

# China butadiene and synthetic rubber in crisis

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**A slump in auto demand growth has occurred as substantial new butadiene, synthetic rubber and tyre capacities continue to come on stream**

What goes up can quite often come crashing down, as is the case with China's butadiene (BD), synthetic rubber and auto tyre markets.

In 2009, in the midst of the Chinese government's huge economic stimulus programme designed to mitigate the domestic impact of the global financial crisis, production growth for autos was a staggering 48.3%, as demand growth also surged by more than 20%, according to auto industry sources. During that year, China also surpassed the US to become the world's biggest producer of autos.

And in 2010, production growth moderated only slightly to 33.8% as demand continued to surge, thanks to the lingering impact of the economic stimulus package.

This perhaps created the impression that China was entering a new era of sustained exceptionally high demand growth.

But ever since 2011, when Beijing began to put the shackles on an overheated economy, and the central and local governments started to introduce restrictions on ownership growth designed to deal with congestion and pollution problems, the market has endured a relative slump.

For instance, this year demand growth is expected to be below 10%, perhaps as little as 5%, say auto industry sources.

This moderation in growth is occurring as butadiene, synthetic rubber and tyre capacities continue to increase.

Meanwhile, natural rubber stocks are at record highs, leading to a slump in both natural and synthetic rubber pricing. Natural rubber can be substituted for the synthetic rubbers styrene butadiene rubber (SBR) and polybutadiene rubber (PBR) in tyre production.

As we move further upstream, China's butadiene market has been mainly weak since February, according to both producers and traders.

There was a brief rebound in pricing from late April until early May, but as this article went to press, domestic pricing had once again retreated.

## **NEW RUBBER CAPACITIES**

"Confidence is very low at the moment because of the state of the economy," said a butadiene industry source. "This has caused a reduction in speculative trading in butadiene. Speculation had surged because of huge margins, but because demand has been weak for a long time now, many traders have retreated".

This slump in confidence has occurred as new synthetic-rubber capacities have come on stream.

For example, Sinopec Maoming started up a 100,000 tonne/year PBR plant at Maoming, in Guangdong province, in late February. And the Transfar Group commissioned another 100,000 tonne/year PBR facility - this time at Jiaxing, Zhejiang province - in late April.

YPC-GPRO (Nanjing) Rubber Company started up a 100,000 tonne/year PBR plant at Nanjing in Jiangsu province on 1 June.

Not surprisingly, this has led to a surge in synthetic rubber stocks. Market sources estimate total inventories of SBR and PBR (it is difficult to estimate the stocks of each of the different rubbers) at between 200,000 and 250,000 tonnes. Last year stocks were thought to total less than 180,000 tonnes.

It is the same story in natural rubber. The problem dates back to around 2003, when there was a big increase in rubber tree planting in southeast Asia because the consensus was that the market would remain tight.

Instead, natural rubber swung into severe oversupply from 2011.

Inventories of natural rubber in Qingdao bonded warehouses in Shandong province are estimated to total around 350,000 tonnes, the equivalent of one month's consumption. Shandong is China's main tyre producing region. For most of 2012, stocks were around 250,000 tonnes, and before the global financial crisis in 2008 they averaged less than 150,000 tonnes.

What changed postcrisis - and this also applies to most chemicals and polymers, including butadiene and synthetic rubber - is that there was a huge increase in speculation in natural rubber because of the big rise in the availability of bank lending.

But ever since April 2011, natural rubber prices on the Shanghai Futures Exchange, and thus physical prices, have been weak.

This is again the result of government efforts to cool the economy and the big rise in natural rubber supply.

As we go back upstream with butadiene, the good news is that the butene-1 and butene-2 feedstock needed to run a large amount of new on-purpose butadiene capacity in China has become very expensive.

This has limited the operating rate at on-purpose plants that have already come on stream to just 50% (see table for a full list of both new on-purpose butadiene capacities and those linked to liquids cracking).

Most butadiene in China, as is the case globally, is produced via liquids steam cracking, which produces "crude C4s" or C4s, described as C4s on the table. C4s are a co- or byproduct of steam cracking. Butadiene is extracted from the C4s stream.

There is another route to butadiene. Methyl tertiary butyl ether (MTBE), the gasoline octane and oxygenate booster, is first of all produced from methanol and isobutylene. Isobutylene is also part of the crude C4s stream from the cracker. Isobutylene is also extracted from steam cracker C4s streams and sent to MTBE plants.

MTBE plants also have co- or byproducts left over when their reaction process is complete: butene-1 and butene-2, collectively also called n-butene, as is again the case in our table. On-purpose butadiene is then produced from n-butenes, using the oxidative dehydrogenation process.

Shandong, as we mentioned, is a major tyre producing region. It is also the location of several MTBE plants, next to which these new on-purpose butadiene units have been built.

The problem for the new units, and hence the good news for butadiene supply, is that the alternative value of n-butene as a gasoline blend stock is very high. As a result, the on-purpose butadiene producers are finding it difficult to afford their raw materials, say butadiene market sources.

This has led to both the low operating rates at plants already on stream and speculation that other start-ups will be delayed.

### CHINA BUTYL RUBBER EXPANSIONS ('000 TONNES/YEAR)

Producer	Location	Expansion capacity*	Start-up date
Sinopec Maoming	Maoming, Guangdong, S China	100	End Feb 2013
Transfar Group	Jiaxing, Zhejiang, E China	100	End Apr 2013
Wanda Group	Dongying, Shandong, E China	20	May-13
YPC-GRPO (Nanjing) Rubber	Nanjing, Jiangsu, E China	100	Jun-13
Zibo Qixiang Tengda Chemical	Zibo, Shandong, E China	100	Jul-13

SOURCE: ICIS

### CHINA'S BD CAPACITY EXPANSION PLANS ('000 TONNES/YEAR)

Producer	Location	Current capacity	New capacity	Start-up date	Feedstock
Zibo Qixiang Tengda Chemical	Zibo, Shandong, N China	100	50	May 13	n-butene
Sinopec Wuhan	Wuhan, Hubei, C China	0	120	July 13	C4
Transfar Kaiyue	Binzhou, Shandong, N China	0	50	July-Aug 2013	n-butene
Shandong Yuhuang Chemical	Heze, Shandong, N China	0	180	June 13	n-butene
Wanda Group	Dongying, Shandong, N China	0	150	May-June 2013	n-butene
Shandong Huamao New Materials	Dongying, Shandong, N China	0	150	Suspended	n-butene
PetroChina Sichuan	Chengdu, Sichuan, SW China	0	150	June-July 2013	C4
Shanghai SECCO Petrochemical	Shanghai, E China	9	90	2013	C4
Fujian Refining & Petrochemical	Quanzhou, Fujian, S China	120	30	2013	C4
Zhuhai Zhongguan Petrochemical	Zhuhai, Guangdong, S China	0	70	2014	n-butene
Sinopec Baling	Baling, Hunan, C China	0	100	2014	n-butene
Sinopec Shanghai	Shanghai, E China	100	120	2015	C4
Sinopec Yangzi	Nanjing, Jiangsu, E China	220	120	2015	C4
Sinopec KPC	Zhanjiang, Guangdong, S China	0	120	2017	C4
PetroChina, Shell and Qatar Petroleum	Taizhou, Zhejiang, E China	0	150	2017	C4
<b>Total</b>			<b>1,650</b>		

#### NO CLARITY ON DEMAND

Further positive news is that very few new PBR and SBR plants are due on stream in China in 2014.

Lower operating rates are also expected at existing synthetic rubber plants in the second half of 2013.

Both of these factors might boost the health of the overall market.

But nobody is certain as to how China's auto tyre producers will fare in 2014. There is an equal lack of clarity over future autos demand growth.

Tyre makers enjoyed excellent margins in 2012, add the butadiene industry sources. But so far in 2013, they have been placed under intense pressure by distributors, who are eager to drive tyre prices down.

A major outlet for the big tyre manufacturers is the export market. However, small and medium-sized manufacturers are finding it harder to export and so are more exposed to the weak domestic market.

As for future growth in auto ownership, many analysts assume that as domestic growth replaces investment and export-driven growth, thanks to economic rebalancing, the prospects are fantastic.

But Hou Yankun, head of China Equity Research and head of Asia Autos at UBS Securities, told the China Daily in a 29 May article that 2013 will be the last year of a major sales surge in Chinese autos.

"Theoretically speaking, if car affordability continues to follow the examples of Japan and South Korea, sales could maintain rapid growth for at least 10 years in China," wrote the newspaper.

"But Hou said the ability of the country's roads to cope with that level of growth is already being stretched," according to the paper.

"Data show that there are about 550 cars for every kilometre in Beijing, compared to 300 even in packed Hong Kong."

The average annual mileage of cars in the mainland is five times that of Hong Kong, added Hou.

"It will be a challenge for the government to raise the speed of road construction to keep pace with the acceleration of auto ownership," he said.

"Mega-cities including Beijing and Guangzhou have already introduced car-purchasing restrictions, and people in Shanghai have to enter an auction for car licenses because of massive demand.

"Statistics show cities such as Fuzhou, Tianjin, and Nanjing are all suffering from low average driving speeds caused by chronic traffic congestion, which may force the local governments to consider [further] purchasing restrictions, Hou said."

And in a June 2012 report, Citibank wrote, "Interestingly, although (auto) ownership penetration in China remains low, at 60 cars per 1,000 drivers, annual sales have doubled since FY09 [financial year 2009] to around 24 per 1,000 drivers.

"This is similar to Brazil levels, and compares with around 40 in Europe or Japan.

"Given development variance between China's east and west, this suggests China eastern annualised sales per 1,000 drivers are getting very close to Western levels already - even if the fleet remains small relative to the population."

*SOURCE Icis News*