



TIRE INDUSTRY
RESEARCH

Global Tire Intelligence report

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Opinion - David Shaw

Tire profitability to come under pressure

In a seminar I am due to present in Germany in November, I argue that the industry is facing a downturn in profitability.

The seminar is on 8 November in Düsseldorf. The main title is *the tire industry in China and the rest of Asia*. However, I wanted to add some context to the view in Asia by looking at the global scene. In doing some analyses on the global numbers, I came across some interesting observations.

One of the things we do is to track the prices of tires –both car and truck –in different markets.

We also track profitability of the tire makers and we collect a lot of anecdotal evidence on how people think the industry is moving.

In our analysis of the half-year results, it was clear that tire volumes are increasing while revenues are falling.

Profits depend on costs, volumes and prices

At the most simplistic analysis, profits depend on input costs; volumes and selling prices. Lower selling prices, lower sales volumes and higher input costs lead to lower profits. The opposite trends tend to lead to higher profits.

We track selling prices of a range of tire types in many different markets around the world and it appears to us that, China excepted, prices were holding up until about the middle of 2015, when prices in many markets started falling.

The last year has seen prices fall by single-digit percentages in many markets. It varies by type and size, but the low-end car and light truck markets (16-inch and below) are more insulated, since they have already been affected by price competition from Chinese tire makers.

The biggest impact has been in truck tires where severe price competition from Chinese tire makers has forced even premium brands to cut prices.

We think this is linked indirectly to the US decision to impose anti-dumping and countervailing duties on passenger car tires from China.

Selling prices in China

Over the last three years, selling prices of passenger car tires in China have fallen by around 40%; selling prices of truck tires have fallen by about 45%.

Much of this was about falling input costs combined with fierce internal competition in China. These price falls were not widely exported. Within

China, Chinese-brand tires are primarily bought on price. That's starting to change, but for the time being it is mostly about price.

In the West, brand strength has insulated the main manufacturers from price competition. Many consumers in the West will still pay for a premium brand, even when there are cheaper alternatives.

Only when tire makers in China started losing their markets in the US did they begin to increase exports to other regions, and in doing so, triggered price wars around the world.

The US decision to impose duties on truck tires and increase duties on OTR tires has made the situation worse.

So we have seen pressure on prices.

Input costs begin to move upwards.

On page 16 of this newsletter, we note that NR prices increased in April and appear to be on the rise again. At the end of October, NR prices were around 40% higher than they were in January. It is the same story in synthetic rubber and carbon black. Prices of raw butadiene monomer have doubled since a year ago. That has driven up prices of butadiene rubber and SBR. We've seen announcements of price increases from carbon black makers around the world.

About this publication

This document has been prepared in response to demands from the global tire community for insight into the tire industry.

Our company tracks the tire industry around the world. We publish a weekly report that gives Western executives deep insight into current developments in China's tire industry.

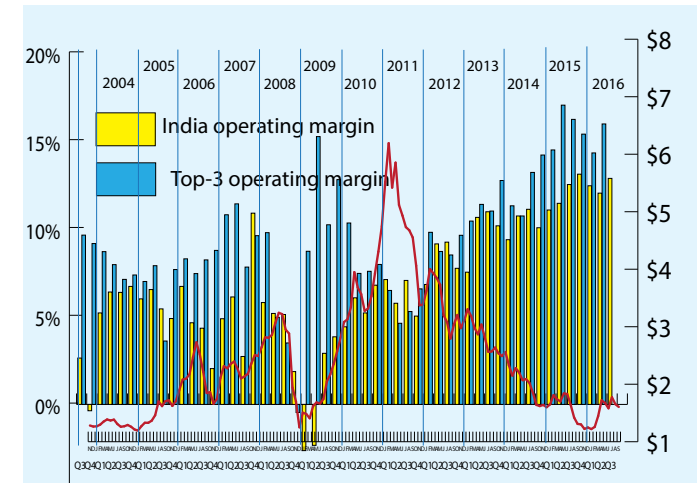
Part of that research involves tracking the China-based publications that report on the global tire industry. We noticed that Chinese reporting of Western developments is woefully inadequate.

During conversations with many Chinese people, we identified a strong need in China for a source of information on the global tire industry that lies outside of the official channels.

Furthermore, in conversations with industry analysts, we identified a need for a short-form document that explains and analyses latest developments in the global tire industry.

About the author. This report is compiled by David Shaw. Mr Shaw publishes widely on LinkedIn about the tire industry. He has a 30-year track record reporting on the global tire industry at the highest levels. He publishes market research reports; offers a weekly news service and manages conferences globally.

For more information see <http://TireIndustryResearch.com>



The chart above shows the operating profit margins of the top three tire makers (combined) and also the top-6 Indian tire makers. The red line is the price of Natural Rubber used as a proxy for input costs

This reverses a 5-year trend. Since mid-2011 input costs have been falling, and this has allowed tire makers to reap the rewards of greater margins.

Oddly, however, if you look at margins in China, they have been falling for the last three years as the price war there rages.

Margins at Western tire makers have been roaring ahead, until the end of 2015, when we started to see margins ease a little (see chart, above).

Predicting a period of lower profit

Bringing this together, the period of high profits seen since 2015 may be coming to an end as we see a combination of higher input costs and lower selling prices affecting the global tire industry.

Tire makers will say that they can improve profits by focussing on high added-value products, and that is certainly true, but it seems to me that the efforts of a large number of China-based tire makers are reducing the opportunities for higher added-value products in many niches around the world.

Premium brands can still win in the high-tech end of things; smart tires; run-flats; noise-cancelling and so on.

But relying on that increasingly restricted end of the market for long-term business growth seems short-sighted at best.

David Shaw

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Section 1: Investments; additions and closures

Continental buys Hoosier Racing Tire



In a surprise announcement in early October, Continental said it has bought American company Hoosier Racing Tire for an undisclosed sum. Hoosier has been in private ownership since its foundation in 1957.

Commentary

Hoosier is a well-known racing tire brand in the United States. The company operates a single tire factory in Plymouth, Indiana. Conti said it has been cooperating with Hoosier for seven years during which time they jointly on various development and motor sport projects.

In 2013 the company announced an investment of \$8 million to expand rubber mixing capacity at its Indiana factory to support growth.

Conti has been seeking ways to expand its presence in North America and to venture into different specialities in the tire industry. Often these speciality products offer the highest margins.

http://www.continental-corporation.com/www/pressportal_com_en/themes/press_releases/2_corporation/acquisitions_jointventures/pr-2016-10-04-akquisitions-en.html

Conti expands presence in Fleet Management

In a further move toward adding service activities to its tire business, Continental has bought a majority stake in the smart fleet management technology provider Zonar.

Zonar is based in Seattle USA and counts Daimler Trucks North America LLC as one of its major customers as well as a minority shareholder. Daimler has said it will continue to support Zonar.

Established in 2001, Zonar was one of the pioneers of smart fleet telematics. Zonar is also the exclusive OEM partner for Daimler Trucks North America's Virtual Technician solution installed on more than 200,000 Daimler trucks.

Commentary

As tire makers see increased threats from low-cost manufacturers, they are seeking to diversify into fields where revenues are based on the supply

of services that support fleets, rather than on simple black, round tires. Tires represent less than 3% of the total costs of most fleets, so are not seen as especially important in comparison with fuel consumption or driver skills.

By offering services that improve overall fleet efficiency and permit increase loading factors on return runs, the tire makers can help the fleets to save money through more efficient use of vehicles, more up-time and reduced maintenance costs. Tires are one aspect of this overall service, but only a relatively small aspect of it.

The more lucrative opportunity is in understanding how the fleet is used and to extract maximum efficiency from the fleet and its various delivery runs.

http://www.continental-corporation.com/www/pressportal_com_en/themes/press_releases/3_automotive_group/cvam/press_releases/pr_2016_10_04_continental_zonar_en.html

Pirelli marks 10 yrs in Romania with investments



Pirelli is investing a further EUR200mn to add 5m tires/year at its high-performance passenger car tire factory at Slatina, Romania. The announcement came on as the company marked 10 years at the Romanian facility.

The new investments will extend up to 2021. By that time the total investment in Slatina will have reached around EUR740 million, creating around 500 new jobs and bringing annual production capacity up to 15 million units, from the present 10 million.

The factory's floor space will be extended to 260,000 square metres from the present 210,000. The new investment also includes a dedicated motor sport production unit in Slatina. This will act as a back-up for Pirelli's existing F1 tire plant in Turkey.

Commentary

Although some think of Romania as being somewhat backward, Pirelli's plant there has always been one of its top factories. It employs the most advanced machinery and equipment. The factory makes Pirelli's most advanced tires for both OE and replacement markets.

Products include UHP tires for Summer and Winter use, runflats and SUV tires.

Although Pirelli buys off-the-shelf equipment from top suppliers, it also

adds its own patented technologies, many of which are employed at the Slatina factory.

Slatina does not use the MIRS system in which robots make tires in production runs as small as a single unit.

By August 2015 the Slatina factory hit a total output figure of 50m units since it opened for business in 2006.

Romania is seen as a good location because it is in a low-cost part of Europe where wages are low, but is still relatively close to the main markets and is close enough for OE makers to have short supply chains.

In late 2014, Pirelli sold the steelcord factory adjacent to the Slatina factory to Bekaert. Bekaert continues to supply Pirelli with products from that plant.

http://www.einnews.com/pr_news/347258651/pirelli-to-further-invest-approximately-200-million-euro-in-romania-through-2021-will-bring-to-tal-investment-to-740-million-euro-and-create-around

Michelin opens tire distribution centre in Spain



Michelin has opened a new distribution centre in Castilla-La Mancha, Spain. This completes Michelin's reorganisation of its logistics network in the Iberian Peninsula.

This warehouse represents an investment of EUR32.5MN. It has an area of 52,000 m² and will serve customers in Spain, Portugal and Andorra.

The new building, located in the Central Platform Iberum, was built in seven months on an area of 140,000m², with the possibility of extending the storage area to 80,000m². Nearly 200 people work in the centre.

[http://www.interempresas.net/Naves/Articulos/162518-Michelin-inaugura-un-nuevo-centro-de-distribucion-en-Illescas-\(Toledo\).html](http://www.interempresas.net/Naves/Articulos/162518-Michelin-inaugura-un-nuevo-centro-de-distribucion-en-Illescas-(Toledo).html)

ChemChina bidding for Kumho Tire

Reports from Korea suggest that China's state-run China National Chemical Corporation (ChemChina) has joined the bid for South Korea's Kumho Tire Co. ChemChina is currently absorbing the acquisition of world's 5th tire maker, Pirelli as well as the huge chemical company Syngenta AG. Industry sources said ChemChina signed a non-disclosure agreement (NDA) with Kumho Tire's bankers last month and is preparing for an official bid.

The Chinese company reportedly has selected Boston Consulting Group to

Section 1: Investments; additions and closures

advise on the deal.

The investment banking community predict that the Chinese company will bid aggressively on price.

A merged operation of Kumho, Pirelli and Aeolus would still not exceed the sales of Continental, the 4th-placed tire maker in the world.

<http://pulsenews.co.kr/view.php?sc=30800020&year=2016&no=707073>

Is Conti ready to buy Cooper?

An analyst in the United States is suggesting that Continental AG might consider buying Cooper Tire & Rubber Co. The story was picked up by the Toledo Blade a high-quality newspaper based in Cooper's home town of Toledo, Ohio.

The article in the Blade linked comments by Nikolai Setzer, head of Conti's tire business, that Conti might make acquisitions to build its business around the world with the belief that Cooper is seeking a buyer.

The analyst, Nick Mitchell of Northcoast Research said Continental acquiring Cooper would "propel the company's market share in the all-important U.S. passenger and light truck/SUV replacement tire market from a middle-of-the-pack player to a market leader along with Michelin, Goodyear, and Bridgestone."

Commentary

Cooper sought an agreed take-over by Apollo Tyres in 2013, but that did not succeed for a range of reasons, mostly the difficulties raised by the Weihai-based Cooper Chengshan. Most of us who comment on the tire industry globally believe that the company is still for sale. It needs to develop its OE business globally and consolidate its reputation outside the United States. The company has under-invested in technology for many years, but does not have the scale to build its business at the speed required.

I have not spoken to Conti about the possible acquisition of Cooper, but it might be an attractive target at the right price. I agree with the analyst that Continental acquiring Cooper Tire would "propel the company's market share in the all-important U.S. passenger and light truck/SUV replacement tire market from a middle-of-the-pack player to a market leader along with Michelin, Goodyear, and Bridgestone."

The Apollo deal was in effect a reverse take-over with the smaller Apollo seeking to buy a larger company.

If Conti were interested it would be a more normal arrangement.

But somehow, I think it unlikely. Cooper has been in play for years. If Conti wanted to buy it, they could have made an approach before making any public statement.

When Setzer told Reuters that he is seeking acquisitions, that could be for two possible reasons. Either a deal was very close to completion and

he wanted to alert the markets, or he wanted to alert potential targets – unknown acquisition targets – that Conti might be interested. To alert the investment community that Conti is looking for a target when everyone knows Cooper is for sale would do nothing except drive the price up.

Setzer made that statement at the IAA Hanover on 21 September. The more rational analysis, perhaps is that Setzer was thinking of the Hoosier deal (above). That closed in the first few days of October, just a couple of weeks after the Reuters story appeared – and a few days after Mr Mitchell's analysis.

<http://www.toledoblade.com/business/2016/10/11/Cooper-Tire-prime-for-takeover-report-says.html>

Bridgestone brings hi-tech tire building to EU



Bridgestone has said it plans to extend the use of its high-tech Examination tire building systems to Europe.

Bridgestone introduced this technology at its flagship Hikone Plant earlier this year. Now it is extending the system to its new factory in Russia, due to begin operations later this year and its PCR production plant in Tatabánya, Hungary.

The Tatabánya Plant will see production capacity increased by approximately 12,000 tires a day during the first half of 2017, bringing its total production capacity to around 18,000 tires a day. Part of this capacity increase will be based on the new Examination system.

The Examination system is equipped with an artificial intelligence that uses sensors to measure the data of individual tires based on 480 quality items. It uses this information to control production processes in real-time and thereby ensures that all components are assembled under the ideal conditions. This system helps promote ultrahigh levels of precision in tire manufacturing, resulting in an improvement of more than 15 percent in uniformity when compared to conventional manufacturing process. Conventional manufacturing process involve layering all components on a single drum, meaning that the next step of the process could not be started until this layering was complete, and this results in longer production times. The Examination system, meanwhile, employs a multi-drum approach through which numerous drums are used simultaneously, thereby doubling productivity in comparison to conventional procedures.

Conventional tire building systems are based on a premise of manual

assembly. This means training and education are vital to the manufacture of top-quality tires. The Examination system removes this variability. As a result, this system can deliver higher levels of quality and efficiency.

Commentary

Production technology is critical to the economic and brand success of tire makers. Low-end manufacturers tend to believe that using cheap labour in developing countries will cut the cost of manufacture. And it does. But it also impacts quality.

For premium manufacturers the goal is more and more automation. This has two key advantages. First it removes the errors introduced by operators and second it means that the whole operation is less dependent on skilled workers.

Clearly, a fully-automated building process is more expensive to buy than a low-end product. The calculation has to be made about longer-term cost of ownership. If you have to pay two workers to operate the machine, does that make the total cost of producing half a million tires per year greater or less. If that is then calculated over a 5-year machine life, how do the costs balance out. And then add in the increased risk of returns and complaints due to operator error. And then add in the possibility that a badly-made tire will affect your OE customers, it is clear that more automation is a significant advantage to top-end tire makers.

Furthermore, as tire sizes and dimensions proliferate, the number of size changes per day adds further to the total cost of production. The latest, highly automated systems are also more flexible.

Finally, within the Examination system, the sensors that identify mistakes or errors during manufacture are linked to an artificial intelligence (AI) system that can assess the impact of any minor errors in production, leading to improved quality and repeatability.

<http://www.bridgestone.com/corporate/news/2016061301.html>

Casumina adds capacity to serve US markets

Vietnam-based Casumina is planning to build a new production hall to make passenger car tires. The new unit is expected to have capacity for 1m PCR tires annually and 2m motorbike tires.

Casumina General Director Nguy'n H'ng Phú is quoted as saying the new capacity will be exported to the United States under the new Trans-Pacific Trade Partnership (TPP) deal.

Casumina's revenue reached VNĐ1.5 trillion (US\$67.3 million) in the first half of the year.

<http://vietnamnews.vn/economy/344501/casumina-rubber-company-to-increase-exports-to-us.html#7uy0Upz98bdur1x8.97>

Section 1: Investments; additions and closures

Conti opens re-furbished TBR hall at Otrokovice



Conti has opened a new truck tire production hall at its factory in Otrokovice, Czech Republic. The hall was opened with a ceremony on 11 October. The reconstruction project was the biggest investment of the Continental Corp. in Otrokovice tire plant in the last three years, amounting to around €165 million (CZK4400mn), and creating 130 new jobs.

Even before this project, Otrokovice was Continental's biggest truck tire factory worldwide. The factory exports worldwide, including to the Asia-Pacific region.

"With this investment, the plant has developed into a production hub for America as well as for the emerging markets in Asia Pacific", said Andreas Esser, Head of Commercial Vehicle Tires.

The reconstruction and expansion of the CVT2 production hall started at the end of 2013 and was completed last year. It was gradually equipped and trial operations have already begun. The first unit in the CVT2 hall was cured in 2014 while testing presses, but the first serially produced tire was manufactured in April 2015. At this time, production had started with one tire-building machine and six curing presses. By the end of 2015, additional tire-building machines and presses allowed production to grow to nearly 1.6 million tires per year.

In 2015, Continental Barum produced 21.1 million units of passenger tires, 919,000 units of truck tires and 119,000 units of industrial tires. This year, one million units in truck tire production will be surpassed. In comparison to 2005, production has increased almost threefold. This production increase was driven by a project supporting the manufacture of 22.5" tires and mostly by production in the new hall.

<http://www.continental-tires.com/transport/media-services/news-room/20161011-otrokovice>

Trinseo to add 50kt of S-SBR in Schkopau

Trinseo has announced that it will expand capacity for Solution-polymerised Styrene Butadiene Rubber (S-SBR). The investment comes amid increasing demand for low-rolling-resistance tires.

The upgrade at Trinseo's synthetic rubber unit in Schkopau, Germany, will add 50 kT of S-SBR capacity, increasing the company's global S-SBR production by 33%, to 200kT. The new capacity is expected to come on stream in January 2018.

"Our expansion of S-SBR is a direct response to customers' demand, and consistent with sustainability trends around the world," said Samer Al-Jabi, Global Business Director for Synthetic Rubber.

Commentary

This announcement follows close behind Trinseo's decision to build a new pilot production line to make tonne-quantities of pilot grades.

There was a period around four years ago when many companies were announcing expansions of S-SBR capacity. If all of those had come on-stream, then the world would be in over-capacity. However, not all of those were built. Nevertheless, S-SBR is a highly specialised materials that does not follow universal supply-and-demand patterns.

There is over-capacity for tire production around the world, but it is still possible to see shortages in specific sizes and tire types.

The same is true in S-SBR. Because not all S-SBR is the same. Some grades are more desirable than others.

Taken together the total global capacity for S-SBR is significantly greater than the global demand.

However, some of the low-end S-SBR capacity is little more than E-SBR equivalents. Fortunately, most S-SBR facilities can be switched relatively easily to make either butadiene rubber or more likely, styrene block copolymers such as SBS.

Furthermore, some tire makers have worked with suppliers to request specific grades of S-SBR. As a result, some rubber manufacturers need more capacity for these customised grades, whereas other rubber makers have been less successful in creating customised grades, so are seeking more volume.

Trinseo seems to have been one of the more successful, adding capacity, but also adding a new line for the development of customised and private grades.

<http://www.trinseo.com/News-And-Events/Trinseo-News/2016/October/Trinseo-Announces-Capacity-Expansion-for-Solution-Styrene-Butadiene-Rubber>

Trinseo adds pilot plant for S-SBR in Schkopau

Leading producer of solution-polymerised Styrene Butadiene Rubber (S-SBR), Trinseo has announced plans to build a new pilot plant at its EU base in Schkopau, Germany.

The S-SBR pilot plant will help speed up innovation in the Performance Tires market, and avoid the need to use the main plant to support grade

development. It is scheduled to begin operation in Q4 2017.

Trinseo did not say how much material the new plant can make, except to say it will, "deliver sufficient quantities of new S-SBR formulations required for real-life tire testing."

Commentary

In the world of tire development, interest in new grades of S-SBR is intense. But not just any S-SBR. The key aspects of the latest generation of S-SBR materials are as follows:

- Molecule size and shape can be designed and controlled
 - Functionalised groups can be added to the end-chains or along the backbone
 - All of this can be done with great repeatability and consistency.
- Earlier generations of S-SBR – and those produced by lesser suppliers – might use the solution process, but they do not all have these advantages.

Compound design is getting more and more sophisticated with the interaction between rubber and filler becoming much better understood and compound engineers are focussing first on the discontinuities around the filler particles at scales around 10nm – 100nm and second on compound strength as methods to improve wear life at the same time as improving wet grip and fuel economy.

This new pilot plant will help Trinseo to develop new grades in cooperation with their customers in the tire industry. Our guess is that it can produce a few tonnes per batch.

The first generation of S-SBR came out two decades ago. It offered better control of the chain length and the extent of branching, but had little impact on the properties of finished tires.

The next generation added functional groups at the chain ends. These anchor the chain ends to a filler particle so energy is no longer absorbed as they move around. The result is that the tire delivers better fuel economy in service.

Later generations also have functional groups along the backbone of the molecule.

Trinseo claims low rolling resistance tires made with its S-SBR can cut fuel consumption by 3%. It produces S-SBR through an anionic batch polymerisation. Companies who specialise in rubber for the tire industry are using these techniques to create customised molecules: for example, Trinseo, Sumitomo Chemical and JSR Corp. Such customised molecules are not just for an 'ideal' tread rubber. They can offer a specific combinations of properties which are appropriate for (say) a tire travelling on ice at high speeds, or a heavy load-bearing tread covering long distances on a highway.

<http://www.trinseo.com/News-And-Events/Trinseo-News/2016/October/Trinseo-to-Build-New-S-SBR-Pilot-Plant>

Section 1: Investments; additions and closures

Hankook opens Korean tech centre



Hankook has opened a new State-of the Art technical centre in Daejeon, Korea. It is called the Hankook Technodrome. The project represents a total investment of KRW 266.4 billion (USD-240mn). The R&D centre stands on a massive floor space of 96,328m², with an R&D building with 6 stories and a residence building consisted of 8 stories, equipped with employee accommodations including a fitness centre, medical clinics, café, as well as day a care centre. The new R&D centre will play a central role in research and development—cooperating with Hankook's Technical Centres in North America, Europe, China and Japan.

<http://www.hankooktire.com/global/about-hankook-tire/media-center/press-room.58648.html?div=&text=&selort=&tab=all&page=1>
<http://www.hankooktire.com/global/about-hankook-tire/media-center/press-room.58649.html?div=&text=&selort=&tab=all&page=1>

Bridgestone adds Air-tire capacity in Japan



Bridgestone is to invest JPY2100m (USD20m) in aircraft tire capacity at its factory in Kurume, Japan. The investment is focussed on radial tires, which are gaining share among many large commercial airliners. Bridgestone makes new aircraft tires at its plants in Kurume and Tokyo. Used aircraft tires are retreaded a number of times and Bridgestone operates retread

facilities in Japan, the United States, Belgium, and China.

<http://www.bridgestone.com/corporate/news/2016101702.html>

Mesnac opens new European factory



Tire equipment supplier Mesnac has opened a new development and production facility in the Trencianska Tepla region of Slovakia. The new facility will serve as MESNAC's European and Research and Technical Centre (MERTC). The opening ceremony was held on 1 October to mark the 7th anniversary of MERTC foundation

The new plant produces Mesnac's tire building machines for cars and trucks as well as curing presses for car tires. Passenger tire building machines include the P-PRO, P-PRO N and the fully automatic machine P-PRO XT. Truck tire building machines include the T-PRO. Hydraulic curing presses include the type CP and CPS for passenger car tires. Mesnac said that some of these tire building and curing press models have already been accepted by some of the world's top five tire manufacturers.

http://en.mesnac.com/content_1590.aspx

http://www.mesnac.com/content_1584.aspx

<http://news.cria.org.cn/6/34892.html>

Marubeni Corp. buys stake in Radial Llantas

Marubeni Corp said it has bought 49% of the equity of Radial Llantas S.A. de C.V. Radial Llantas is a leading distributor of replacement tires in Mexico. Marubeni will be represented in the management structure, though the company did not say in what capacity.

Commentary

Marubeni is a Japan-based conglomerate that tends to specialise in distribution and logistics. The company bought Thailand-based tire dealer B-Quik in 2006, and has been expanding its dealerships around ASEAN. It appears that Marubeni thinks the tire business is a good opportunity, as it intends to deploy the B-Quick business model in Mexico and beyond, into central and South America.

Tire distribution companies have been significant acquisition targets in recent years as tire makers seek more control over the data and communications with customers.

Dealers carry a strong influence over the buying decision and in recent years have been steering customers toward cheaper import brands around the world.

Meanwhile, Chinese and other tire makers who find it difficult to access certain markets have found that buying distribution chains can bring rewards.

A second dimension to this acquisition is the availability of data on customer preferences and buying patterns.

Careful analysis of the sales patterns can help tire makers to understand how and why customers make particular buying decisions and this can be used to guide product development programmes.

<http://www.marubeni.com/news/2016/release/00048.html>

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Section 2: People

Nokian President moves on



Ari Lehtoranta has resigned his position of President and CEO of Nokian Tyres plc, in order to take up the position of Group President and CEO with Caverion Corporation, a Finnish building services company. Lehtoranta continues in his present position until the end of 2016. Nokian's Board of Directors has started the recruitment process to select a new President and CEO for the company.

During an investor call, both Lehtoranta and the company emphasised that this is purely a personal decision and was not triggered

by any negative feelings, discussions or events at Nokian.

<http://www.caverion.com/about-us/media/releases/2016/09/27/caverion-appoints-ari-lehtoranta-as-group-president-and-ceo>

<https://www.nokiantyres.com/company/news-article/nokian-tyres-president-and-ceo-to-change/>

New boss for Bridgestone's US truck tire unit



Bridgestone Americas Tire Operations (BATO) has named Joseph Saoud as president, truck and bus radial (TBR). Saoud has joined Bridgestone from Commercial Vehicle Group, Inc. (CVG), a global supplier of a full range of cab and other vehicle related products for the global commercial vehicle market.

In his new role Saoud will lead the sales activities for the U.S. and Canadian commercial truck and bus tire business, which

includes Bandag retreats.

<http://www.bridgestoneamericas.com/en/newsroom/press-releases/2016/bridgestone-names-new-president-of-commercial-truck-bus-tire-business>

BRISA names new int'l markets director

Brisa Bridgestone Sabanci has named Halit Şensoy as consultant for the OE tire business to the chief executive officer, OEM business.

He is succeeded in his former post of international markets director by Ertan Kurt, who becomes responsible for international sales and marketing of Brisa's Lassa brand.

<http://www.tyrepress.com/2016/10/new-consultant-role-for-brisas-sensoy-ertan-kurt-takes-over-as-international-markets-director/>

Apollo Tyres appoints Daniele Lorenzetti as CTO



Apollo Tyres has appointed former Pirelli executive Daniele Lorenzetti as the company's Chief Technology Officer (CTO). He will also serve on Apollo's Management Board.

Lorenzetti will be responsible for Apollo's R&D at a global level for both passenger vehicle and commercial vehicle tires. He will be based out of the company's European headquarters in Amsterdam, the Netherlands.

Lorenzetti is a 20-year veteran of Pirelli, where his last role was Product Director – Industrial Division.

Commentary

This appears to be one of the results of Apollo's decision to bring Francesco Gori on to Apollo's main board. Gori was for many years CEO of Pirelli and maintains strong links with the company and its personnel.

[https://www.dropbox.com/s/08v9j5hzhz4wg6/2016-10-07_Apollo Tyres appoints Daniele Lorenzetti as CTO.pdf?dl=0](https://www.dropbox.com/s/08v9j5hzhz4wg6/2016-10-07_Apollo_Tyres_appoints_Daniele_Lorenzetti_as_CTO.pdf?dl=0)

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Section 3: Legislation and government

DoC changes ADD tax on OTR tires from China

The US department of Commerce published on 14 October the results of its investigation into its anti-dumping duty order on certain new pneumatic off-the-road tires (“OTR tires”) from the People’s Republic of China (“PRC”).

The period of review (“POR”) is September 1, 2014, through August 31, 2015.

In a preliminary finding, the DoC says three companies in the Xugong group have been selling tires at less than normal value and invites interested parties to comment on this preliminary determination.

The Doc says it has not reviewed the rate for China-wide entities, so there is no change to the existing 105.31% rate for companies subject to that rate. Those companies include Aeolus, Triangle, Tianjin Leviathan. As a result, the DoC is published preliminary weighted-average dumping margins exist for the period September 1, 2014, through August 31, 2015:

Exporter	Dumping margin
Xuzhou Xugong Tyres Co., Ltd., Armour Rubber Company Ltd., or Xuzhou Hanban Tyre Co., Ltd.	33.58%
Shiyan Desizheng Industry & Trade Co., Ltd.	33.58%
Qingdao Jinhaoyang International Co., Ltd.	33.58%
Sailun Jinyu Group Co., Ltd.	33.58%
Weifang Jintongda Tyre Co., Ltd.	33.58%
Zhongce Rubber Group Company Limited	33.58%
Weihai Zhongwei Rubber Co., Ltd.	33.58%
Qingdao Qihang Tyre Co.	33.58%
Qingdao Free Trade Zone Full-World International Trading Co., Ltd.	33.58%
Trelleborg Wheel Systems (Xingtai) China, Co. Ltd.	33.58%

Interested parties who wish to request a hearing must do so within 30 days of publication (14 October 2016) of these preliminary results by submitting a written request to the Assistant Secretary for Enforcement and Compliance, U.S. Department of Commerce, using Enforcement and Compliance’s ACCESS system.

<https://www.federalregister.gov/documents/2016/10/14/2016-24821/certain-new-pneumatic-off-the-road-tires-from-the-peoples-republic-of-china-preliminary-results-of>

DoC changes CVD tax on OTR tires from China

The US Department of Commerce published on 14 October the results of its investigation into its countervailing duty order on certain new pneumatic off-the-road tires (“OTR tires”) from the People’s Republic of China (“PRC”). The investigation relates to an order originally published on September 4, 2008.

The period of review (“POR”) is January 1, 2014, through December 31, 2014.

In a preliminary finding, the DoC says it finds that countervailable subsidies were being provided to producers and exporters of new OTR Tires from China and invites interested parties to comment on this preliminary determination.

The DoC has significantly increased the duties imposed on tires imported from Guizhou Tire; Xuzhou Xugong and other non-selected companies.

The new rates are as follows:

Company	Subsidy rate (percent)
Guizhou Tyre Co., Ltd	38.19
Xuzhou Xugong Tyres Co., Ltd	70.20
Non Selected Companies	54.20
The older rates originally published in 2008 are as follows:	
Producer/exporter	Subsidy rate (percent)
Guizhou Tire Co., Ltd. (GTC)	2.45
Hebei Starbright Tire Co., Ltd. (Starbright)	14.00
Tianjin United Tire & Rubber International Co., Ltd. (TUTRIC)	6.85
All Others	5.62

Interested parties who wish to request a hearing must do so within 30 days of publication (14 October 2016) of these preliminary results by submitting a written request to the Assistant Secretary for Enforcement and Compliance, U.S. Department of Commerce, using Enforcement and Compliance’s ACCESS system.

<https://www.federalregister.gov/documents/2016/10/14/2016-24798/certain-new-pneumatic-off-the-road-tires-from-the-peoples-republic-of-china-preliminary-results-of>

IMF adds RMB to its reserve currencies

The International Monetary Fund (IMF) has added the Chinese Renmimbi to its list of Reserve Currencies.

This is seen as another step for China’s currency toward full international exchange and derivatives markets.

<https://www.imf.org/en/About/infographics/AM16-SDR-Infographic>

US DoC amends anti-dumping tax rate on TBR

On October 12, the US Department of Commerce issued amendments to the preliminary anti-dumping duties on TBR tires from China. These changes were published in the Federal Register on 14 October.

The document said it is correcting two “major fundamental mistakes”, resulting in substantial increases in tariffs per tire manufacturer and importer.

As a result of the weighted average calculation of the estimated tax rate from Prinx Chengshan Tire Co., Ltd. (PCT), the tire manufacturer’s anti-dumping duty rate increased to 30.36% from 20.87%.

This rate is applied to all other enterprises with separate tax rate and national tax rate and also to the other mandatory respondent enterprise Double Coin. The tax rate was applied from the release date of the preliminary determination on 6 Sept.

In addition, DOC’s retroactive emergency rate continues to apply from June 8 to September 6, 2016.

Tax Rates after Amendment			
Company	Preliminary CVD rate	Preliminary ADD rate	Effective combined rate
Double Coin	17.06%	29.95%	47.01%
Prinx Chengshan	20.22%	29.95%	50.17%
Guizhou Tire	23.38%	29.95%	53.33%
Separate tax rate	20.22%	29.95%	50.17%
National tax rate	20.22%	29.95%	50.17%

<https://www.federalregister.gov/documents/2016/10/14/2016-24815/truck-and-bus-tires-from-the-peoples-republic-of-china-amended-preliminary-affirmative-determination>

Paris Agreement to enter into force

The EU has ratified the Paris Agreement on Climate control. This takes the Agreement above its thresholds and means the Agreement enters into force from 4 November. The Conference of Parties meets in Marrakech on November 7-18. The Paris Agreement is also known as the COP21, from the 21st meeting of the Conference of Parties of the United Nations. The Conference of Parties meets in Marrakech for COP22 on November 7-18. The agreement is largely a political gesture with few real teeth. The impacts is likely to be increased pressure to behave in less environmentally-damaging ways, as it:

- Increases pressure to meet climate objectives
- Adds strength to de-forestation policies
- Shows direction of movement of political environment
- Expect more legislation towards COP21 objectives
- Includes ‘encouragement’ for REDD (reducing emissions from de-forestation and forest degradation)

http://ec.europa.eu/clima/news/articles/news_2016100401_en.htm

Section 3: Legislation and government

Goodyear fined USD1m for safety violations



Over the last year there have been four deaths and a series of injuries at a Goodyear tire factory in Virginia, USA. The plant, located in Danville Virginia has now been fined over USD1.171m for safety violations by the Virginia Occupational Safety and Health (VOSH) program.

In a statement dated 13 October, VOSH said it issued 4 wilful, 115 serious and 3 other than serious violations and \$1,012,400 in penalties on October 7, 2016 to Goodyear Tire and Rubber Company in Danville, Virginia as a result of comprehensive safety and health inspections.

The VOSH Program also issued 2 wilful, 2 serious violations and \$152,600 in penalties on October 7, 2016 in response to the April 12, 2016 death of Charles "Greg" Cooper, age 53, an 18 year employee of Goodyear who died from burns and drowning when his body was found in a 6 foot, 8 inch deep pit/sump containing boiling water and oil.

The VOSH Program also issued 1 serious violation and a \$7,000 penalty on October 7, 2016 in response to an April 25, 2016 non-fatal accident where an employee was burned by steam while attempting to retest a tire curing press with a co-worker.

Goodyear's Danville facility covers 50 acres and employs approximately 2,200 workers. The plant manufactures aviation and specialty tires, and operates on three shifts. Employees at the plant are represented by Local 831 of the United Steelworkers of America.

http://www.doli.virginia.gov/media_room/press_releases_2016/PDF_files_for_posting_to_web_site/2016_Goodyear_Tire_and_Rubber_Company_Fines_News_Release_10.13.16.pdf

Goodyear employees jailed for fraud

Two Chinese nationals were each sentenced to more than two years in prison for defrauding Goodyear Tire & Rubber Company out of \$1.5 million, said U.S. Attorney Carole S. Rendon and Stephen D. Anthony, Special Agent in Charge of the FBI's Cleveland office.

Xin Franco Fan and Rex Xu Yu both pleaded guilty earlier this year to conspiracy to commit wire fraud and honest services wire fraud. Both were sentenced to 27 months in prison and ordered to pay USD1.5 million in restitution.

Fan and Yu will be deported from the United States upon their release.

Both men were employees of Goodyear Orient Company (Private) Limited, (GOCPL), a subsidiary of Goodyear, located in Singapore and with offices in China. GOCPL manages all of the natural rubber purchasing, delivery, financing and quality certifications for Goodyear's global operations. Goodyear, through GOCPL, spends approximately \$1 billion annually to acquire natural rubber for its operations. Fan was Yu's manager, according to court documents.

As a condition of their employment, Fan and Yu were obligated to act in the best interests of Goodyear when purchasing natural rubber. In 2015, Goodyear received an anonymous tip that Fan and Yu were receiving kickback payments in connection with GOCPL's raw materials purchases.

<https://www.justice.gov/usao-ndoh/pr/chinese-nationals-sent-prison-two-years-stealing-15-million-goodyear>

US labelling comes one step closer

Within weeks of the end of president Obama's term in office, the National Highway Traffic Safety Administration (NHTSA) has submitted a revised proposal on tire labelling to the US White House.

Strictly, the document addresses a Proposal for Consumer Information Program for Tires and it has been submitted to the White House Office of Management and Budget's Office of Information and Regulatory Affairs (OMB/OIRA).

OIRA has up to 90 days to review NHTSA's proposal unless the agencies agree that more time for coordination is needed. The review should be completed by January 14, 2017.

If no changes are required by OIRA, the proposed rule will be published and open to public comment for 60 days. The content of the proposed rule will not be known until it is published in the Federal Register after OIRA's review.

Commentary

This is the latest step in a long-running drama. A piece of Federal legislation – the Energy Independence and Security Act has required a law on consumer labelling since 2007. NHTSA first proposed a rule on tire

labelling for consumers in 2009. That was converted into outline legislation in 2010, and that legislation is still on the Statute Books.

It has been stalled for the last six years amid debate between the Federal Legislature, that wants it because of the potential fuel savings, and the State governments that do not want the expense and costs of enforcing the legislation.

Today, we do not know what the revised rule looks like, but there has been intensive lobbying from tire makers to make the rule match the EU and labelling scheme. That would remove the need for duplicate tests and would mean tire grading systems can be standardised around the world.

Rumour has it that the new rule contains tests for tire wear as well as wet grip and fuel economy.

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Section 4: New business models

Evonik joins Internet of Things consortium



Evonik Industries has become the first chemical company to join the Industrial Internet Consortium® (IIC). IIC is a global, public-private organisation formed to accelerate adoption and enabling of the Industrial Internet of Things (IIoT). Henrik Hahn, responsible for digitalisation strategy at Evonik, explains: “We want to exploit digitalisation to develop new, innovative solutions for our customers. Our membership of the IIC will provide valuable stimuli in this direction.”

Commentary

This is the clear trend in established companies in the West – as products become increasingly commoditised, they are seeking opportunities in the world of big data and how to provide services based on changed consumer preferences.

At Evonik a digital unit headed by Hahn is analysing future potential of digital services for the chemical company. The physical and virtual worlds are becoming ever more closely interlinked. Digital technologies are altering value creation and innovation processes. The aim of the unit is to develop new products with digital service components all the way to new business models.

http://corporate.evonik.com/en/media/press_releases/Pages/news-details.aspx?newsid=62524

Michelin Nihon exhibits IoT technology

At the Japan truck show, Michelin's Japan subsidiary showed a tire pressure monitoring system based on Internet of Things (IoT) technology. The devices were fitted on 'Super-Single' tires. The technology was supplied by Taiwan-based Orange Electronic Co. Ltd.,

Orange is a TPMS specialist and has up to now focussed mainly on the US market. The company was founded in 2005 in Tazih, Taichung. IoT technology enables real-time collection of information by personal computers, tablets and smart phones that are connected to the internet.

The system was presented as a prototype in collaboration with major cellphone carrier SoftBank Group Corp.
<https://www.japanrubberweekly.com/2016/10/nihon-michelin-showcases-tire-pressure-monitoring-system-iiot-technology/>

Michelin acquires stake in Exotic IoT company



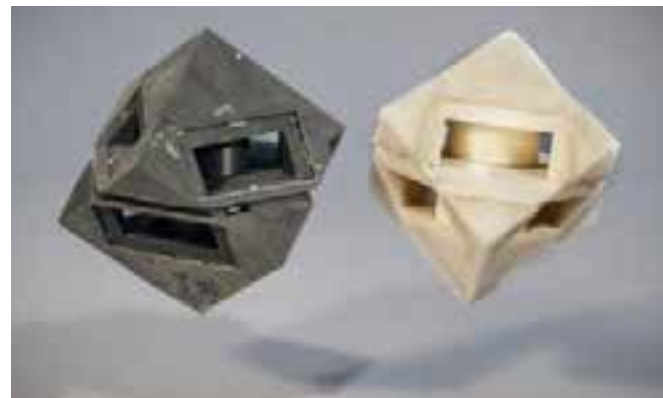
The company, Exotic Systems has been developing smart devices for since 2007. In 2017, the company is due to launch a range of connected devices for the agricultural industry.

At a recent agricultural show in France, Michelin announced that it will take a 20% stake in Exotic. At the same time French group Limagrain will also take 20% stake in Exotic. LimaGrain is a farmer-owned co-operative dedicated to developing new varieties of seeds in the arable, forage & amenity sectors for farmers and growers.

Exotic is based in Michelin's home town of Clermont-Ferrand.

“Acquiring this stake in Exotic Systems will enable Michelin to reinforce the development of its digital services, and thereby meet the high expectations of today's increasingly-connected agricultural professionals.” Said Emmanuel Ladent, Agricultural Division Director, Michelin Group
<http://www.michelin.com/eng/media-room/press-and-news/press-releases/Group/Michelin-and-Limagrain-acquire-stake-in-EXOTIC-SYSTEMS-a-specialist-in-the-Internet-of-Things>

MIT develops rubber with tunable stiffness



It's not related to tires – at least not yet, but the scientists at MIT's Com-

puter Science and Artificial Intelligence Laboratory (CSAIL) have developed a new method for 3-D printing soft materials. The technique could make robots safer and more precise in their movements — and that could be used to improve the durability of drones, phones, shoes, helmets, and more.

The team's “programmable viscoelastic material” (PVM) technique allows users to program every single part of a 3D-printed object to the exact levels of stiffness and elasticity they want, depending on the task they need for it.

The 3-D printed rubber with has well-defined particular visco-elastic properties. If that materials is alternated with either a viscous or an elastic materials at the micro-scale, then the overall properties of the bulk materials can be tuned to a specific level of elasticity or damping.

Commentary

I don't see how this can be used in tires in the short term, but I can easily see why tire makers would want the ability to tune the mechanical properties of their rubber to different applications. In particular, the viscous nature of rubber at low frequencies adds to fuel consumption, but that same viscosity leads to better grip in the wet when higher frequencies are considered.

As we move to ‘smart’ materials, then we should be able to deliver tires that meet a range of conditions using less energy and fewer resources.

https://www.csail.mit.edu/3D_printed_robots_with_shock_absorbing_skins

Section 5: Research & Development

SRI works out how Hevea trees make rubber

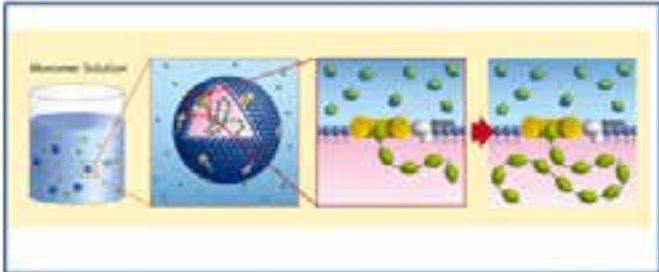


Figure 3. Synthesised Natural Rubber Accumulated in Membrane Particles

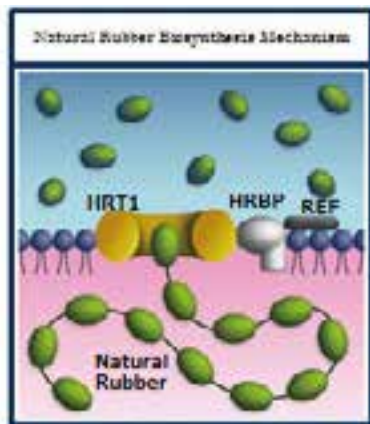


Figure 4. Three Important Proteins Involved in Natural Rubber Biosynthesis

In a presentation at the International Rubber Conference (IRC) in Japan, Sumitomo Rubber presented the results of its research into how trees of the species *Hevea Brasiliensis* can make rubber.

It turns out that three different types of protein play a crucial role in natural rubber biosynthesis. This discovery is another step on the path to allowing SRI scientists to produce rubber in the laboratory, using the same biological mechanisms as take place in *Hevea* trees.

The SRI scientists worked with a team at Japan's Tohoku University. They found that there are three different types of protein that play a crucial role in the biosynthesis of rubber: "Hevea rubber transferase 1 (HRT1)," "Rubber elongation factor (REF)" and "HRT1-REF bridging protein (HRBP)"

"HRT1" is a protein that catalyses rubber polymerisation, "HRBP" is a protein that facilitates bonding between "HRT1" and the membrane where natural rubber accumulates during the biosynthesis process and "REF" is a protein that plays a role in stabilising the membrane.

Commentary

SRI is the only tire maker that is actively researching key science aspects of natural rubber (NR). The company was one of the first to use epoxidised NR that interacts strongly with silica. It has developed a form of ultra-pure NR in which many of the proteins that block the interaction between silica and conventional NR compounds and now it is working out how NR is produced, with a view to carrying out synthetic polymerisation in the laboratory.

The key advantage of this would be an improvement over traditional polymerisation.

Currently both Russia and China as well as Goodyear have production-scale facilities to synthesise polyisoprene from isoprene monomers. The drawbacks are that the process is energy-intensive and inefficient and also the resulting polymers are less elastic than natural rubber.

Specifically, isoprene can take at least two forms; one is called *cis*; the other is called *trans*. They differ in how the five carbon atoms are arranged. Natural rubber from the *Hevea* tree is composed almost entirely of the *cis* form of isoprene, so it is called 1,4 *cis*-polyisoprene.

The natural material Gutta-Percha is mainly composed of the *trans* form of the molecule and this results in a material that is less elastic and more viscous.

Even a small percentage (1-2%) of *trans* isomers can reduce the elasticity and effectiveness of the synthetic polyisoprene.

Conventional polymerisation processes result in these degraded materials due to the presence of small amounts of the *trans* material.

SRI researchers hope to find an alternative polymerisation process that results in pure *cis*-polyisoprene.

We are not aware of any similar research going on anywhere in the world. http://www.srigroup.co.jp/english/news/2016/2016_100.html

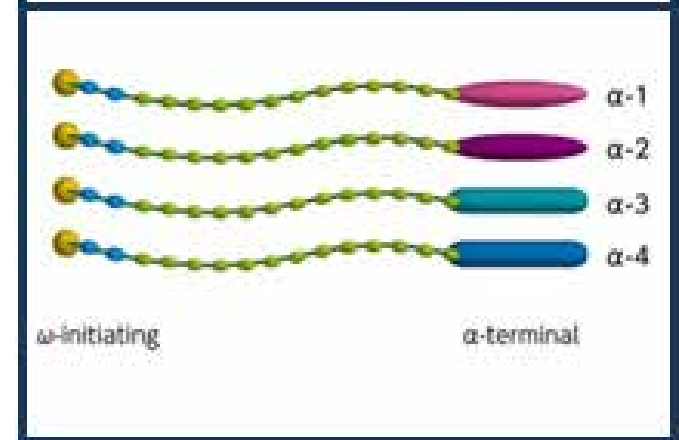
SRI analyses NR end-groups

Sumitomo Rubber has worked out the main end-groups on natural rubber as it is formed in the *Hevea* tree. The development is important because these end-groups contain the key to molecular characteristics such as chain length; chain branching; gel formation and other aspects that affect the bulk performance of NR in tires.

SRI said, "We have discovered that the ω -initiating terminals of natural rubber molecules are dimethyl allyl groups while the α -terminals are a mix of four different types of structure. Further, we have found that two of these structures directly contribute to branching formations as well as gel formation."

The researchers said they were able to use this by examining the NR molecules with the extremely high-performance NMR equipment at Osaka University

Results of Natural Rubber Terminal Group Structural Analysis



Commentary

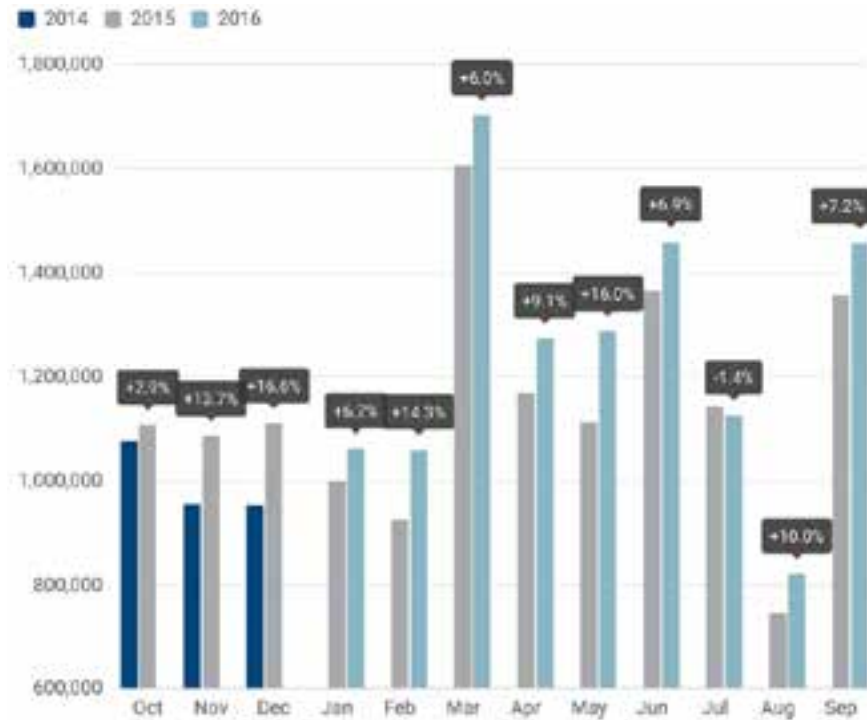
It is possible, through a good understanding of these groups, to modify the end chains, or even, through genetic manipulation of the rubber tree genome to change these end-groups to create radically different polymer structures in the *Hevea* tree.

As noted above, SRI is a world leader in developing a good understanding of the NR molecule and how they are produced. The company hopes to use this understanding to develop new NR-based materials that can be used to create better tires.

http://www.srigroup.co.jp/english/news/2016/2016_101.html

Section 6: Statistics

EU car registrations: +7.2% in September



In September 2016, passenger car registrations in the EU continued to grow (+7.2%), totalling 1,455,180 units. This result marked the highest September total on record. All major markets posted growth, contributing to the overall upturn. Italy (+17.4%), Spain (+13.9%) and Germany (+9.4%) showed the highest percentage gains, followed by France (+2.5%) and the United Kingdom (+1.6%) with more modest rates.

Over the first nine months of 2016, the European passenger car market grew by 8.0%, reaching 11,243,263 units. The overall increase through the first three-quarters of the year showed the market's ongoing recovery with all of the big five markets posting solid growth rates. Italy (+17.4%) and Spain (+11.5%) recorded double-digit growth over the period, followed by Germany (+6.1%), France (+5.7%) and the UK (+2.6%).

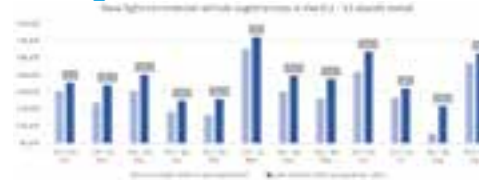
<http://www.acea.be/press-releases/article/passenger-car-registrations-8.0-over-nine-months-7.2-in-september>

EU truck C: +13.1% over nine months; +6.0% in Sept

In September 2016, demand for new commercial vehicles in the EU continued to grow (+6.0%), even if at a more modest rate than the previous month. This marked the 21st consecutive month of growth, with a total of 220,781 new vehicles registered. Growth continued to be driven by the Italian (+46.3%) and Spanish (+14.1%) markets, while France (-1.1%) and the United Kingdom (-0.9%) performed less well than in September 2015.

Over the first nine months of 2016, the EU market expanded by 13.1%, totalling about 1.7 million commercial vehicles. During that period, Italy (+40.2%), Spain (+13.1%), Germany (+11.3%), France (+10.1%) and the United Kingdom (+2.0%) all posted growth.

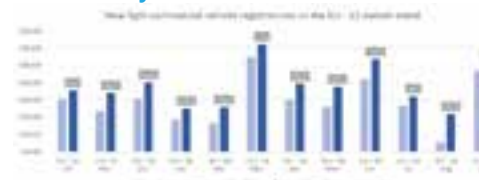
New light commercial vehicles (LCV) up to 3.5 tonnes



In September 2016 registrations of new vans totalled 185,415 units, up (+6.8%) compared to September 2015, marking the 37th consecutive month of growth in the segment. Demand was mostly supported by Italy (+46.3%) and Spain (+12.2%), followed by Germany (+5.6%) and the UK (+1.9%). The French market, on the other hand, saw a decline (-2.1%) last month.

From January to September 2016, 1,422,657 new light commercial vehicles were registered in the EU, or 13.5% more than in the same period last year. Italy (+41.5%), Spain (+13.0%), Germany (+12.9%), France (+9.8%) and the United Kingdom (+2.7%) all contributed to this positive upturn over the first nine months of 2016.

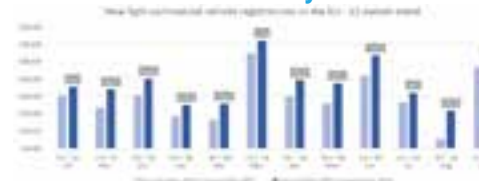
New heavy commercial vehicles (HCV) over 16 tonnes



September 2016 new heavy truck registrations recorded a modest increase (+2.9%) compared to September last year, totalling 25,889 units. Italy (+37.6%) and Spain (+21.9%) largely contributed to the growth, followed by France (+10.8%) and Germany (+5.6%). Demand for heavy trucks in the United Kingdom dropped significantly (-34.2%).

Nine months into the year, demand for new heavy trucks continued to increase (+14.1%), with 215,495 new vehicles being registered in the EU. Italy (+37.4%), France (+16.2%), Spain (+10.3%) and Germany (+8.0%) made a positive contribution to the overall upturn, while the UK market registered a slight decline (-2.5%).

New medium and heavy commercial vehicles (MHCV) over 3.5 tonnes

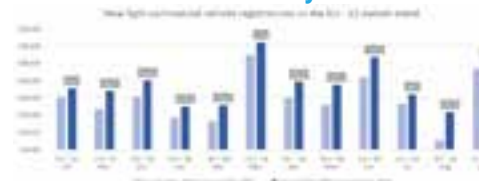


In September 2016, new truck registrations in the EU were up again after the decline observed in July. Overall, 31,432 new trucks were registered, 2.2% more compared to September last year. Among the major markets, results for trucks were similar to those of the heavy truck segment, with Italy (+50.9%), Spain (+21.4%) and France (+10.5%) showing the highest increases and the

United Kingdom posting a decline (-30.9%).

From January to September 2016, 265,533 new trucks (+12.8%) were registered in the EU. Italy (+37.2%), France (+15.5%) and Spain (+13.4%) made a particularly significant contribution to overall growth. Over those nine months, UK demand went down (-2.3%).

New medium and heavy buses & coaches (MHBC) over 3.5 tonnes



In September 2016, new bus and coach registrations declined for the fourth consecutive month (-1.8%), totalling 3,934 units. Spain (+38.2%), Italy (+21.4%), Germany (+13.8%) and the UK (+11.3%) all posted double-digit increases, but France (-17.9%) performed less well than in September 2015.

Over the first nine months of 2016, the EU market for buses and coaches remained fairly stable (+0.5%), totalling 29,047 new vehicles registered. Demand was primarily driven by Spain (+16.7%) and Germany (+14.4%), while France (-4.2%), the UK (-3.5%) and Italy (-3.2%) saw demand decline over this period.

<http://www.acea.be/press-releases/article/commercial-vehicle-registrations-13.1-over-nine-months-6.0-in-september>

Section 7: Company information

Gajah Tunggal in two major recalls

Gajah Tunggal, the Indonesian tire maker has suffered two major recalls in the last few weeks. In the first of these, Gajah Tunggal made a statement to the Indonesia Stock Exchange saying as many as 196 926 of the tires might be recalled.

The recall was dated 22 September, and the only NHTSA recalls on that day were from Goodyear and from Tireco.

In a second incident, dated 6 October, NHTSA said GiTi is recalling up to 250,620 tires made by Gajah Tunggal. The tires affected are Primewell Valera Touring II tires, sizes 205/50R17 93V XL, 215/50R17 95V XL, 225/50R17 94V, 225/50R18 95T, and 205/65R16 95H, GT Radial Champiro Touring All-Season tires, sizes 205/50R17 93V XL, 215/50R17 95V XL, 225/50R17 94V, 205/65R16 95H, and 225/50R18 95T, and Dextero Touring DTR1 tires, sizes 205/50R17 93V XL, 215/50R17 95V XL, 225/50R17 94V. The affected replacement passenger car tires may develop cracks in the lower sidewall, potentially resulting in a loss of air.

http://www.idx.co.id/StaticData/NewsAndAnnouncement/ANNOUNCEMENTSTOCK/From_EREP/201609/b8b318f9e5_40a4eb658f.pdf
odi.nhtsa.dot.gov/owners/SearchResults?refurl=email&searchType=ID&targetCategory=R&searchCriteria.nhtsa_ids=16T017

Nokian in new scandal

A year ago, Nokian was in the middle of a scandal about manipulating the results of magazine tests. In early October a new scandal emerged. A daily newspaper in the Finnish town of Tampere reports that customers in Finland pay more for the same tire than other places in Europe. Nokian has denied the claims.

The paper obtained manufacturing recipes for the period 2010-2013 showing that tyres produced for the Nordic markets and for continental Europe were the same product. The recipes originate from the Nokian Tyres factory in Vsevolozhsk, Russia.

In the Nordic countries the firm marketed the product as its Hakka Black tyre as designed for the local conditions. In Europe, said the newspaper, the same product was sold as the Nokian z-Line tyre at much lower prices. Nokian said the recipes seen by the newspaper were two years old and it has since changed them.

Commentary

This is something of a non-story, but it does highlight the issue of branding. Consumers make a buying decision based on a range of factors. These include the brand power of the tire; the objective performance ratings such as magazine tests and label ratings and on the dealer recommendation. As more buyers go online, the influence of the dealer is

declining, but the influence of the brand remains strong.

It is not clear if any of this information was sourced from a company called Black Donuts. Former Nokian workers left to found their own research and development company called Black Donuts. Some of these are awaiting trial on charges of corporate espionage. The trial is expected to begin in January 2017.

http://yle.fi/uutiset/osasto/news/aamulehti_nokian_tyres_sold_the_same_tires_at_different_prices/9213126

ChemChina, Sinochem in merger talks?

Reuters reports that the Chinese government has ordered a merger between Sinochem and ChemChina, with the deal being lead by SinoChem. Reuters quotes three sources who asked not to be identified because they were not authorised to speak publicly about the matter. Official spokespersons denied the reports.

Sinochem has become a leading player in the upstream natural rubber supply sector. The recent acquisition of Halcyon Agri Corp. added to its holdings in GMG Global has made it the largest NR supplier in the world. Meanwhile China National Chemicals Corp., normally known as ChemChina already owns Aeolus Tires and is in the process of buying Pirelli for about USD7700mn. ChemChina through Aeolus also owns Yellow Sea Rubber and Double Happiness and ChemChina also owns speciality tire maker, Guilin Tire.

In recent days ChemChina has also been in talks to buy a large stake in Kumho Tire (see story, left)

Furthermore ChemChina is active in the rubber machinery business, having bought the KraussMaffei group earlier this year and also owns Guilin Rubber Machinery and other machinery suppliers.

A merged Sinochem and ChemChina would make the group the most fully integrated tire maker on the planet, with substantial interests in upstream activities that are not restricted to its own tire manufacturing operations. The merged group would be ranked fourth-largest tire maker and top NR supplier.

The Reuters report said, "The deal has been proposed by China's central government as part of its efforts to slash the number of state-owned companies and create larger, more competitive global industry players, said the sources."

It continued, "Top management of the two firms held a meeting earlier this week to discuss a potential merger, said one source directly briefed on the matter."

Reuters then quoted one of its sources saying, "The government has given the mandate to let Sinochem lead in this potential merger with ChemChina,"

Apart from the Pirelli and KraussMaffei acquisitions, ChemChina is in the process of buying Swiss Agro-chemical company Syngenta for USD43,000mn. There is speculation in China that the government wants to be sure ChemChina has the financial muscle to effectively absorb this huge deal.

Both companies are listed in the Fortune 500 global rankings for 2015, with Sinochem ranked 105 with total revenues of USD80,635mn and ChemChina is ranked 265 with total revenues of USD 41,813mn.

Commentary:

There is industry concern that the linkage between tire manufacture and upstream supply is a dangerous combination.

Will tire majors want to buy from a supplier that is also a competitor.

Already today certain materials suppliers dislike discussing their latest developments with tire makers who also have their own upstream manufacturing capacity, as the intellectual property can leak from the customer-supplier relationship to the in-house competitor.

On the other hand, companies that make equipment for tire manufacture are rarely, if ever involved in the manufacture of tires themselves. The risk is that the machinery manufacturer might be seen as in competition with their customers.

In reality, these issues will be of minor concern to the Chinese government. This is likely to be a strategic merger based around capital strength and the minor concerns of the tire industry will have little, if any impact on those strategy-level decisions.

<http://www.reuters.com/article/us-chemchina-m-a-sinochem-idUSKCN12E07G>

http://mp.weixin.qq.com/s?__biz=Mzl3ODlyMDQyMA==&mid=2649745033&idx=1&sn=9beeb0425e83a2d164876de5a308c915&chksm=f3411d62c436947455949022cd9036ca-d7a7795ca1b203dcb6984f9cee4460980da7128ed84a&mpshare=1&scene=1&srcid=1014nQSHFjsGyQXoLx40qk6Y&from=groupmessage&isappinstalled=0#wechat_redirect

Pirelli working on early re-listing in 2018 - CEO

Reuters reports that Pirelli is working on bringing forward plans to relist on the Milan stock exchange. The news Agency quotes Pirelli CEO, Marco Tronchetti Provera saying, "we are working in the direction" of listing the company in 2018.

Pirelli was delisted from the Milan stock market in 2015 as part of the process of acquisition by China National Chemical Corp (ChemChina). Tronchetti Provera said at that time that Pirelli expected to re-list by 2019, possibly on a Chinese Exchange.

The company then confirmed this with a stock-market filing on 19 October in which the company first approved the industrial plan 2016-2018, with vision to 2020, for Pirelli Consumer.

Based on certain assumption, Pirelli said, "the preliminary phases for the preparation of the IPO (Initial Public Offering) can be completed during the first half of 2017, with the objective of proceeding...with the launch of the IPO by the first half of 2018 on the Milan stock exchange or, however, on one of the leading stocks exchanges at the international level.

<http://www.pirelli.com/corporate/en/press/2016/10/19/board-of-directors-meeting-the-process-of-reorganization-of-pirelli-industrial-continues/>
<http://in.reuters.com/article/pirelli-ipo-idINL8N1CG2S1>

Section 7: Company information

Linglong gains OE approvals from VW

On October 10 and 11, the supplier evaluation group of Germany's VW conducted a two-day on-site audit to Linglong. Linglong passed the evaluation, opening the way to becoming an official supplier of VW. Linglong believes this result shows that it possesses the technical, manufacturing and management level to supply goods for VW, and conforms to the procurement standards and technical requirements of VW. However before the receiving of purchase orders, Linglong must also pass the special audit of projects ordered by VW.

<http://app.finance.ifeng.com/data/stock/ggz/601966/16060665>
http://static.sse.com.cn/disclosure/listedinfo/announcement/c/2016-10-12/601966_20161012_1.pdf

Conti recalls tires in North America

Continental Tire the Americas, LLC (Continental) is recalling certain Cross-contact LX20 tires, size P275/55R20 111S, manufactured May 3, 2015, to May 9, 2015. The tires, sold as replacement tires as well as original equipment on certain General Motors full size trucks and SUVs, may have insufficient adhesion within the belt package, resulting in tread wear, vibration, noise, or bulging areas on the tire.

Up to 14,567 tires are affected.

http://www-odi.nhtsa.dot.gov/owners/SearchResults?refurl=email&searchType=ID&targetCategory=R&searchCriteria.nhtsa_ids=16T016

Michelin re-designs Tweel tire



Michelin has launched a new variant of its non-pneumatic tire, the Tweel. The new product is an airless radial caster tire-wheel assembly. It replaces the standard 13X6.5X6 front caster tire and wheel on zero-turn mowers.

This new version of the Michelin X Tweel Turf is designed for landscape professionals who suffer downtime associated with flat tires on commercial mowers.

The new product was revealed at the GIE + Expo 2016 in Louisville on 19 October.

mass production by a tire major and has found a niche on construction equipment, skid-steer loaders and light agricultural machinery such as mowers.

The airless tire uses a system of internal struts to bear the weight of the vehicle, rather than air pressure in a closed envelope.

Advantages are that it is cheaper and easier to produce. Some varieties can be made with simple one-shot injection moulding. Others require a multi-step process to add a rubber tread over a thermoplastic body.

The main advantage, of course, is that the non-pneumatic designs can continue to bear the load, even when punctured.

The disadvantage is that sometimes rocks and other debris can become embedded in the spokes.

Another challenge for the designers is to get lateral stiffness right, to permit good handling at speed.

<http://www.prnewswire.com/news-releases/michelin-tweel-technologies-previews-new-caster-at-gie-300347965.html>

Pirelli seeking listing in 2018

On 19 October, Pirelli's board met in Milan to discuss the merger of its industrial division with Aeolus. The Board also discussed plans to re-list on one of the world's main stock exchanges with an IPO in 2018. This is a year earlier than had previously been anticipated.

Paolo Dal Pino was nominated as chief executive of Pirelli Industrial. At the same time, Gregorio Borgo resigned the position of general manager, but will remain in the company until December 31, 2016 to support the work of chief executive officer, the company's CEO and vice president Marco Tronchetti Provera recognised the new organisational model.

The company said it expects to accelerate the course to the company's listing. It expects to complete the preliminary phases for the preparation of the IPO (Initial Public Offering) during the first half of 2017. The aim is to launch of the IPO by the first half of 2018 on the Milan stock exchange or, alternatively, on one of the leading international stock exchanges.

http://www.pirelli.com/corporate/en/press/files/2016/10/Cs_PirelliC-da_19_ottobre_2016_ENG.pdf

Michelin reports sales down, volumes up in Q1-3

Michelin has reported sales of EUR15,500mn for the nine months to 30 Sept. This represents a decline in sales of 2.1%, despite an increase of 1.4% in volume sales and confirms our analysis that tire prices are falling. Looking more closely at Michelin's results, it is clear that at car tire prices are stable, or falling only slowly, while truck tire prices are falling significantly and the de-stocking in speciality tires is leading to further price cuts.

<http://www.michelin.com/eng/media-room/press-and-news/press-releases/Finance/Financial-information-for-the-nine-months-ended-September-30-2016>

Goodyear opens talks on Philippsburg closure

Goodyear has opened negotiations with the workers and local authorities in Philippsburg, Germany with a view to closing the plant by the end of 2017, with the loss of 890 jobs.

Goodyear has issued a stock exchange filing in the United States saying the plan remains subject to consultation with relevant employee representative bodies.

Commentary

During the 2000s, Goodyear's operations in North America were losing money. The company achieved a turn-around by cutting capacity by around 33%. Simultaneously, the company sought to use the remaining capacity to make higher added-value tires. The overall effect was to reduce volume sales, but to increase profitability significantly.

It appears that Goodyear is following a near-identical strategy in Europe, starting from about 2 years ago.

The company took a decision in early 2013 to end a long-running dispute at its agricultural tire unit in Amiens, France. This followed the departure of Arthur de Bok and the appointment of his replacement, long-time US executive Darren Wells. Since that time, Goodyear Europe appears to be following the same approach as was adopted in North America.

Shortly after this move, Goodyear ended its relationship with Sumitomo Rubber Industries in both Europe and North America, slashing much of its most out-dated capacity in those regions.

The Philippsburg announcement is the next step on the road toward the reduction in capacity and a move to more profitable tires in Europe.

In its statement, Goodyear says specifically, "The proposed plan is in furtherance of the Company's announced strategy to capture the growing demand for premium, large-rim diameter tires in part by reducing excess capacity in declining, less profitable segments of the tire market."

It is not clear if this will be the last closure, or if Goodyear still has over-capacity in the European region.

<http://investor.shareholder.com/common/download/sec.cfm?company-id=AMDA-11FBEB&fid=1299933-16-3093&cik=42582>

Continental reduces profit forecast

On 17 October Continental issued a statement saying it no longer expects to meet earlier profit forecasts. The reduction is due to the combined effects of several unrelated events affecting its automotive activities. Conti's forecast for the Tire group is unchanged.

http://www.continental-corporation.com/www/pressportal_com_en/themes/press_releases/2_corporation/financial_information/pr-2016-10-17-outlook-en.html

Commentary

Tweel is an unusual product. It is the only non-pneumatic tire to be in

Section 8: Environment

Bridgestone develops stronger compounds

Bridgestone has revealed its research into high-strength rubber compounds. The research is part of a Japanese government programme known as IMPACT (Importing Paradigm Change through Disruptive Technologies). The IMPACT scheme is led by the Japanese Cabinet Office's Council for Science, Technology and Innovation.

Commentary

This is one of the most interesting and exciting developments to have come out of Bridgestone for some years. The research points the way toward making tires that offer a much longer life for the same tread thickness.

Few people in the world – and this includes the leading tire makers – understand the mechanisms of tire wear adequately.

The best we have is the science of fracture mechanics. This is a well-established field in conventional materials such as steel or glass, but is less well understood in polymers and especially in thermoset polymers such as rubber.

Fracture mechanics is based on two key assumptions.

1. creating a new surface within the body of a material requires a certain amount of energy.

2. When the strain energy at the tip of a crack exceeds this level, the crack will extend by creating new surfaces.

If the strain energy at the crack tip is insufficient to create two new surfaces, then the crack will not extend.

In this sense a crack is the technical word for any type of discontinuity where new surfaces can be created.

A second aspect of fracture mechanics is the theory of how strain energy increases depending on the shape of a crack. A long, thin crack concentrates more strain energy at the crack tip. A circular crack (such as a drilled hole) does not concentrate the energy quite so much.

Reinforced materials such as fibreglass stop the cracks spreading by introducing fibres into the matrix. When a crack meets a fibre, the crack cannot extend across the fibre.

In steel the technique is often to make the steel stronger. Since a stronger material requires more energy to create a new surface.

So this new rubber that has high internal strength is designed to reduce crack growth, and those cracks are how small pieces of rubber break away from the tire tread – that is to say, they are the origins of wear.

<http://www.bridgestone.co.jp/corporate/news/pdf/2016092801.pdf>

US Consumer Reports tests tires for wear

US-based consumer group, Consumer Reports' has shown that tires on a family car tires can last over 70,000 miles. This year, the organisation evaluated ultra-high-performance tires, finding that ultra-high-perfor-

mance tires can't make half that distance. In fact, some of the tires tested in western Texas showed wear that indicates they will last to just 25,000 to 30,000 miles.

Commentary

Treadwear is one of the most challenging aspects of tire performance to predict or measure. First, as noted in the story (above) scientists do not really understand the processes involved in treadwear. Second, so much depends on road surface, driving style, temperature, humidity and other factors that any guideline can easily be transformed by especially aggressive or gentle driving styles.

The only way to measure it in practice is to drive for an extended period to see how quickly the tires wear, and to make the driving conditions as repeatable as possible.

The United States is the only country to publish treadwear data under its Uniform Tire Quality Grade (UTQG) Standards programme.

Treadwear for UTQG purposes is currently tested in the United States at the West Texas Proving ground.

The test comprises a series of circuits of a pre-defined 400-mile course on public roads. After driving for 7200 miles, often in a convoy with other vehicles testing tires, the tread depth is measured and compared with the value at the start of the test. This wear rate is then extrapolated to a guidance figure for lifetime.

These UTQG Treadwear Grades are open to some interpretation by the tire manufacturer because they are assigned after the tire has only experienced limited treadwear. This means that the tire manufacturers need to extrapolate their raw wear data when they are assigning Treadwear Grades, and that their grades can to some extent reflect how conservative or optimistic their marketing department is. Typically, comparing the Treadwear Grades of tire lines within a single brand is somewhat helpful, while attempting to compare the grades between different brands is not as helpful.

<http://www.consumerreports.org/tires/how-long-do-tires-last-consumer-reports-treadwear-testing-will-tell-you/>

SRI joins Sustainable NR initiative

Japan's Sumitomo Rubber Industries (SRI) has agreed to participate in the Sustainable Natural Rubber Initiative (SNR-i). The SNR-i was established by the International Rubber Study Group (IRSG). It aims to ensure the sustainability of natural rubber as a resource.

Commentary

The SNR-i is a programme devised with cooperation from producers of natural rubber as well as consumers.

It is the best that the tire industry has to a common platform for assuring sustainable supplies of NR. However, it is both voluntary and completely self-certified and there are minimal penalties for those who break its rules.

The SNR-i contrasts with the commitments made by Michelin to put in place full source tracing so that they know exactly where each kilogram of

rubber came from and can identify whether the trees were planted as part of a de-forestation programme or not.

With the entry into force in November of the Paris Agreement (COP21), the requirements of the SNR-i are no longer sufficient.

Tire makers will increasingly come under pressure to identify where their rubber has been sourced from. This is both expensive and time-consuming. http://www.srigroup.co.jp/english/news/2016/2016_095.html

Gopi Sekhar claims recycling breakthrough

A small company in Malaysia (SRI Elastomers) claims to have developed a process for reversing the vulcanisation process. This allows it to take end-of-life tires and other rubber goods and recycle the rubber into something that can be used in new products.

The latest products from SRI are derived from tires, but SRI says they are 100% butyl-free. These compounds are said to be drop-in replacements for virgin rubber, especially in retread compounds.

Commentary

I've known Gopi Sekhar, who runs SRI for some years. I even knew his father, Tan Sri Dr BC Sekhar. BC (Sekhar senior) worked with some partners, in Russia, as I recall, to develop a proprietary chemical called De-Link. This was said to selectively break sulfur-sulfur bonds over carbon-carbon bonds. When mixed with rubber granules, it would break the sulphur bonds, while leaving the rubber backbone intact. This permitted the rubber to be 'de-vulcanised'

To be as kind as possible, the De-Link process required quite a lot of work. Gopi has developed the process and won some interesting backers.

I'm normally fairly sceptical of new rubber reprocessing claims, but I can possibly believe this one from Gopi.

Anyway, I'd suggest the people try this one out. Gopi knows about rubber, and he knows about recycling. He's spent most of his life looking into it, so any claims he makes are worth looking into.

<http://gbsekhar.com/the-sri-devulcanized-rubber-compound-dvr-compound-a-sustainable-solution>

Section 9: Raw materials

SABIC begins BIIR, BR production at Kemya unit



Saudi Basic Industries Corp (SABIC) said it started commercial operations on 22 October at its new polybutadiene rubber factory. It also began producing butyl and halobutyl rubber at an adjacent facility. The new production units are both part of its KEMYA venture in Al-Jubail Industrial City, Saudi Arabia.

The company said it expects to continue trial production until commercial production begins, probably in the first quarter of 2017.

SABIC also said in an Arabic-language stock exchange filing that it has begun trial operation of the non-tire rubber ethylene-propylene-diene monomer (EPDM) the previous day. It has also begun operations at the linked polycarbonate facility.

Al-Jubail Petrochemical Company (KEMYA) rubber plant cost \$3.4 billion and is a joint venture between SABIC and Exxon Chemical Arabia, a subsidiary of Exxon Mobil.

The Kemya complex is designed to produce a range of elastomers based on ExxonMobil Technology. These include BR, butyl and halo-butyl rubber and EPDM. In addition the facility will make SBR and carbon black, for which ExxonMobil has sought technology partners. Total capacity is listed at 400,000 tonnes/year with a total investment of USD3400 million

Together these materials will enable the establishment of a tire factory in Saudi, with all the key raw materials sourced from the Kemya plant.

Commentary

This project has been going on for many years and it is good to see it has finally begun operations. The Saudi government wants to build a downstream automotive industry to generate income even when oil

revenues decline. As part of that, the Saudi economy will need elastomers for vehicles and tires.

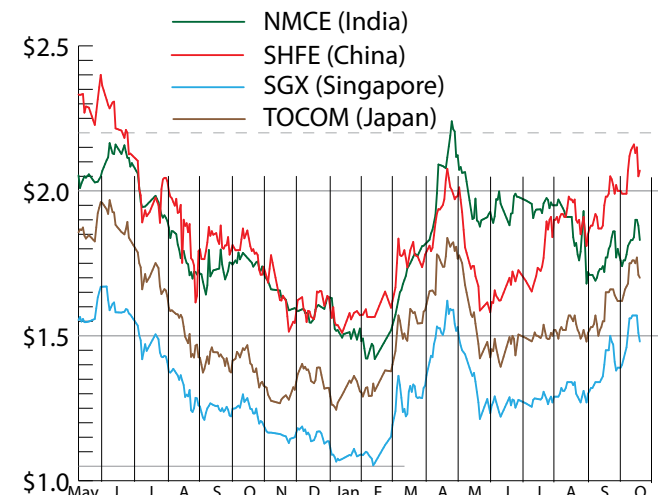
ExxonMobil has been a long-term partner with the Saudi government and was asked to support a huge elastomers project in Al-Jubail.

Since the project's announcement, there have been frequent rumours that one consortium or another would build a tire factory in Saudi, but none has so far been officially announced. At present the main tire-manufacturing power in the region is Iran, and unfortunately, there is little cooperation between Saudi and Iran.

<http://gulfbusiness.com/saudis-sabic-begins-commercial-operations-new-rubber-plant/>

Input prices on upward trend (NR)

Prices of natural rubber are starting to increase. After a surge in April and then a retreat in May, prices are once more creeping upwards. prices are now almost 40% higher than in mid-January and have increased by 25% since mid-June.



Commentary

It appears that the extended period of low prices might be over. The implications for this are serious.

First, in China there will be a struggle to raise tire prices.

Second margins will start to erode at the top tire makers.

For the last two years, the top tire makers have seen their profit margins increase as tire selling prices have eased only slightly while input costs have plunged.

However, over the same time period, margins at Chinese tire makers have been dropping as they have seen fierce price competition driving prices down.

Where tire selling prices in Europe have eased by under 10% over the last three years, prices of the same tires have dropped by 40-45% in China. There is room for Chinese margins to be squeezed a bit further, but if input costs rise by a further 20%, then all room for manoeuvre will disappear, leading either to an acceptance of higher prices, or wholesale factory closures.

Already the less well-managed Chinese companies are struggling. If raw materials rise further, these will have to stop production – either temporarily or permanently. The government would like to see permanent closures, so one production has stopped, it is likely that land-use permits may be withdrawn, leading to permanent closures and the ability for local mayors to claim that they have closed out-dated capacity as part of the government's supply-side reform programs.

I do not see much room for higher prices in the Chinese market. Increased duties from the US has meant export markets are shrinking while the domestic market is not growing fast enough to absorb all the spare capacity. Until the excess capacity is removed, it is going to be a painful time in the Chinese tire industry.

Input prices on upward trend (SBR)



Asia's styrene butadiene rubber (SBR) prices may remain on an uptrend for the rest of the month on the back of soaring feedstock butadiene (BD) costs, market sources said in mid-October.

The report from ICIS said SBR prices have increased by about 14% since early August but the spike pales in comparison with butadiene monomer's 60% surge over roughly the same period, ICIS data showed.

<http://www.icis.com/resources/news/2016/10/12/10042960/asia-sbr-extends-gains-on-soaring-feedstock-bd-costs/?cmpid=SOCIRSSI/twitter/FreeNewsFeed>

Section 10: Bridgestone's mid-term Management plan

Bridgestone reveals mid-term management plan

Bridgestone released its latest mid-term management plan on 17 October. The plan continues the theme from two years ago in which the company seeks to be the Dan-Totsu (断トツ) across all its activities. This Japanese phrase can be translated as 'far and away the best'

Steps on the way to this include becoming a truly global company – and becoming less obviously Japanese.

Bridgestone divides the execution of its mid-term plan (MTP) into priority issues and management targets.


Under the priority issues, Bridgestone lists three main priorities:

- Cultivating a global corporate culture
- Developing human resources capable of global management
- Upgrading the global management structure

Cultivating a global corporate culture

Bridgestone believes it can cultivate this culture through three main actions:

- Advanced branding
- Innovation in technology, business models and design
- Continuous Kaizen

 The key priority issue is branding. The company places its highest priority on an advanced brand strategy revolving around the Bridgestone B mark with support from the Firestone F shield and other regional brands such as Dayton.

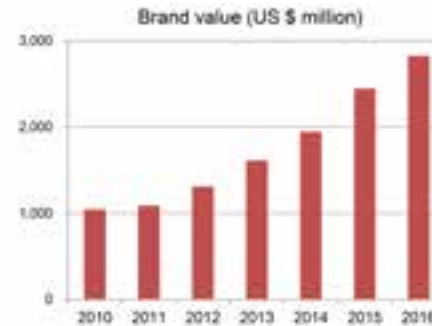


In many cases the company is dropping the Bridgestone name from its sponsorship artwork in a bid to make Bridgestone's 'B' mark a globally-recognised symbol. The same approach is being adopted for the Firestone shield.

In particular Bridgestone is betting on its sponsorship of the Olympics and Paralympics in Tokyo in 2020 to promote its global branding. Note the key branding image (right) does not use the Bridgestone name.



The company believes its brand is rising in value. A study by Interbrand suggests that the strategy has been paying off. (See chart top, middle).



Innovation

Bridgestone says it seeks to anticipate the business environment and market trends. It aims to use information technologies to innovate through the whole value chain.

To do this, it will leverage the company technical centres in Tokyo, Yokohama, Akron, Rome and Thailand.

It is building a new tech centre in Tokyo that it expects to open in 2018 to replace the existing facilities that were opened in 2000.

The company gave as examples of this innovation process its tire analysis technology called Ultimate Eye.



Another example is the Examination advanced tire building technology being rolled out in Hungary and Russia this year.

Bridgestone' third example is its CAIS (Road surface condition sensing technology) that can detect the state of the road underneath the tires.

Beyond these 'hard' technologies, Bridgestone points to a technique that allows it to easily diagnose disease in rubber trees through gene analysis and its efforts to improve yields and quality of rubber from the Guayule plant.

Another area that Bridgestone highlights is the new, high-strength, low-wear compounds developed under Japan's government-sponsored ImPACT programme (see story on page 13).

In the presentation, Bridgestone clearly stated that it is seeking to move its business model away from providing products to providing solutions to larger issues.

As examples it cited the Run-Flat tire under the DriveGuard name and its Telematics business that can support fleet customers.

Continuous Improvement

Kaizen is the practice of continuous improvement. The concept was originally introduced to the West by Masaaki Imai in his book *Kaizen: The Key to Japan's Competitive Success*.

Bridgestone, like many Japanese companies has taken the concept to heart and seeks to use the process of Kaizen in all its activities

However, the company is also expanding through acquisition in the area of e-commerce. It bought the Canadian TireConnect in 2015.

TireConnect is a software company that supports tire dealers and distributors with a turn-key, online tire sales tool featuring e-commerce capabilities. The system is established in Canada, but Bridgestone plans to launch in the USA next year, with the potential to roll the service out worldwide.



Bridgestone is continuing its e-commerce roll-out through the acquisition of Speedy in France. Speedy has a network of around 500 points of sales.



As other examples of Kaizen, the company has adopted English as its official language, so that global meetings such as the Global executive committee, the group TQM awards and others are now conducted in the English language.

In addition, Bridgestone is seeking to bring in more diversity into its management and has been awarded the Japanese Nadashiko mark in each of the last three years, signifying that it is an enterprise that is, "Outstanding for Encouraging Women's Success."



Bridgestone says its global Exec Committee –its highest body of global business execution now has 14 members, with 5 different nationalities

Management targets

Bridgestone has a history of setting challenging management targets. Among the targets are to achieve better-than industry average growth with return on assets at 6% or better; operating profit of 10% or better and return on equity of 12% or better. It does not give a time scale for this.

Looking at the target of operating profit alone, the Japanese division has been consistently been above that target. The Americas decision was below the target in 2013, but has since recovered and is now at some 14%.

However the European and 'others' divisions are both well below the target. These two regions were merged in January 2016 as a result of the restructuring of the tire business strategic business units.

http://www.bridgestone.com/corporate/library/mid_term/pdf/mid-term16.pdf

Section 11: Internet branding

Michelin tops on-line brand rankings

Exclusive research sponsored by UK magazine *Tyres & Accessories* indicates that Michelin is the top online tyre brand in 2016.

T&A works with netnames, a UK-based research company to compile the data.

In the 2015 report, Continental seized top slot, reducing Michelin to 2nd position.

Only Michelin, Conti and Pirelli have every topped the rankings, with Michelin dominating the rankings since the survey began 12 years ago.

This year Netnames studied 17 brands. It used proprietary webcrawler software to identify and classify mentions of each brand. The system crawled the Internet over a two-day period, and identified all pages where at least one of the monitored brands was mentioned. Over 700 pages were identified.

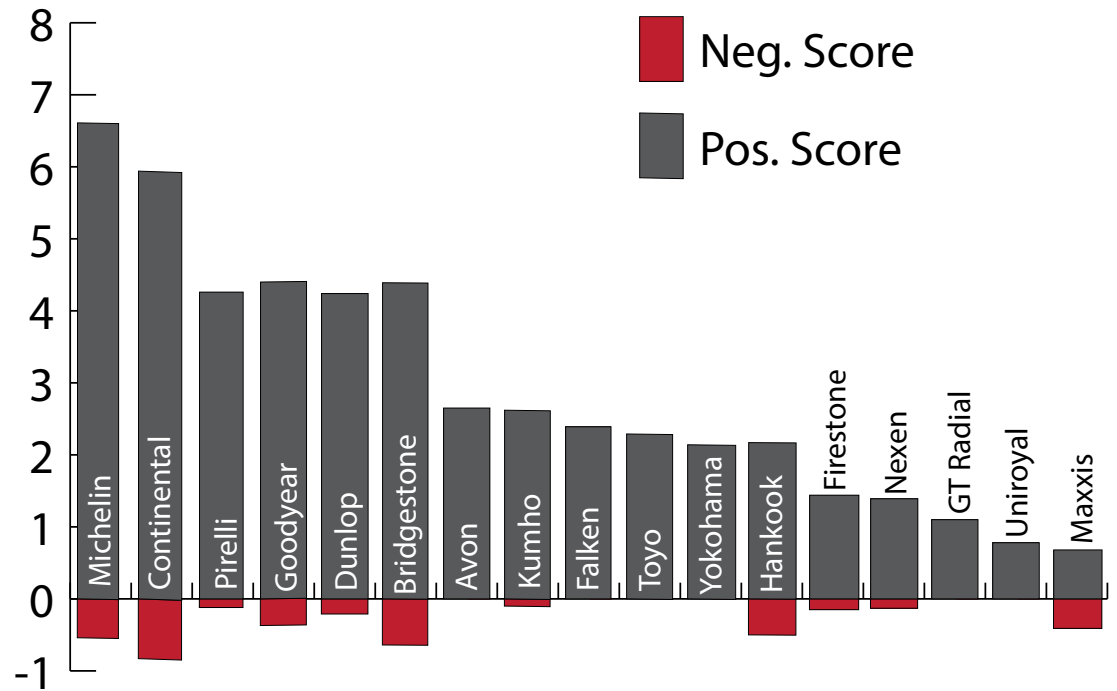
Then the software identified whether the mention was positive or negative and how influential the page might be from its inbound and outbound links. It then uses the data to compile the rankings.

The data shows that the dominance of the top brands is slowly being eroded as new brand names gain more exposure on the web.

As in all previous studies, Michelin was most prominent on the pages studied. Furthermore, the margin between Michelin and Continental has extended since 2015. Then there is a significant drop in exposure with the next four brands almost equal. No new brands appear in slots three to six, though, Bridgestone and Pirelli have overtaken Goodyear and Dunlop since last year.

After Dunlop, there is a significant drop to the next-best exposed brand, Hankook. However, all the next three brands have more than doubled their exposure since a year ago (Hankook, +103%; Falken, +103%; GT Radial, +267%).

<http://www.tyrepress.com/2016/10/michelin-returns-to-the-top-of-online-brand-ranking/>



Company	2016				2015 Rank	2014 Rank	2013 Rank	2012 Rank	2011 Rank	2010 Rank	2009 Rank	2008 Rank	2007 Rank	2006 Rank	2005 Rank
	Pos. Score	Neg. Score	Total	Rank											
Michelin	6.61	-0.54	6.07	1	2	1	1	1	1	1	1	1	1	3	2
Continental	5.94	-0.83	5.11	2	1	2	2	5	5	5	5	5	4	6	3
Goodyear	4.26	-0.12	4.15	3	6	5	6	6	4	4	4	3	6	4	6
Pirelli	4.40	-0.37	4.03	4	3	4	4	2	2	2	2	6	5	1	1
Dunlop	4.24	-0.21	4.03	5	5	6	5	4	3	3	3	2	3	2	5
Bridgestone	4.39	-0.64	3.75	6	4	3	3	3	6	6	6	4	2	5	4
Avon	2.65	0.00	2.65	7	7	9	7	7	7	8	8	8	7	7	7
Kumho	2.62	-0.10	2.52	8	10	7	11	10	11	10	10				
Falken	2.39	0.00	2.39	9	14	15	13	8	12	12	12	11	10	9	10
Toyo	2.29	0.00	2.29	10	11	11	9	11	9	9	9	9	9	8	8
Yokohama	2.14	0.00	2.14	11	8	10	12	9	8	7	7	7	8	10	9
Hankook	2.17	-0.50	1.67	12	12	8	8	12	10	13	13				
Firestone	1.44	-0.15	1.29	13	9	13	10	13	13	11	11	10	11	12	12
Nexen	1.39	-0.13	1.25	14	13	14	16	15	16	16	16				
GT Radial	1.10	0.00	1.10	15	17	17	17	16							
Uniroyal	0.78	0.00	0.78	16	15	16	14	14	15	15	15	12	12	11	11
Maxxis	0.68	-0.41	0.26	17	16	12	15	17	14	14	14				

