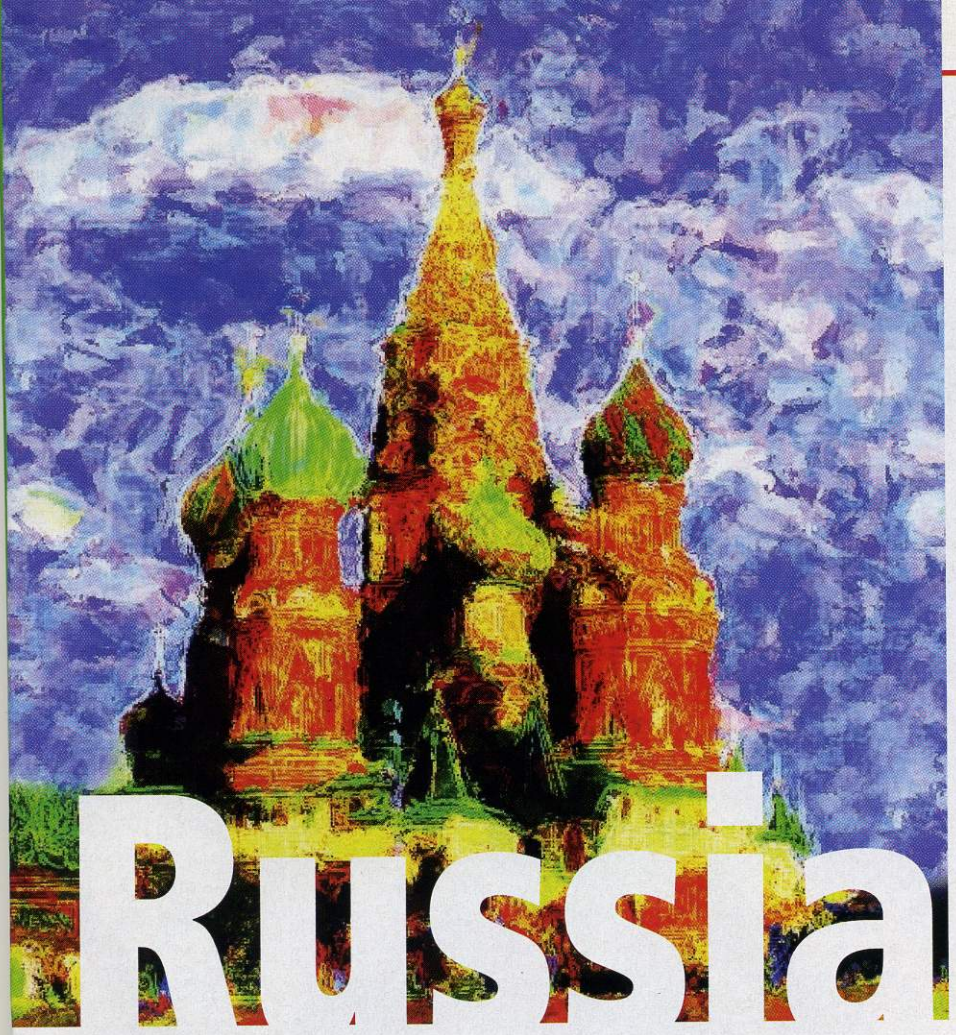

Russia

Unleashing Huge Potential

Russia is beginning to appear on Western companies' radar screens as a potential base for large-scale petrochemical investment. Recent reports that several multinationals are considering projects there could herald an upsurge in the fortunes of the country's chemical industry. Local players too, particularly those owned by the country's leading energy suppliers—such as Lukoil-Neftekhim (Moscow); Sibur Holding (Moscow), the petchem arm of Russia's gas monopoly Gazprom, and the largest local producer; and Tatneft-Neftekhim (Almetyevsk)—are all embarking on significant petchem expansions. The country's second-largest petchems producer, Nizhnekamskneftekhim (NKNK; Nizhnekamsk), also has a large-scale investment program, as do several fertilizer producers including global players such as Acron (Velikii Novgorod), EuroChem (Moscow), and PhosAgro (Moscow). Russia's expected entry into the World Trade Organization (WTO; Geneva), meanwhile, will have a big impact on the country's economy and chemical sector. Compliance with WTO regulations may lead to a change in the chemical industry landscape, says Igor Kukushkin, executive director of chemical industry association Russian Chemists' Union (RCU; Moscow).

"Some sectors of the industry will emerge winners, but others, including large parts of the dyes, man-made fibers, and paints industries could disappear," Kukushkin says.

Russia has traditionally been one of the leading fertilizer producers, but its mainstream petrochemical industry is underdeveloped, despite the country's immense wealth of hydrocarbon resources. Per capita polymer consumption of the country's more than 140 million inhabitants is only 28 kg, less than one-third of Western levels.

Russian companies chose not to invest in large new grass-roots petchem facilities in the 15 years following the collapse of the Soviet Union in 1991, focusing instead on modernizing and debottlenecking their plants. Most of Russia's chemical assets, a legacy of the Soviet era, are old and have long since lost their global competitiveness. Russia's ethylene capacity totals just 3.1 million m.t./year, and is mostly centered on small-scale facilities with capacities below 500,000 m.t./year. Plans are under-way to raise capacity to 4.6 million m.t./year by 2011 by expanding plants at Kazan, Kstovo, Nizhnekamsk and Salavat, and by constructing new units at Kazan, Novyi Urengoi, and Samara. The increased capacity will still be insufficient to meet demand, however, experts say.

"The Russian chemical industry has been trying to catch up with the rest of the world in the past few years," RCU says. The *Perestroika* era and the switch from central planning to a market economy had an adverse effect on the chemicals sector, it adds. "The changes, which culminated in the 1998 financial crisis, led to a deterioration of the chemical manufacturing base as well as the economic health of the industry," RCU says. A revival of the industry's fortunes began shortly after the crisis as a result of privatization. Only a small number of enterprises are still wholly owned by the government, it says. The government does, however, continue to hold stakes in some of the major players, including NKNK and Sibur.

Russia is eager to add value to its oil and gas reserves, which are among the largest in the world. The country produced 598 billion cu meters of gas in 2005 from proven reserves of 47.82 trillion cu meters, making it the largest producer, according to BP's statistical review of the global hydrocarbons industry. Oil production reached 9.6 million bbl/day last year from proven reserves of 74.4 billion bbl, making Russia the second-largest producer of oil behind Saudi Arabia and with the seventh largest reserves, the review says. Russia also boasts huge potash and phosphate deposits.

The Ministry of Industry and Energy of the Russian Federation (Moscow), together with technical and economic research institute NIITEKHIM (Moscow), recently completed a plan for the development of the chemical and petchem sector through 2015. It focuses on developing those branches of the industry that meet market needs. Products hitherto not manufactured in Russia, including several engineering plastics, are top priorities. These products would

be made in Russia to serve domestic and export markets.

The Russian chemical industry is in urgent need of investment to revive its manufacturing base. A minimum of $30 billion-$35 billion is necessary to bring the sector up to international standards, the ministry and NIITEKHIM say. A significant expansion of production would require investments of at least 50% more. The industry invested just $2 billion last year.

Western investors have until now been reluctant to enter the Russian industry because of the economic decline following the collapse of the Soviet Union and the low spending power of the population. That may be about to change, however, industry experts say, citing annual growth of 4%-7% in Russia's chemical industry during the last five years. The sector comprises more than 600 large and medium-size enterprises and about 100 R&D and planning organizations. It accounts for about 6% of the country's total production, and 7% of its industrial assets. The chemical industry also contributes 5% of the country's hard currency earnings.

"Russia is making a lot of money from oil and gas, and banks are willing to lend," one banker says. International soapers, paint makers, and pharmaceutical companies have been investing steadily in Russia to "put their brands on the shelves," but no major petchem joint ventures have been proposed, he says.

The first jv could be a vinyls partnership between SolVin (Brussels) and Sibur. SolVin, a polyvinyl chloride (PVC) jv in which Solvay has 75% and BASF 25%, is conducting a feasibility study with Sibur on a project to build and operate a large-scale, fully integrated vinyls production complex near Nizhnii Novgorod. A final decision on the project, with a nameplate capacity of 330,000 m.t./year of PVC, is expected this fall *(CW, Aug. 16, p. 16)*.

Busygin: Expanding the plastics sector.

Gurin: Overtook all Russian tire makers.

Smirnov: Big focus on petrochemicals.

Strezhnev: Investing in fertilizers.

BASF, meanwhile, is mulling a large-scale chemical jv with Gazprom, BASF's long-standing natural gas partner, in the European part of Russia. BASF is expected to reveal its plans next month during a visit to Germany by Russian president Vladimir Putin. The company's existing assets in Russia comprise a polyurethane (PU) systems house and a coating operation.

Dow Chemical also says it may invest in Russia, but that it is waiting "to see who is responsible for what in the energy sector." The Russian market eventually "could become important for Dow," the company says. Russia is one of the likely investment

locations in Dow's "asset-light" growth strategy, announced last year by CEO Andrew Liveris. The company announced plans recently to join forces with Izolan (Vladimir) in a jv to sell PU systems in Russia. The jv will build a plant at Vladimir during the next two years to produce PU systems for the local market.

Basell is developing a $4-billion petchem jv in neighboring Kazakhstan, another feedstock-rich member of the former Soviet Union. Basell's jv is with state-owned energy company KazMunaiGaz (Almaty) and private company SAT & Co. (Almaty).

Popov: Diversifying Acron's portfolio.

Dyukov: Planning jv with SolVin.

Volkov: Top maker of phosphates.

Kukushkin: Assisting with WTO entry.

The bulk of Russia's chemical industry is concentrated in a few vertically integrated enterprises *(top table, p. 33)*. They control more than 50% of the country's production of fertilizers, 40% of polymers, 50%-70% of synthetic rubber, 80% of light vehicle tires, and 95% of heavy-duty vehicle tires.

Sibur, the country's leading petchem player, accounts for more than 70% of Russia's polypropylene (PP) output, 47% of tires, 45% of synthetic rubber, 26% of chemical fibers, and 20% of polyethylene (PE). The company is keen to retain its leadership position and is investing ruble50 billion ($1.87 billion) over the next three years. "In 2006, Sibur is planning to boost production by better capacity utilization of existing plants and construction of new ones; optimization of its most profitable assets and strict control of our financial resources," says president Alexandr Dyukov. "Sibur is also planning to increase capacity for processing of associated petroleum gas, and carry out a selective modernization and expansion of its fertilizer units, as well as expand plastics and organic synthesis units," Dyukov says.

Sibur approved plans recently to raise ethylene capacity at Kstovo from 300,000 m.t./year, to 430,000 m.t./year by 2010. The extra capacity will be used to feed the planned PVC jv with SolVin.

Sibur and Orenburggazprom (Orenburg), another Gazprom subsidiary, have meanwhile joined forces to study construction of a petchems complex at Orenburg at a cost of ruble 41.5 billion. The complex would process gas from the Orenburg deposit to produce PE and PP.

NKNK, the second-largest petchem player in Russia, is eager to make the country more self-sufficient in polymers. "Russia practically does not have an indigenous polymers industry," says Vladimir Busygin, general director of NKNK. "The country is flooded with foreign plastics, mainly from Germany and the Scandinavian countries."

NKNK comprises 10 manufacturing plants at Nizhnekamsk, and is a leading producer of ethylene glycol, linear alpha-olefins, polystyrene (PS), propylene oxide, polyester, and styrene. It exports about 60% of its production. The company completed construction recently of its second 50,000-m.t./year PS complex and is raising ethylene capacity by 150,000 m.t./year, to 600,000 m.t./year. NKNK is also building a 180,000-m.t./year PP plant and a 230,000-m.t./year linear low-density polyethylene unit using Basell technology and Tecnimont's engineering services, and revamping its styrene butadiene, butyl and halobutyl, and polybutadiene rubber plants.

'Main problem lies in the low per capita plastics consumption.'

NKNK is also planning its first acrylonitrile butadiene styrene (ABS) plant, which will be based on Polimeri Europa technology. The plant will have a capacity of 65,000 m.t./year. NKNK will be the third ABS producer in Russia, after Plastik (Tula) and Tokem (Kemerovo), which have a combined capacity of about 16,000 m.t./year.

Tatneft (Almetyevsk), a leading oil producer, will spend about $4 billion to build a refining and petchem complex at Nizhnekamsk, adjacent to NKNK's facilities. The complex will be operated by ZAO Nizhnekamsk Oil Refinery and establish Tatneft as a major petchem player in Russia *(CW, Aug. 30, p. 15)*. Tatneft's existing petchem operations are grouped under its Tatneft-Neftekhim subsidiary and include Nizhnekamskshina, a major tire producer, and Nizhnekamsk Carbon Black Plant. The project will comprise a 7-million m.t./year refinery and an array of downstream plants making products such as PP, purified terephthalic acid (PTA) and polyethylene terephthalate (PET) bottle resins.

Lukoil-Neftekhim, the chemicals arm of oil major Lukoil, is another big player focusing mainly on petrochemicals. Its subsidiaries include Stavrolen (Budyennovsk), Saratovorgsintez (Saratov), and Lukor (Kalush, Ukraine). Lukoil also owns Lukoil Neftochim Bourgas (Bourgas, Bulgaria). The group's ethylene capacity totals 600,000 m.t./year. It is upgrading the Kalush complex by building world-scale chlor-alkali and PVC plants. Lukoil-Neftekhim is actively participating in the expansion of Russia's petrochemical sector, general director Alexei Smirnov says. "The main problem lies in the low per capita plastics consumption," he says.

Lukoil-Neftekhim and Sibur have joined forces to acquire polyester producer Polyef (Blagoveshchensk). The Polyef complex has been under construction for decades and last November its first production line, a 115,000-m.t./year PTA unit, was completed. Construction is continuing on a downstream PET plant. Acquiring Polyef will help speed up the project and secure feedstock supplies to the complex, the new owners say.

Amtel-Vredestein (Moscow), a group controlled by businessman Sudhir Gupta, has emerged as the leading tire producer in Russia following its takeover last year of Vredestein Banden (Amsterdam). That

was followed by an initial public offering (IPO) of shares in Amtel-Vredestein on the London Stock Exchange. Proceeds from the IPO will be used, among other purposes, for future acquisitions by Amtel-Vredestein, the company says. Amtel-Vredestein's tire plants are located in Russia and the Netherlands.

The company has reorganized its activities to focus on "the more profitable light vehicle tire manufacture, and discontinue production of heavy-duty vehicle tires," says general director Alexei Gurin. It plans to outsource manufacture of heavy-duty tires to Asia. The company produced and sold 10 million tires in the Commonwealth of Independent States (CIS), and 5 million tires in the Netherlands last year. "In sales terms we have overtaken all of the Russian tire producers," Gurin says. "Sibur sold about 13.5 million while Nizhnekamskshina sold about 9 million tires." Amtel-Vredestein is planning to sell an additional 1 million tires in the CIS in 2006, he says.

Russia's fertilizer sector has a leading global position.

Russia's fertilizer sector has long occupied a leading global position. The country produced 16.6 million m.t. of fertilizer nutrients in 2005, including 6.7 million m.t. of nitrogen, 2.8 million m.t. of phosphate, and 7.1 million m.t. of potash. The dominant players are Acron, EuroChem, and PhosAgro, as well as potash producers Uralkali (Berezniki) and Silvinit (Solikamsk). Uralkali appointed UBS and Credit Suisse recently to oversee the flotation of a minority stake in Uralkali on the London Stock Exchange.

EuroChem is Russia's leading fertilizer producer, and one of the top 10 worldwide. The company produced 2.7 million m.t. of ammonia, 1.6 million m.t. of urea, 511,000 m.t. of methanol, almost 2 million m.t. of apatite concentrate, and 1.6 million m.t. of phosphate fertilizers in 2005. Sales rose 25% to $1.89 billion. The company has experienced steady growth in the five years since its establishment, and is planning several investment projects. "Over the last few years EuroChem has grown 10% every year as a result of innovation and better capacity utilization," says Dmitri Strezhnev, general director. "We are embarking on new projects that will allow us to keep our leading positions and attain even better results." These include constructing a potash mining and beneficiation complex based on EuroChem's newly developed Gremyachinsk potash deposit near Volgograd, which contains estimated reserves of 1.2 billion m.t. The complex will produce 2 million m.t./year of potassium chloride beginning in 2010. EuroChem will by then be one of the few global producers able to manufacture fertilizers containing all three nutrients—nitrogen, phosphate, and potassium.

The potash complex will be EuroChem's seventh fertilizer plant. Its existing enterprises are Nevinnomyssk Azot (Nevinnomyssk); Azot (Novomoskovsk), which specialize in nitrogen fertilizers as well as organic synthesis products, such as methanol and acetic acid; Phosphorit (Kingisepp); Belorechensk Minudobrenya (Belorechensk); and Lifosa (Kedainai, Lithuania). The companies all process phosphate ore supplied by the Kovdor enterprise, also a part of EuroChem.

EuroChem exports the bulk of its output to Europe, as well as North and South America. "Europe is our most attractive market," Strezhnev says. It is at the same time a difficult market because of trade barriers, he says. EuroChem has to adhere to specific regulations relating to quality and range of products, to gain approval for its products in Europe.

EuroChem, in cooperation with Nexant Chem Systems and Boston Consulting, is working on an investment program for most of its enterprises. Financial and economic evaluation is under way for a scheme lasting through 2015.

PhosAgro, a government-owned enterprise, is a leading player in Europe's phosphate fertilizer market. The company's sales reached about $1.4 billion, and production exceeded 4 million m.t. last year, general director Maxim Volkov says. PhosAgro produces about 8.7 million m.t./year of apatite concentrate, a high-quality phosphate ore mined in the Kola Peninsula, as well as finished fertilizers. PhosAgro comprises four enterprises. They are Ammophos and Azot, both based at Cherepovets; a fertilizer complex at Balakovo; and Apatit (Kirovsk), the main Russian supplier of phosphate ore and a major exporter. The company has an extensive investment program, Volkov says. "By 2009 we are planning to invest more than $100 million in three projects covering extensive reconstruction of the Azot enterprise, as well as reconstruction of the sulfuric acid plant and of a liquid storage facility at Ammophos." PhosAgro is investing more than ruble5 billion at the Apatit complex this year alone, Volkov says.

Acron comprises two manufacturing complexes in Russia, at Velikii Novgorod and Dorogobuzh, and since 2002 has owned the Hongri-Acron complex at Linyi, China. Acron also has minority stakes in Apatit and in potash producer Silvinit, which secure Acron's supplies of fertilizer raw materials. The company produces more than 4 million m.t./year of fertilizers and last year had revenues of $803.5 million.

Acron approved last year a $1.4-billion investment program through 2015, which will include new production facilities and modernization of existing ones. The company is diversifying parts of its manufacturing base, Alexandr Popov, v.p./ corporate planning and finance, says. It commissioned a methanol plant at the Hongri-Acron enterprise last May, and formalin and urea formaldehyde resins plants at Velikii Novgorod last July. Acron plans to bring onstream an amino resins plant at Velikii Novgorod by year-end.

Acron's main markets are China, the U.S., Western Europe, and South America. It has a special focus on China, which accounts for more than half the global fertilizer market.

Russia's chemical industry is aiming to grow its exports, which last year reached almost $11 billion. Many of the industry's products are sold overseas on the basis of competitive prices, reflecting the country's lower energy costs. Chemicals are often processed abroad and returned to Russia as higher value-added products. Exports are often the main means for Russian producers to keep their plants operating and earn money.

RUSSIA'S BILLION-DOLLAR CLUB*

(in millions of dollars)

COMPANY	SALES	NET PROFITS
Sibur Holding	$3,900	$400
EuroChem	1,891	330
Nizhnekamskneftekhim	1,670	32
Lukoil-Neftekhim	1,650	122
PhosAgro	1,400	na
Acron	803.5	176.5
Amtel-Vredestein	671	16[1]
Tatneft[2]	462.8[3]	na

*2005 figures. 1) Operating profits; 2) Petrochemical operations; 3) 2004 result. na=not applicable. Source: RCU (Moscow); *CW* research.

A DIVERSE INDUSTRY*

(in thousands of m.t.)

Agrochemicals, 100% active ingredient	8.3
Ammonia	12,422.1
Apatite concentrate, 39.4% P_2O_5	4,175
Benzene	1,189
Caustic soda	1,232.8
Ethylene	2,101.2
Fertilizers, 100% nutrient	16,618.8
Nitrogen	6,721.6
Phosphate	2,765.3
Potash	7,129.4
Fibers	154.3
Man-made	39.1
Synthetic	115.3
Glass fibers	106.3
Methanol	2,900.5
Paints	699.5
Polyethylene	1,046.8
Polypropylene	301.4
Polystyrene and copolymers	193
PVC and copolymers	580.4
Soda ash	2,582.3
Sulfuric acid	9,333.5
Synthetic rubbers	1,147
Synthetic varnishes	11
Tires[1]	41.317
Light vehicle tires	27.238
Heavy-duty tires	11.664

*Russia's output of chemicals in 2005. 1) In millions of units. Source: NIITEKHIM (Moscow).

A Russian government initiative to create special economic zones (SEZ) is expected to help the chemical industry. Companies seeking to invest in the SEZs will benefit from lower taxes and duties. The most advanced plans in the chemical and petchem sectors are for SEZs at Tomsk and Elabuga. An experimental unit producing titanium-magnesium catalysts, hitherto unavailable in Russia, is being readied for operation at the Tomsk SEZ. The unit was developed by experts at Tomskneftekhim, Sibur, and a local catalysts institute. A plant producing biaxially oriented PS film has been established at the Elabuga SEZ, processing raw materials from NKNK. Other plants are being established at the SEZs. Establishing the SEZs will give added impetus to the chemical industry, alerting the global business community to new investment opportunities in Russia, RCU says.

Government initiatives in the fertilizers sector are also presenting growth opportunities. The government is pushing ahead with a strategy to double fertilizer consumption in Russia following a major drop after the collapse of the Soviet Union.

Russia's proposed entry into the WTO is occupying much of the country's intellectual resources, including those in the chemical industry. RCU and several government organizations have been helping the chemical sector prepare for accession. "RCU is playing an active role in all the expert commissions that are involved in discussions on WTO entry," Kukushkin says. "While some branches of the industry will emerge as winners, others may disappear in the process." Firms would disappear because they are unable to comply with international standards, he says. "We are devoting careful attention to this problem and are actively working on technical regulations for individual branches of the chemical industry," Kukushkin says.

RCU also is working hard to introduce a voluntary system of certification for individual companies, based on Responsible Care. "We already have support from several enterprises, including Apatit, NKNK, and Shchekinoazot (Shchekino), as well as several government organizations," Kukushkin says. The industry has also gained support from international trade associations, he says. "We are being supported by the Belgian and Finnish chemical industry associations and hope for their recommendations and the support of Cefic in the process of our joining the Responsible Care program."

—NATASHA ALPEROWICZ *and* ELENA PETRUSHINA *(RCU; Moscow)*