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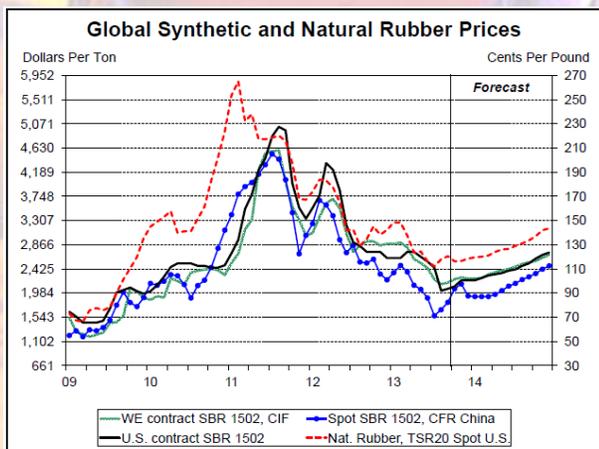
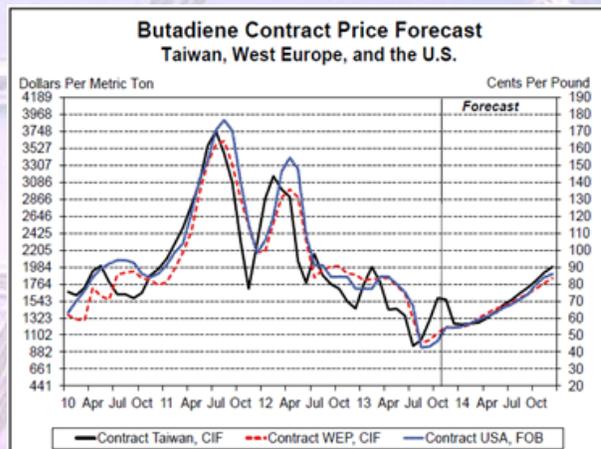
Leading World Technologies Through Innovation

Monthly Bulletin– November 2013



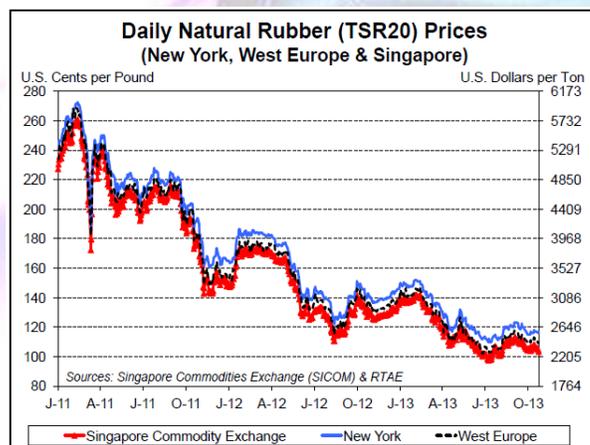
Executive Summary

Butadiene: In 2014 demand growth will regain its momentum, driven by stronger economic growth in the developing world – particularly China and marginally better economic performance in Europe. IHS does not expect any of this to be dramatic and therefore have a gentler butadiene price increase trend in 2014 than was seen in either 2011 or 2012. 2015 will see a continuation of the 2014 trend.



Synthetic Rubber: Demand growth will return to more fundamentally typical levels and the market will tighten. However, IHS sees this as a gradual process and therefore expect SBR feedstock costs to increase at a much more measured pace than what was seen in either 2011 or 2012. The basis for the outlook is improving demand and not supply related issues as were seen in 2012. Therefore, the rubber cost increase should be more consistent.

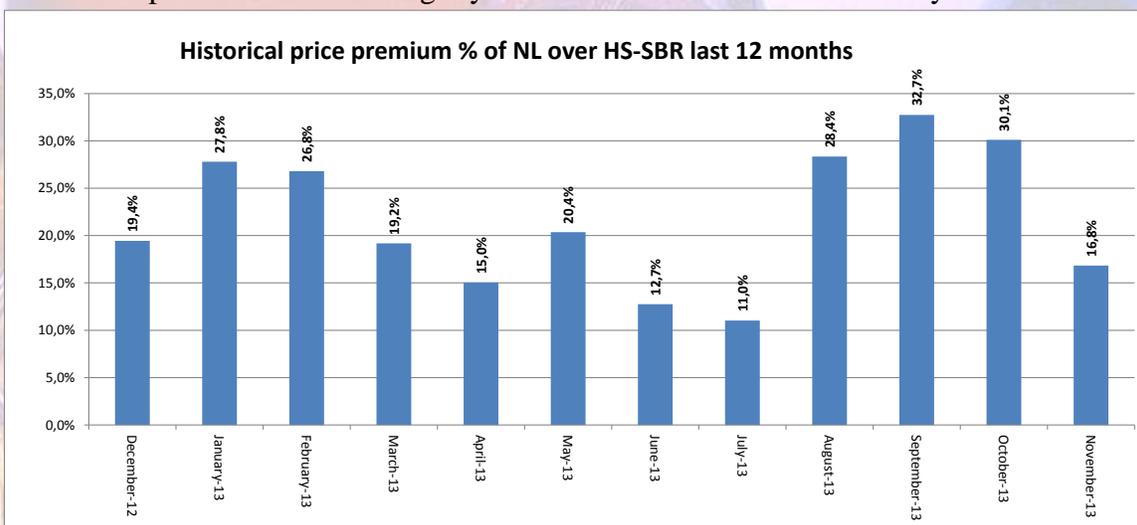
Natural Rubber: The upward trend in prices seen over the past couple of months has been driven by strength in global crude oil prices, which have since eased slightly. Monthly prices on the TOCOM through April 2014 were mostly flat from last month. SICOM TSR20 futures prices through April 2014 moved lower. IHS Chemical forecasts that U.S. TSR20 prices will move slightly lower in the coming months.





Executive Summary (Cont.)

Natural vs. Synthetic Rubber: The gap between the price of natural and synthetic latex has been decreasing by 13.2% over last month due to an more pronounced increase in the price of Synthetic Rubber Latex whereas the price of Natural Latex has been on a downward slope. Expectations are such that the price of NL should remain more or less flat over the months to come, something unexpected given that we are approaching the wintering period, whereas that of SL should stay relatively stable until year end to then progressively increase with momentum gain in the economic activity. The gap reported below is expected to decrease slightly as we move toward the end of the year.

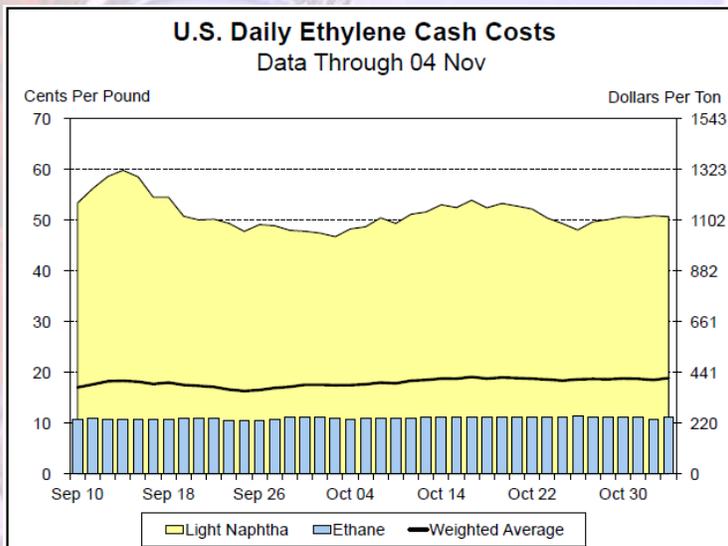




Feedstocks & Crude C₄s

Market update

Global crude oil prices, with the exception of WTI, were largely unchanged in October. WTI trended downward somewhat in the second half of October. *IHS outlook for the coming months calls for more of the same price stagnation with a general bias toward slightly lower prices.* October natural gas prices in the US were nearly unchanged from September levels and November prices look to be more of the same.



In the US, the cash cost for ethylene from naphtha remains extremely disadvantaged, compared to ethane based cash costs. Propane and butane economics are more than 20 cents per pound of ethylene disadvantaged, relative to ethane, as well. Weak co-product prices have hurt propane, butane and naphtha cracking economics. *Weak butadiene demand continues to make trends in the crude C₄ market less dramatic than they would be in a typical year.* However, the tightening markets in Asia and Europe make it likely that changes in cracker feedslates will again influence the domestic market in the not too distant future. Already, *crude C₄ import prices are being used as part of the justification for increasing butadiene prices.*

One interesting trend emerged in the US ethylene market this month. A market disconnect began between Texas and Louisiana as a result of a pipeline outage and the Williams cracker outage. As a result, the ethylene market in Louisiana is extremely tight, while crackers in Texas are being forced to cut rates because there is no outlet for their production. With pipeline capacity fully utilized and derivative production in Texas at

maximum levels, there are no efficient alternatives to ship large volumes of ethylene. This means that some crackers have reduced rates and therefore crude C4 production.

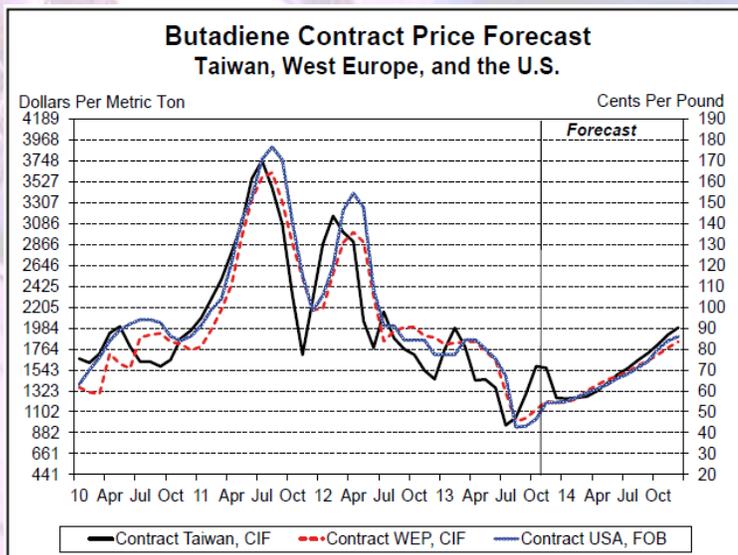
Crude C4 imports have continued at a somewhat surprisingly high rate, given weak butadiene demand. Some butadiene producers have been forced to purchase higher cost imports to meet their contract sales commitments. These imports have not been economically attractive at the current market prices. IHS has heard that merchant crude C4 exports are valued as high as 1.15 times naphtha plus freight. However, domestic buyers see the market at less than 0.8 times naphtha delivered. Given these numbers, it is not hard to see why butadiene producers would be pushing for higher contract prices.

Butadiene (building block of HS-SBR and XSBR)

Contract prices

The US butadiene contract price marker posted by IHS Chemical increased to 54.4 cents per pound (\$1,199 per ton) for November. The split range this month is 54 to 56 cents per pound.

The European contract price of October was €825 per metric ton. For November, the price was settled with an increase of €75 per metric ton to €900 per metric ton.



Market update

IHS Chemical's marker for the November US butadiene contract price increased nearly 8 cents per pound to 54.4 cents per pound (\$1,199 per ton). This reflects a split settlement with final nominations ranging from 54 to 56 cents per pound. It is important to remember that the actual delivered price for butadiene purchased on a contract basis in the US is significantly different from the posted marker. In addition to delivery costs, a number of producers have instituted premiums and fees that are added to the marker



price. These fees and premiums are significant and vary in magnitude and methodology by producer and customer.

The only significant change in the domestic butadiene supply has been the ethylene market split that occurred between Texas and Louisiana, as described in the Feedstock Section of this report. Some US crude C4 production was reduced as a result of the ethylene bottleneck in Texas. This situation will be fully resolved before the end of the year, but will be a market factor for the next few weeks. Other than that, domestic crude C4 continues to follow the same patterns seen for the past few years.

There has been no sign of improvement on the butadiene demand side. Clearly, we are no longer at the bottom of the butadiene market, but the increase has not given consumers sufficient incentive to deviate from their plans to maintain low inventories to meet year-end targets. *IHS has seen no support for the position that fundamental demand has changed.* That is one of the reasons that the November price increase has been met so unfavorably by consumers.

The current domestic spot market remains generally opaque, though some spot export activity to Asia has been done. IHS understands that two parcels have now been exported to Asia with the second priced in the mid-50 cents per pound range. This is interesting because that is roughly the level of the November contract marker and well below the average of the actual contract price. Generally, when the spot price is well below the contract price, it indicates a long market and falling prices. However, this time it has been a rising price with the contract price leading the way. This is an indication that it is driven by the supply side and not the demand side of the market.

Market analysis

IHS is currently extending their monthly price outlook through the end of 2015 and presents their view of monthly butadiene prices.

Their view of the butadiene market *in 2014* is that *demand growth will regain its momentum, driven by stronger economic growth in the developing world – particularly China and marginally better economic performance in Europe.* They do not *expect* any of this to be dramatic and therefore have *a gentler butadiene price increase trend in 2014* than was seen in either 2011 or 2012. It will take some time for the trend to fully



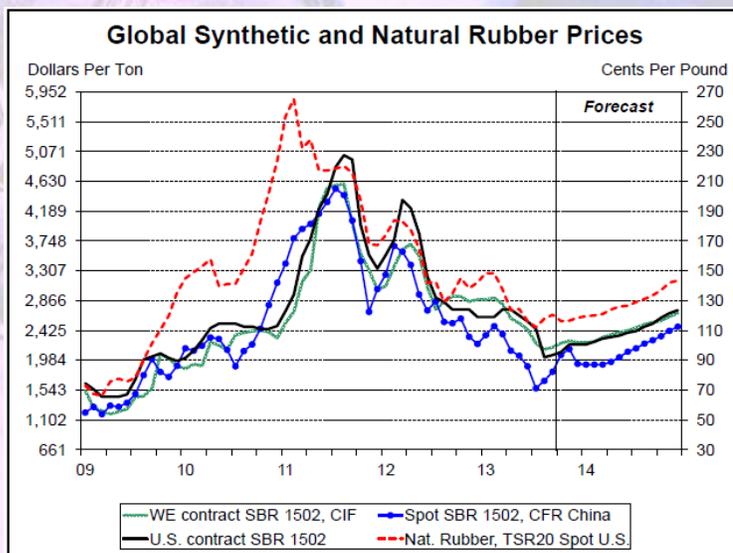
develop next year, so they have the price increase weighted toward the second half of the year.

2015 will see a continuation of the 2014 trend. Butadiene demand growth should be approaching long-term trend values in 2015, but butadiene supply, especially in China, is also increasing. Therefore, IHS expects prices to continue to rise through 2015. Again, *there is no reason to expect the dramatic volatility of 2011 or 2012, but prices will continue to rise.*

Synthetic Rubber

Market update

In the US, synthetic rubber market conditions remain extremely challenging on both sides of the negotiating table. Supply is readily available, partially because producers could increase rates easily at any time, should demand justify the additional production. The lower butadiene price has allowed domestic rubber producers to be competitive against imports, and as such, strengthened production from where it would have been; however, it is not strong. However, the butadiene price has increased in each of the last two months, in spite of the stagnant demand situation. From a demand perspective, these price increases are difficult to support.



Fundamental rubber demand does not appear to be strengthening, though it would not really be expected to at this time of the year. The market is currently focused on ending the year with reasonable inventory levels and preparing for hopefully better times in 2014. One thing working in the favor of North American rubber producers is the fact that the arbitrage window for imports from Asia is not open. As a result, rubber producers in



Asia are cutting production rather than exporting incremental volume. Hopefully as we move into 2014, the global markets will strengthen and the rising tide will float all boats.

IHS Chemical's posting for the October medium buyer negotiated SBR 1502 price increased to the 94 to 97 cents per pound range. The IHS Chemical posting for SBR 1712 continues to reflect a large differential. The price also increased to the 75.5 to 78.5 cents per pound range. The IHS Chemical PBR price increased to the 102 to 106 cents per pound range.

Market Analysis

IHS synthetic rubber price forecast is based on feedstock costs, i.e. butadiene and styrene. Here, IHS presents their outlook for SBR feedstock costs, assuming 75 percent butadiene and 25 percent styrene.

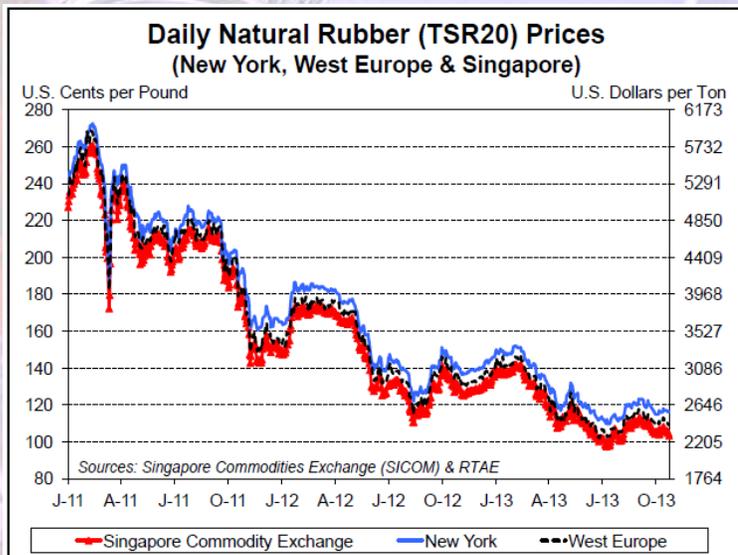
IHS is optimistic about the prospects of the global butadiene and synthetic rubber markets over the next few years. ***Demand growth will return to more fundamentally typical levels and the market will tighten.*** However, IHS sees this as ***a gradual process*** and therefore ***expect SBR feedstock costs to increase at a much more measured pace*** than what was seen in either 2011 or 2012. ***The basis for the outlook is improving demand*** and not supply related issues as were seen in 2012. Therefore, ***the rubber cost increase should be more consistent.*** IHS does anticipate some swings in the regional dynamics, but West Europe will generally have the lowest feedstock cost and North America will have the highest. Asia, the real market driver, will fluctuate between the two with occasional excursions at the highest or lowest cost region. The market dynamics that they have discussed a number of times over the years will control the regional differentials. West Europe requires the lowest cost due to its dependence on the export markets. The US, with its dependence on imported feedstocks, will have the highest cost, but not so high that it becomes a limitless opportunity for rubber imports, putting pressure on the domestic producers.



Natural Rubber

Market Update

Natural rubber prices decreased in October with the monthly SICOM average falling by roughly 4.5 cents per pound from September to \$1.05 per pound (\$2,320 per ton). Daily futures on the SICOM traded between \$1.03 and \$1.08 per pound for the month. Current price levels are around 25-30 cents per pound lower than during the same month last year. *Natural rubber prices have been affected by slower growth in the major*



economies, with a key ingredient being the slowdown of growth in the Chinese economy relative to previous years. China consumes roughly one third of the world's natural rubber. *The upward trend in prices seen over the past couple of months has been driven by strength in global crude oil prices, which have since eased slightly.* As shown in the graph Daily Natural Rubber (TSR20) Prices, prices have decreased since the beginning of last year, sitting over \$1.50 per pound lower than the record highs seen in early 2011. Prices in New York and West Europe increased this month, averaging \$1.16 and \$1.10 per pound, respectively.

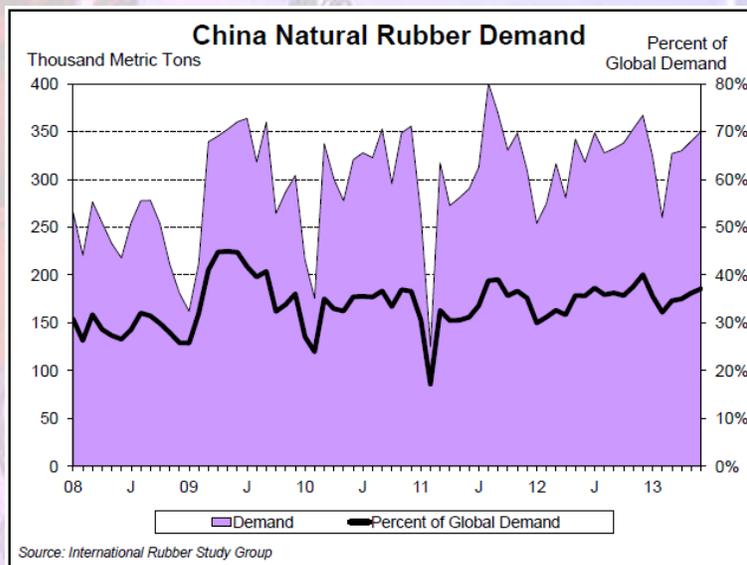
TOCOM natural rubber futures decreased in October, ending the month \$150 per ton lower than the September closing price. The October RSS3 contract closed at \$2,508 per ton. *Monthly prices on the TOCOM through April 2014 were mostly flat from last month*, ranging from \$2,519 to \$2,670 per ton. TSR20 futures on the SICOM closed at \$2,320 per ton for October, a decrease of slightly more than \$100 per ton from the September contract price. *SICOM TSR20 futures prices through April 2014 moved lower*, ranging from \$2,270 to \$2,366 per ton, around \$50 per ton lower than the futures strip at the end of September. TSR20 prices in New York were around 4 cents lower than September, averaging \$1.16 per pound. *IHS Chemical forecasts that U.S. TSR20 prices*



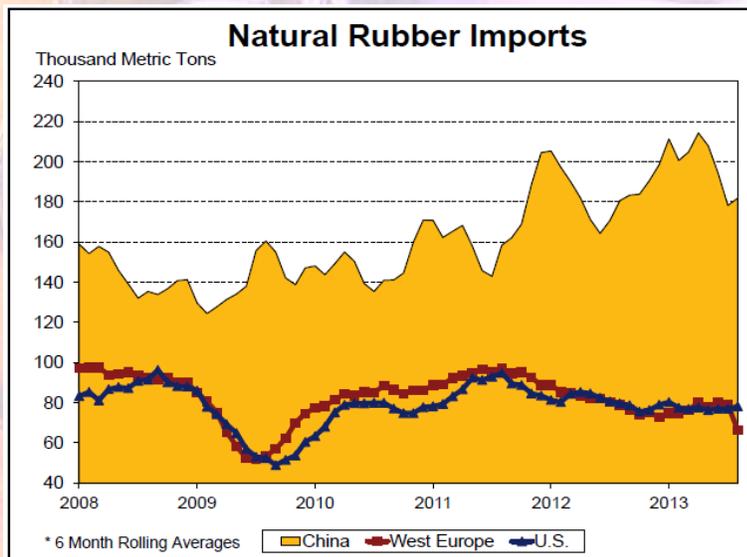
will move slightly lower in the coming months, averaging just below \$1.18 per pound over the last two months of the year.

Market Analysis - China

In this month's market analysis section, we will examine the key aspects of the Chinese natural rubber market. China is the largest consumer of natural rubber in the world, accounting for roughly one-third of global demand. In order to understand the overall natural rubber market, it is important to understand China's demand and production.



The recent fall in natural rubber prices has been partly attributed to a slowdown in Chinese demand. As shown in the graph China Natural Rubber Demand, China's demand for natural rubber has increased strongly since 2008. In 2008, China consumed 2.9 million tons of natural rubber. Four years later, in 2012, China consumed roughly 3.9 million tons of natural rubber.



In 2009, the percentage of global natural rubber consumed by China increased to 45 percent for several months during the year, the highest level on record. This was during the height of the global recession as many countries experienced large drops in demand while China thrived, at least relatively. As the rest of the world began to recover from the recession, Chinese demand



remained strong, and the country's percentage of global consumption remained high, at roughly 35 percent.

China's natural rubber production has changed little over the past several years. In 2012, China produced 795,000 tons of natural rubber, or roughly 20 percent of their domestic demand. For comparison, Chinese production in 2008 was around 560,000 tons, or about 19 percent of their domestic demand. *The reason for the slow growth is China's geographically limited natural rubber growing area.* Natural rubber trees only grow in regions near the equator, such as Thailand, Malaysia and Indonesia which are all significant producers of natural rubber. The only place in China where natural rubber grows is Hainan Island, which limits the opportunity for any production growth in the country. The influence of China on natural rubber production is not limited to its borders as a number of Chinese owned plantations are showing up in Southeast Asia, however those production statistics will be reflected by those countries.

As China's natural rubber production is not nearly enough to meet the country's rapidly growing demand, the difference is made up by imports. China's import levels have increased significantly since over the past five years while imports in the U.S. and West Europe have remained steady or even decreased due to the impact of the economic climate. In January 2013, China imported over 250,000 tons of natural rubber which was the highest monthly import total on record. The series for the U.S. and West Europe are shown on this graph for comparison and to demonstrate that natural rubber demand has moved in recent years. The data shown in the graph is a six month rolling average, which removes the noise from the data and shows a more general trend.

Looking ahead, it is expected that global natural rubber demand will slowly improve, due in part to an increase in Chinese demand. China will remain the largest consumer of natural rubber, and by a large margin. Chinese production will continue to be limited by geographical constraints and so most of the domestic demand will be met by imports.