

# EVA AND PVAc PRICE PRESSURE ESCALATION

Deteriorating conditions throughout the supply chain and supply constraints are driving large price increases in the ethylene vinyl acetate (EVA) copolymers and polyvinyl acetate (PVAc) used in hot melt packaging and liquid adhesives.

Low inventories, tightening feedstock supply and escalating feedstock prices are mixing toxically with production problems in the EVA market this spring. Supply problems at almost every node along the EVA supply chain have led to double-digit increases in feedstock costs. These have rapidly moved down the chain and are now impacting EVA suppliers. The problems begin with ethylene.

## Ethylene

In January, the coldest weather in 14 years shut down Gulf Coast ethylene crackers and hindered transportation. A number of ethylene producers initiated sales controls and allocations in response to the outages.

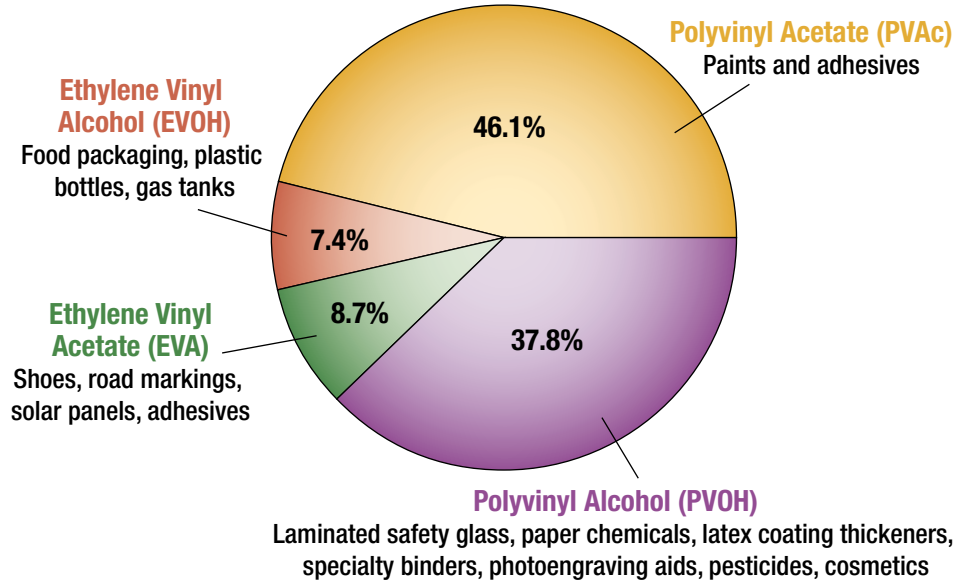
While production recovered from the weather-related disruptions, inventories were still low and another wave of unexpected outages and production problems affected ethylene as Q1 progressed. Three major producers declared *force majeure* on olefins production.

Now, *ChemicalWeek* reports that 13% of U.S. ethylene production capacity was offline in the first half of March. At least four more crackers are scheduled to shut down in April. CMAI expects the tightness to extend into June.

This is driving up costs. Contract ethylene prices have climbed 28% since the beginning of the year. Spot prices have almost doubled. Demand is picking up. And, even when all crackers resume normal operation, the supply

## INTERMATERIAL COMPETITION Global VAM Consumption (2008)

Sources: SRI, ICIS



The adhesives industry is not the only market competing for limited feedstocks. VAM consumes only 3% of U.S. ethylene production. EVA is a relatively small volume VAM derivative. The adhesives industry must pay premiums in order to compete for its share of EVA supply. The recent supply tightness will only intensify competition for the chemicals and drive prices higher.

of ethane (the lowest-cost feed for ethylene) will not be sufficient to meet demand, CMAI said. This should keep ethylene prices elevated in 2010 and put pressure on costs for all downstream derivatives.

In addition, the ethylene allocations and *force majeure*s are motivating buyers to purchase ethylene on the spot market to ensure supply for their customers, but the extra cost is being passed down the supply chain. ▶



### Vinyl acetate monomer (VAM)

Rising ethylene costs are certainly driving up the cost of VAM but supply issues are adding to the pressure. The supply of acetic acid, a feedstock for VAM, is tight. In January, LyondellBassell's La Porte, Texas plant had trouble restarting after a planned maintenance shutdown. The company declared *force majeure* on VAM production and set VAM allocations at 50%, according to Technon. This tightened the North American VAM market. LyondellBassell lifted the *force majeure* on February 23rd and increased the VAM allocation to 100% but the market is still recovering from the outage.

Suppliers responded to the rising feedstock costs and unexpected outage by increasing prices. With a new round of price increases implemented each month so far this year, contract prices are up over 13% in Q1. One major producer has announced an additional increase of almost 8% effective April 1st. ICIS reports that spot prices surged by 10% in the first week of March in response to ethylene costs.

This has affected the VAM-based derivatives used in the formulation of packaging hot melt and waterborne adhesives. PVAc, PVOH and VAE all rose by 5% in Q1 2010. Larger increases are forecast for Q2 2010.

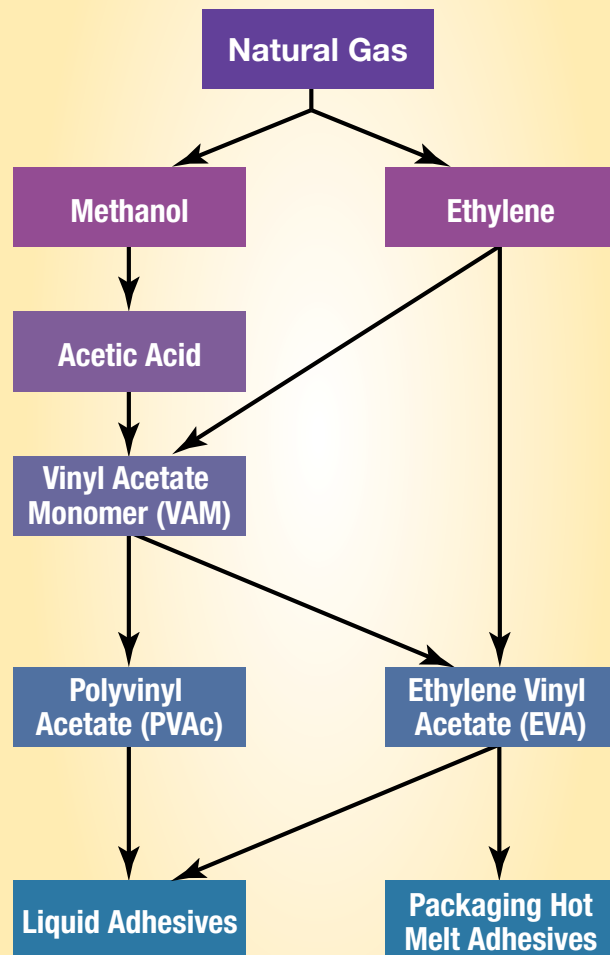
### Ethylene vinyl acetate (EVA) for hot melt adhesives

The current supply problems in the EVA market date back to a number of events in late 2008 and 2009. It all started with the October 2008 explosion at Celanese's AT Plastics plant in Edmonton, Canada. Production came to a halt; the company declared *force majeure* and the market became tight. By September 2009, other major North American producers were also on sales control. The unit eventually restarted in October 2009.

During this time, DuPont was sending a portion of its North American EVA production to China to prime the market for the start up of its new joint venture EVA plant with Sinopec in Beijing, according to a recent DeWitt report. The plant was supposed to be operational by the end of last year, but construction problems forced delays. Now, a slow ramp up to full production of high-VA content EVA means that this anticipated supply will not come online for another few months.

North American producers were counting on the return of DuPont's supply to the local market in early 2010. When that didn't materialize, the market became oversold. With demand resuming in China and the economy picking up here, there will be little relief for EVA buyers. And the supply situation could get worse when a major North American supplier shuts down for a five-week maintenance turnaround in Q2.

## Feedstock Supply and Adhesives Products



To add to the problem, some producers are shifting their focus to photovoltaic applications, which deliver higher margins than adhesives applications. With the solar market expected to quickly resume its 20-40% per year growth rate, it offers a much more lucrative market to suppliers of high-VA content EVA, which is used as an encapsulant for solar cells. If demand picks up, this could take supply away from the adhesives industry.

All of this is putting pressure on EVA prices. The escalation in feedstock costs along with the tight supply landscape led EVA producers to announce large double-digit price increases in March. This in turn is having an immediate impact and driving up the costs of the adhesives that use EVA. ■