted to the severe Russian climate, but about the need to reduce emissions from traditional internal combustion engines. And this is the perfect goal for us.

It is obvious that Russian manufacturers will have to invest over the next few years into development and implementation of

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new technologies to increase the level of independence from imports, and also to propose solutions not only for broad public use, but also for Russian industrial needs.

And next year changes are expected in connection with the implementation of “Chestny Znak” system for motor oils. On the one hand, this measure will reduce the amount of counterfeit products on the Russian market and will provide product quality assurance, but on the other hand it will lead to higher costs due to additional expenditures.

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