
TRCC CANADA

Monthly Bulletin



TRCC Canada

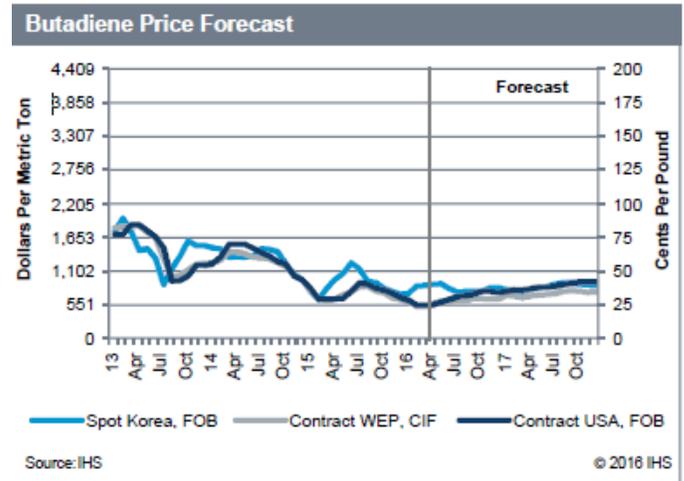
Leading World Technologies Through Innovation

MARCH 2016 ISSUE

Executive Summary

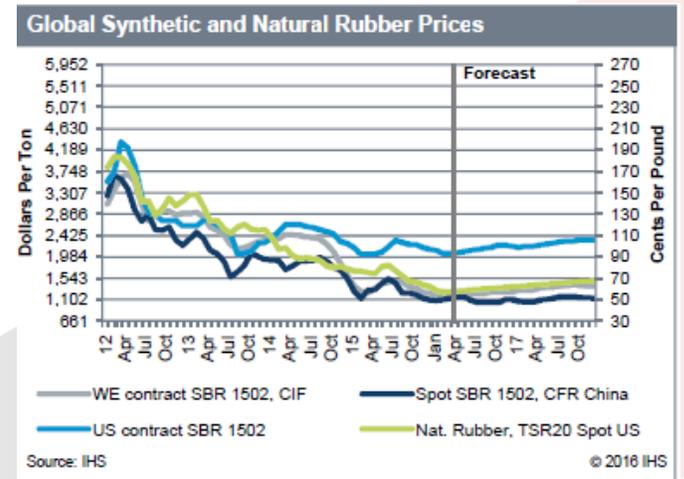
Butadiene:

IHS Chemical's marker for the March US butadiene contract price rolled over at 25.1 cents per pound (\$553 per ton). This reflects a split settlement with final nominations ranging from 24 to 29 cents per pound. In Asia, the average butadiene price for February increased to \$860/ton. The European contract price for February was €495/ton. The March contract price rolled over at €495/ton.



Synthetic Rubber:

Globally, synthetic rubber markets continue to experience difficult conditions. Rising feedstock costs in Asia have compressed incremental margins even further leading to more rate cuts. In West Europe, export economics are favorable, though rising spot butadiene prices are threatening. In North America, competition from Asian imports has decreased, though European producers still have an advantage.



Natural Rubber:

The average natural rubber price trends were mixed depending on the region. The average price on the SICOM increased slightly, but was still below 50 cents per pound (cpp) at 49.37 cpp (around \$1,088 per ton). Three major natural rubber producing countries in Southeast Asia (Thailand, Indonesia, and Malaysia) announced that export volumes will be cut starting in March.

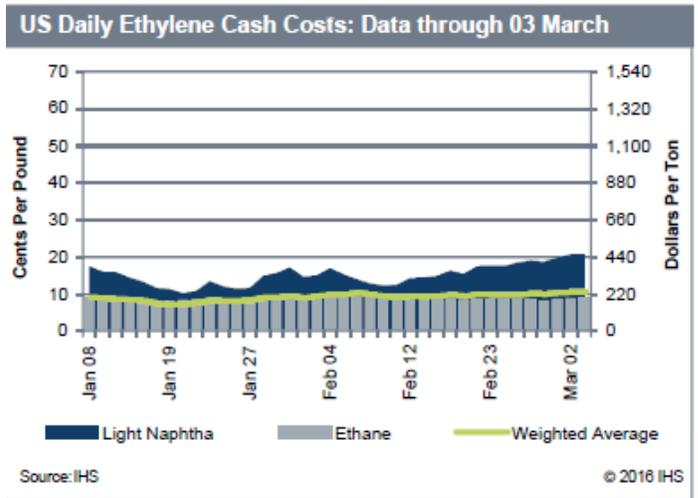


Synthetic Rubber

Monthly Market Summary

North America

WTI and Brent prices trended marginally higher over the course of the month, but there was significant volatility. At one point, WTI traded just above \$26 per barrel (bbl) before finishing the month just below \$36 per bbl. There were significant oil-related news stories such as discussion regarding a deal for OPEC to freeze production levels at January levels, but in the end it all appeared to be more form than substance. IHS continues to forecast falling inventories and higher prices, but not until the second half of this year. US natural gas prices were marginally lower in February, but only back to levels seen in December. Natural gas prices should trend essentially flat for all of 2016. For more information on natural gas and crude oil forecasts, please see the Economy and Energy Overview (EEO), which is available to all IHS Chemical clients through our Connect platform.



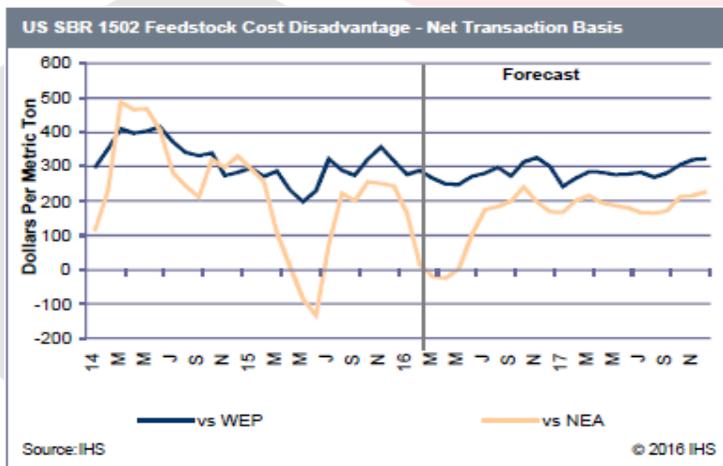
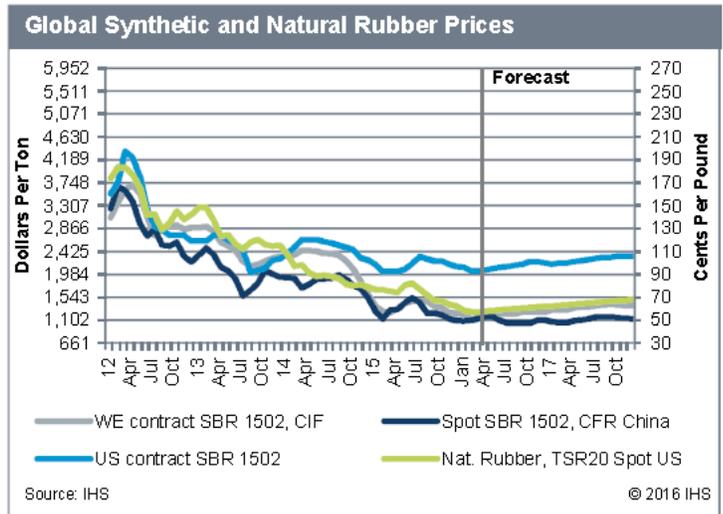
The spread between the cash cost of producing ethylene from the various feedstocks remained extremely tight again in February. Ethane was the favored feedstock for most of the month but only marginally. The cost difference between propane, butane, and coproduct integrated naphtha was less than 1 cent per pound at the end of the month. This is well within the error caused by various individual cracker capabilities. As such, we expect that there were few economic driven changes in the feedstock. We continue to forecast higher propane and butane cracking in 2016 than was seen between 2012 and 2014. Crude C4 production is forecast to be down marginally in 2016 from the 2015 level, but it is the result of lower ethylene production, not a feedstock shift. In 2017, ethylene production will increase significantly as the new crackers begin to start up so crude C4 production will be more than 10% higher. These forecast details are contained in our Quarterly Supply and Demand Balance in the Data Appendix accompanying this report. Crude C4 supply has not been an issue for some time, a trend we expect to continue this year barring unplanned cracker operating issues. We do not expect the US crude C4 market to get to the point where significant volume has to be destroyed, but there will clearly be an impact on imports of crude C4 or butadiene monomer. Crude C4 imports from Europe will be limited going forward and probably dominated by intercompany transfers rather than arm's length spot sales. Butadiene producers in Europe and consumers in North America would both prefer to import refined butadiene over crude C4. The vast majority of US crude C4 imports will come from Canada and Mexico with occasional volume from Brazil and West Europe.

Butadiene Market Analysis

Recent sharp increases of butadiene prices in Asia created more arbitrage cargo opportunities. Currently, the butadiene price differentials are about \$450 per metric ton with Europe and \$360 per metric ton with the United States. These price differentials are more than enough to cover the ocean freights. The freight rates also have decreased owing to lower oil prices as well as fewer cargoes compared with previous years. There are several arbitrage cargoes heading to Asia at the moment from Europe and the United States, which were sent during January and February. The current price differentials made it possible for more arbitrage cargoes to be sent to Asia. The arrival dates for the new arbitrage cargoes will be around May to June, as it takes roughly 40 days from Europe and the United States.

United States

In the United States, the synthetic rubber market conditions remain difficult on the sales side, although feedstock continues to be abundantly available. One would think that the low gasoline prices and increasing miles-driven statistics would point toward increasing demand for tires and rubber. It did appear that December tire shipments were higher, mostly for the replacement tire market. However, that has not translated to significant increases in demand for domestically produced rubber. The availability of low-priced synthetic rubber imports is a significant factor in understanding why. As we have described a number of times, North American rubber producers remain extremely concerned about their competitive position relative to imports. In a market of modestly growing demand, increased imports are certainly a threat to domestic producers. According to our production models, US producers are roughly \$300 per ton disadvantaged compared with their European competitors. However, the recent run up of butadiene prices in Asia has pushed producers there into a high-costs position in early March. This will last for the next couple of months. Our view of the future butadiene markets calls for the North American disadvantage to trend fairly flat compared with West Europe. However, rubber producers in Asia will actually be disadvantaged for the next couple of months. After that, the Asia advantage will recover to around \$200 per ton. This will result in continued interregional friction. IHS Chemical's posting for the January medium buyer negotiated SBR 1502 price decreased by 3.0 cents per pound (cpp) to the 91 to 95 cpp range. The IHS Chemical posting



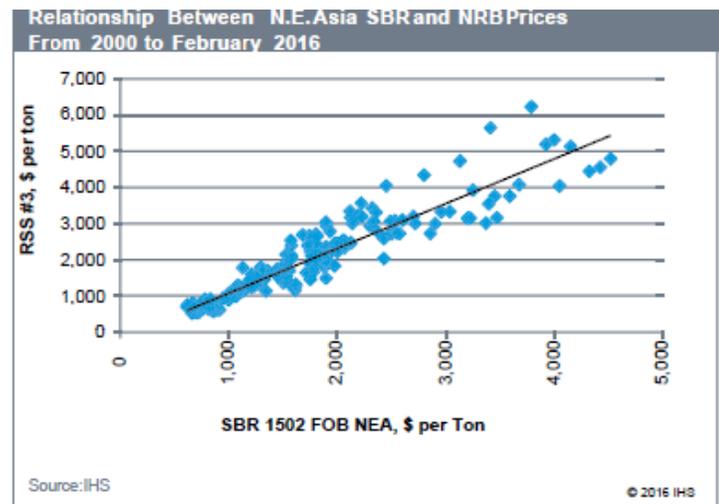


for SBR 1712 also decreased 1.0 cpp to the 74.5 to 78.5 cpp range. The HIS Chemical PBR price decreased to the 81 to 85 cpp range.

Market Analysis

One of the key market drivers for synthetic rubber prices over the past few years has been the natural rubber market. In our monthly report and the *World Analysis - Rubber*, for the past couple of years we have described a natural rubber market in oversupply and fundamentally unable to quickly adjust production to the realities of weaker demand growth. This has resulted in natural rubber prices falling to levels not seen in years. This is important to synthetic rubber producers because there is enough of a connection between demand for synthetic and natural rubber to ensure the prices are connected. The question that we will consider in this market analysis is: how strong is the connection between the prices of these two commodities?

In order to answer this question, we will perform a simple statistical correlation between the monthly prices of SBR and NBR in Asia. We could have chosen any of the major regions for the analysis, but Asia is home to the largest synthetic and natural rubber consuming market, China, and the majority of natural rubber production. Therefore the analysis is cleanest in this region. On the surface, it appears that the correlation is pretty good. The period in question has included record-high prices for both synthetic and natural rubber as well as a major recession and extremely low price levels. There have also been times of significant upside and downside volatility. Against this backdrop, the correlation coefficient, R_2 , averages just over 85%, which is not bad. However, is it good enough to use the relationship for forecasting or hedging?



To answer this question, it is important to understand what R_2 really means. It is an indication of the average spread of the data from the predicted line. In other words, data that are symmetrical around the line, regardless of the spread, generate a high value for R_2 . So a high R_2 value indicates that the data are related somehow, but is not necessarily useful for forecasting or hedging. To support this position, consider some of the actual data. At a synthetic rubber price of around \$2,000 per ton, the natural rubber price range was between \$1,900 and \$3,200 per ton. That spread is obviously too large to be the acceptable result of a forecast. If we look at the spread of synthetic rubber prices at a constant natural rubber price of \$2,000 per ton, the result is similar, with a spread of \$500 per ton, so switching dependent variables would not improve the results enough to make them reliably predictive. The spread is even wider at higher natural or synthetic rubber prices when there is the most money to be made or lost.

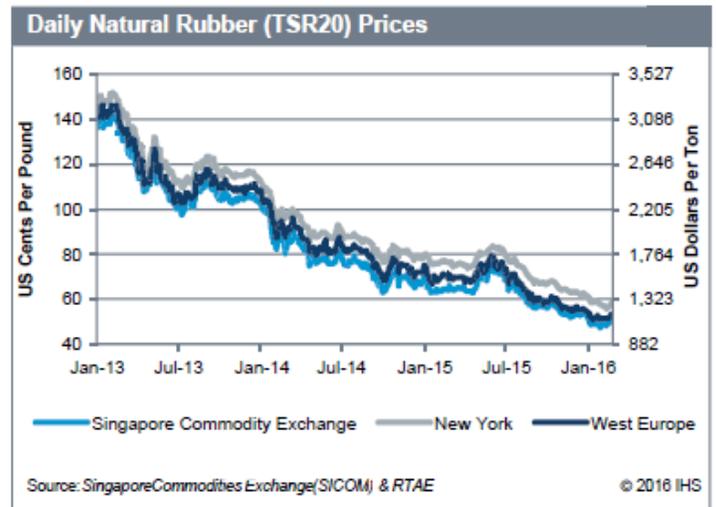
So what does this analysis tell us?

First, it tells us that there is a general connection between the prices of the two commodities. Second, the connection is not strong enough to use for forecasting or hedging. What do we do with this information? Looking forward, it is clear that failing some sort of effective intervention from natural rubber producers, or producing countries, prices will remain weak because of persistent supply surpluses. This will also keep downward pressure on synthetic rubber prices. With today's natural rubber outlook, it is reasonable to expect several years of difficult market conditions for synthetic rubber producers.

Natural Rubber

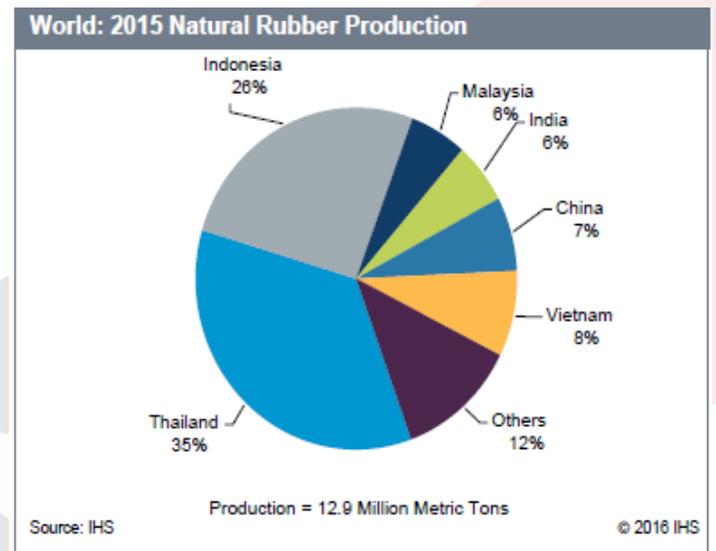
Monthly Market Summary

The average natural rubber price trends were mixed depending on the region. The average price on the SICOM increased slightly, but was still below 50 cents per pound (cpp) at 49.37 cpp (around \$1,088 per ton). The major producers in Southeast Asia (Thailand, Indonesia, and Malaysia) have agreed to cut natural rubber export volumes starting in March. The total volume cut will be around 600,000 tons. The announcement did not have big impact on the already troubled rubber market, though, and only increased the future prices slightly. The prices in Europe increased slightly, while in New York they decreased last month. The West European average price was 51.96 cpp and the New York average price was 57.06 cpp.



Market Analysis

Another plan was announced in February to support natural rubber prices. Three major natural rubber producing countries in Southeast Asia (Thailand, Indonesia, and Malaysia) announced that export volumes will be cut starting in March. The volume reduction is about 600,000 tons, which is about 4.7% of global production. The three governments are trying to support international rubber prices by reducing export volumes. This could be successful in supporting prices for the six-month time frame, depending upon a couple of conditions. The first is that other producers, such as Vietnam and other Southeast Asia countries, do not increase their export volumes. While there are no producers in Southeast Asia that could increase export volumes enough to completely offset this planned reduction, given that Thailand and Indonesia account for more than 60% of global production, any offset to the reduction would certainly weaken its impact. The second condition is that those three countries do, in fact, follow the agreement for the next six months as they have stated. There are still some doubts about this, because it is not actually driving the demand for natural rubber.



By only cutting the export volume while demand is unchanged, the excess volume will still be left as inventory. This methodology has been used in the natural rubber markets before, but never successfully. We will monitor the market carefully in the coming months to see whether this time the outcome will be different.