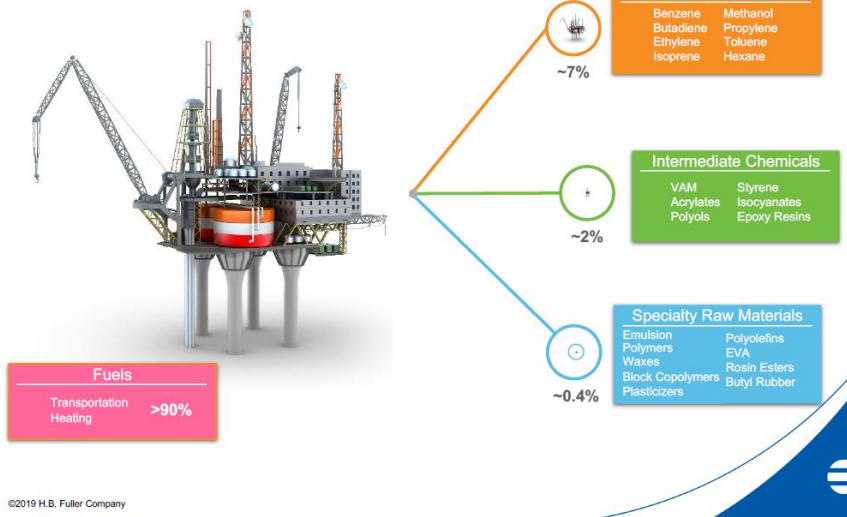


Update on the changing environment of PSA tape raw materials

From Crude Oil & Natural Gas to Specialty Chemicals



What would happen to the tape industry if the feedstocks which go into the production of the solvents, acrylic monomers and synthetic rubbers used to make adhesives became unavailable? Afera's Lisbon Conference Master of Ceremonies and Steering Committee Member Melanie Ott updated the Industry on the current status of raw materials globally, specifically various feedstocks, crude oil and economic outlook at Afera's annual event.

Feedstocks

A majority of raw materials for PSAs are based on crude oil and natural gas. The Industry finds the feedstocks it needs in the ~2% of crude oil used to manufacture basic and specialty chemicals. Naphtha and natural gas go into steam crackers which produce high carbon fractions such as ethylene (which makes vinyl acetate), propylene (> acrylic acid > acrylate esters, used to make water- and solvent-based acrylics), butadiene (> styrene block copolymers, which are synthetic rubbers) and C5-C9 (> tackifiers). Natural raw materials include natural rubber and rosin esters.

Supply: reduced volume of adhesive raw materials

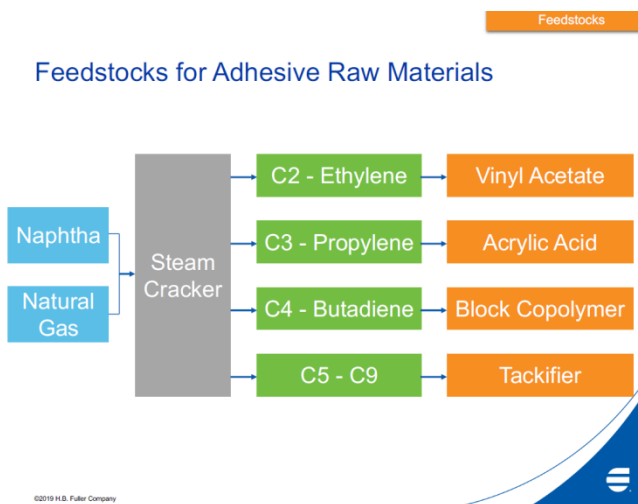
"For our business market, we are seeing a slightly reduced volume of adhesive raw materials," explained Ms. Ott, a chemical engineer and global business manager of tapes and labels at H.B. Fuller, which is an adhesives manufacturing company. "Although it is relevant to us, we are really irrelevant to crude oil output, because such a small portion of this goes into adhesive raw materials."

The input of steam crackers is changing, especially in the U.S. Ms. Ott sees a general move from naphtha into natural gas. So for a few years already, there has been a shift in cracker output from heavyweight to lightweight materials, such as ethylene, which is not highly relevant to manufacturers of adhesives for tapes. The result is less feedstock material available on the market.



Ms. Ott with fellow Master of Ceremonies and Afera strategist Bert van Loon at Afera's Athens Conference in 2018

Feedstocks for Adhesive Raw Materials



In terms of the future development of oil prices, Ms. Ott emphasised that no one has the ability to predict the trends. But what causes price fluctuations (i.e. affects supply and demand) and can be monitored? Trade wars, political conflict (such as that between the U.S. and Iran) and the state of affairs in the OPEC countries.

Demand: world economy is slowing

The tape market continues to grow faster than the world economy. And because the global growth rate is not seeing the gains that it has

in the past (this both in mature and emerging markets), demand is decreasing somewhat.

What affects raw material prices?

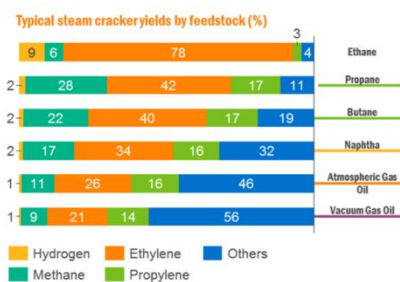
Crude oil prices have the strongest impact on raw material prices. This has been true for solvents and synthetic rubbers and, to some extent, acrylic monomers. Ms. Ott used data curves to demonstrate that the price of a hydrocarbon like toluene, for example, directly follows the naphtha price: "If you want a rough indication of prices for most of our raw materials, just follow the naphtha, which is publically available." Ethyl acetate, which is used in solvent-based acrylics, is currently affected by force majeure on both acetic acid and ethylene. Thus some solvents are facing price pressure.

Another effect is supply and demand demonstrated in acrylic prices, which are seeing a slight upwards trend. The shift from heavyweight to lightweight crackers means reduced availability of propylene, leading to slight price pressure. In general, however, Ms. Ott reported "the supply situation is pretty much balanced for all the feedstocks" and therefore "we are expecting relatively stable prices over the next few months."

In terms of packaging materials such as wood, steel, paper and plastics: Perhaps the shift from plastics to paper explains significantly increasing paper prices, while polyethylene prices have dropped.

Lastly, for some natural raw materials, weather conditions and harvest seasons, as demonstrated in the case of natural rubber, come into play.

Cracker Output Comparison by Feedstock



[Download the complete slide presentation of Melanie Ott \(Members only\)](#)