

Supply Chain Pricing and the Meaning of “Ethane-Plus”

Ethane has long been a major component in determining the price of ethylene. In the past year, the relationship between the two has gotten extremely close.

Historically, monthly contract pricing for ethylene has always involved a discussion on the price of ethane. While not every steam cracker in the US uses ethane as a feedstock, ethane is the most common and often the most popular raw material for ethylene. Unlike other raw material options, such as propane or naphtha, ethane has no other use except for the production of ethylene. And so, the correlation between ethane prices and ethylene prices has been very high.

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In the past year, particularly during a falling market, ethylene has begun trading on a formula basis relative to ethane. This formula involves multiplying the ethane price by 0.422 and negotiating an “adder” to this price. The factor of 0.422 not only converts the ethane into a cents per pound [cpp] basis, but is also an approximation of favorable ethane economics and the “adder” represents relative margin.

For example ethane at 45 cpg x 0.422 equals 18.99 cpp. Therefore, trade discussed as “Ethane plus 5 cents” would really mean 24 cents per pound if ethane was valued at 45 cpg. While these “ethane plus” prices were rare and exotic a year ago, they are occurring with increasing frequency. Who is interested to do such deals?

One group is ethylene Producers. In a falling market, selling at an “ethane plus” price does not immediately reveal a falling price. The psychological damage done by announcing a falling spot market price is delayed to the ethylene and polyethylene consumers, who are constantly trying to negotiate lower contract prices for themselves. Another group of producers interested to buy on an “ethane plus” model is the plant operators that cannot use ethane as a raw material. Rather than produce ethylene with high-priced naphtha, some producers consider purchasing material on an economic model that they cannot otherwise enjoy.

Another group is ethylene Consumers. In a falling market, consumers can get some attractive prices in the spot market, and buying on an “ethane plus” formula brings more suppliers into the market. Consumers use their leverage by negotiating a lower “adder” -between June and July 2009, for example, this “adder” has dropped from 5 cents per pound to 3 cents per pound. These prices also don’t contribute to a perception of a rapidly falling market, which can help consumers keep their own downstream product prices up.

And last but certainly never least, is the community of ethylene Traders. Traders often do simultaneous deals in several markets. As such, a trader that sells ethylene at “Ethane Plus 3 cents” for July quite often already has a position coming into maturity for July ethane that is priced below the current market. Or, a trader could buy ethylene at “Ethane Plus 3 cents” and sell ethylene in the spot market at a spot price that is several cents above the formula price.

As the number of such trades increases, the markets become more aware of the binding relationship between ethane and ethylene. More resin processors are monitoring the ethane market, not only for where today's price ideas are, but where the future markets may be.

Ethane is a very liquid and mature market, with actively traded paper swaps and forward markets. A well-defined forward curve is published for ethane every day. A forward curve is nothing more than where people trading today's market value the future - and for today, July 2009 ethane is valued above January 2010 ethane by about 1 cent per gallon. After January, the trend reverses and from February 2010 well into 2011, ethane is valued a fraction of a penny higher each month, with July 2011 a full 3 cents above July 2009.

On an "Ethane-Plus" basis, ethylene could be assigned an implied spot market price of 23 cents for July 2011, based on an ethane price of 48 cents trading for July 2011 at the end of July 2009. This does not mean that ethane will be 48 cents in two years, or that ethylene will be 23 cents in two years, but that position can be locked in today and possibly realized in two years. The risks naturally increase the further out the position. For example, an ethylene deal for the first half of 2009 was done in August 2008 at "Ethane Plus" about 9 cents, which at that time equaled about 46 cents per pound, as ethane was priced at about \$1.10 per gallon. Someone was fortunate enough to be able to sell that price when the trade matured, while the markets actually traded between 20 cents and 30 cents during the first half of 2009 - and someone unfortunately had to pay that price as well.

Most "Ethane Plus" trades are far less risky, but nonetheless give a window into the world of implied pricing that contributes to transparency available to the supply chain that culminates in processed resins.

Resin processors have begun using trends in the ethane markets as a new discussion mechanism for their resin prices, as most resin producers are ethane consumers. Being able to price ethylene on a fixed ethane formula and a changing "adder" price adds a new dimension to the chain. New dimension to any market price typically add a layer of confusion and chaos to an evolving market. After a year of such trading, the implied ethylene price is gaining currency in the resin community, and promises to create efficiencies and options.

The resin markets have evolved from quarterly contract pricing to monthly contract pricing, and have in recent years begun utilizing the ethylene price to create more options for price formation. Understanding the role of ethane in the chain is a new milestone as the supply chain's pricing mechanisms evolve and will be crucial to the success of resin processors everywhere as the evolution continues.

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