FEIBP 2018

I always read with interest what I attempted to predict 12 months previously and compare this with what actually happened.

Oil

Between the congresses in Edinburgh and Leipzig, oil started low, increased by 20% and by the end of the year was back to the same level it started at – around $45 per barrel. We were told then, it would take several years for the oil price to get back to where it meant that producing countries would make a profit.

So what actually happened? 50% increase in price in the last 12 months!

Basically OPEC realized that if they didn't want to run out of money or oil, they had better increase prices to be able to afford the investment they sorely needed to make to meet future demand from developing countries. They reduced capacity and the price has increased steadily since then.

Why is this important for plastics? It isn't really but many people think it is, and therefore a good way to explain why you might need to increase your prices.

PP & LDPE

PP and LDPE are the closest linked polymers to oil, although are driven mainly by supply and demand and the so called contract price for C3 (propylene) and C2 (ethylene).

Last year? Despite small monthly price changes up and down, we thought things should remain generally quiet.

What happened – we were right! Despite the big jump in the price of oil, there was enough supply for the worldwide demand and prices have hardly changed in 12 months.

Should things continue in this vain, we expect to see a pretty stable next 12 for these 2 polymers

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Polyester

Last year, PBT supply was short at times and we predicted potentially larger increases than the few cents most of us filament suppliers ended up absorbing.

What happened? No large increases, but further small ones, due to the rising cost of Butanediol. PBT is unlikely ever to return to the price levels of the past. PET used in the brush industry generally comes from bottle flakes. The hot summer most of Europe has enjoyed this year has kept demand for flakes high and prices firm.

The market for prime PET is currently rife with force majeure declarations, keeping supply tight and prices are therefore likely to increase. This will however take a while to filter through to the bottle flake market.

We would like to hope that we'll be reporting on a boring year for polyester all round 12 months from now.

PA 6

Prices increased substantially in the early part of 2017 mainly due to increases in caprolactam pricing. We predicted last year that prices should stabilize after increased capro capacity came on stream.

Thankfully, we were right. This year things have been pretty flat up until now, but it is likely that if demand remains as high as it is now, increases could be on the horizon.

Slide 7 – PA 66

In 2017 66 was already an issue for many of us, with increases of around 20% to deal with. Last year, we stated supply was tight and that further increases could not be ruled out. What happened? Well as you can see from the graph, a lot. And none of it positive

Within the first few days of January we were hit with a force majeure declaration on the production of HMD and AH salt, key components of Nylon 66 and the information that with immediate effect, material was no longer available. This sparked a scramble for any available product on the market and caused prices to rocket. Things calmed down for a month or two and the Force Majeure was withdrawn, only for it to come back on again in May with further price increases.

We have recently received information from a reliable source, that another hefty increase is just around the corner, leading us to believe that PA 66 could well die out as a brush filament sometime soon.

PA 610 + 612

2017 saw large increases in the price of PA 610, due to a shortage of sebacic acid. 612 was relatively stable, and we predicted this would remain Ok.

Last December during a meeting with a raw material supplier for both these polymers, we were told that filament extrusion companies pay the lowest ie (worst) prices for these polymers and that we should count ourselves lucky that we could purchase material at such low prices at all. Injection moulders making parts for electric cars will pay up to 40% more for the material than we do.

Despite Perlon's relatively large usage for toothbrush and abrasive filament production, we were unable to resist against increases in each quarter of the year so far, and another one expected before the end of the year.

The simple fact here is, if you don't pay the market prices quoted for this material, you just won't get any supply.

Slide 9 - Outlook

Dealing with global players really makes it difficult to predict how markets will develop. One thing we would urge people to stop doing – offering fixed pricing for 12 months. This is simply not realistic and will only make things difficult should prices change throughout the year.

PERLON®
The Filament Company

Thermoplastic Polymers Market Report
60th FEIBP Congress
Bordeaux
26th-28th September 2018

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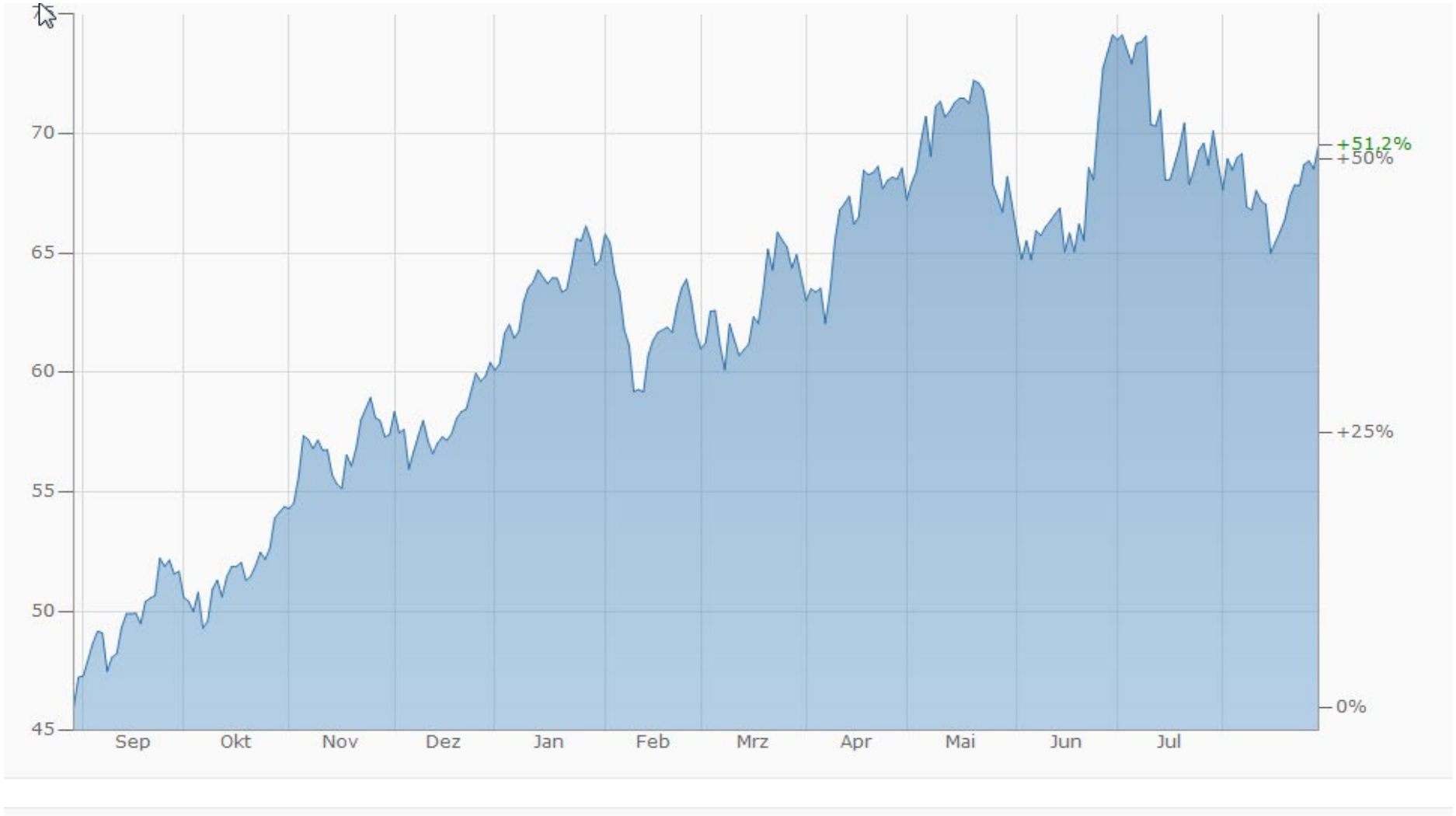
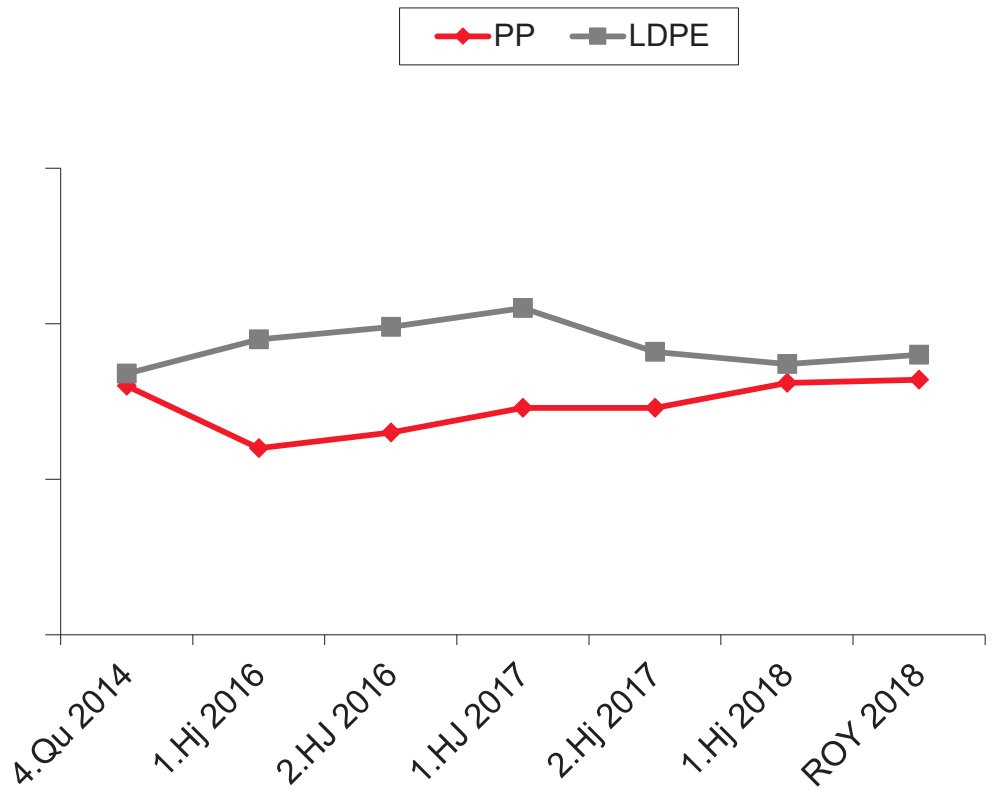
Development of polymer prices

Oil Price Development



- 50% increase in past 12 months
- Production capped to drive prices up
- Affects Polyolefines only

Raw Material Price Development: PP and LDPE



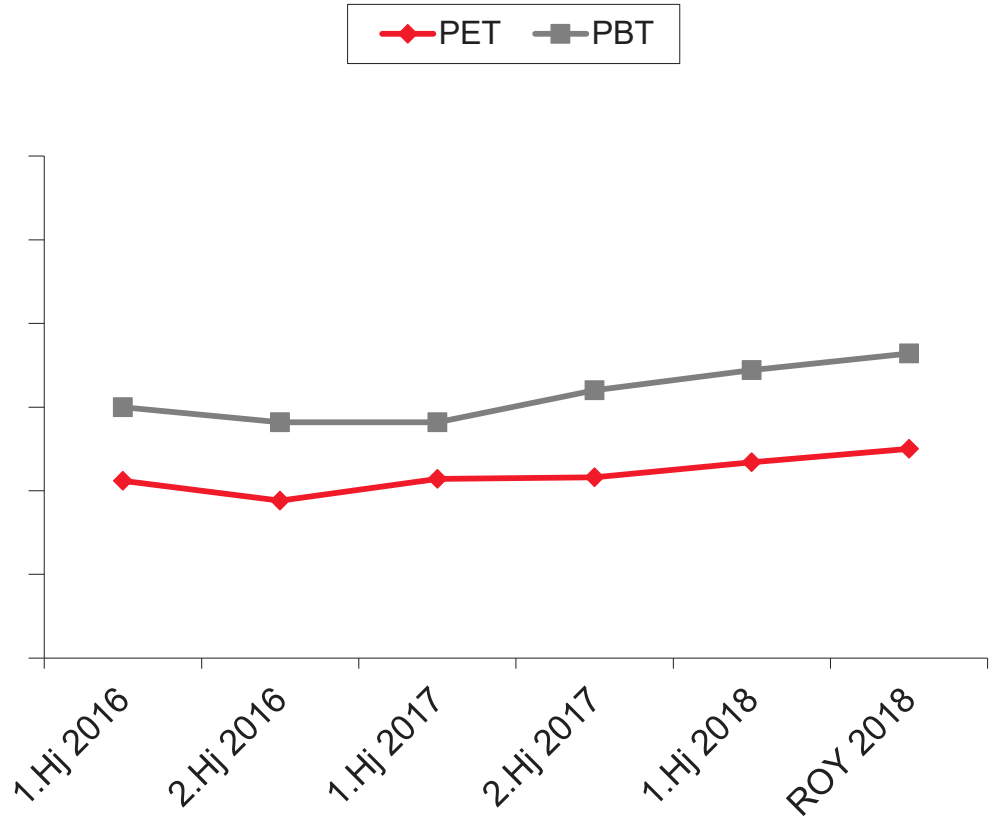
- Base Materials: PP – Propylene
  LDPE - Ethylene

- PP – C3 production cost saving passed onto manufacturers

- PE – good availability and lack of demand could lead to prices softening

- No significant changes expected

Development Raw Material Prices: PET and PBT



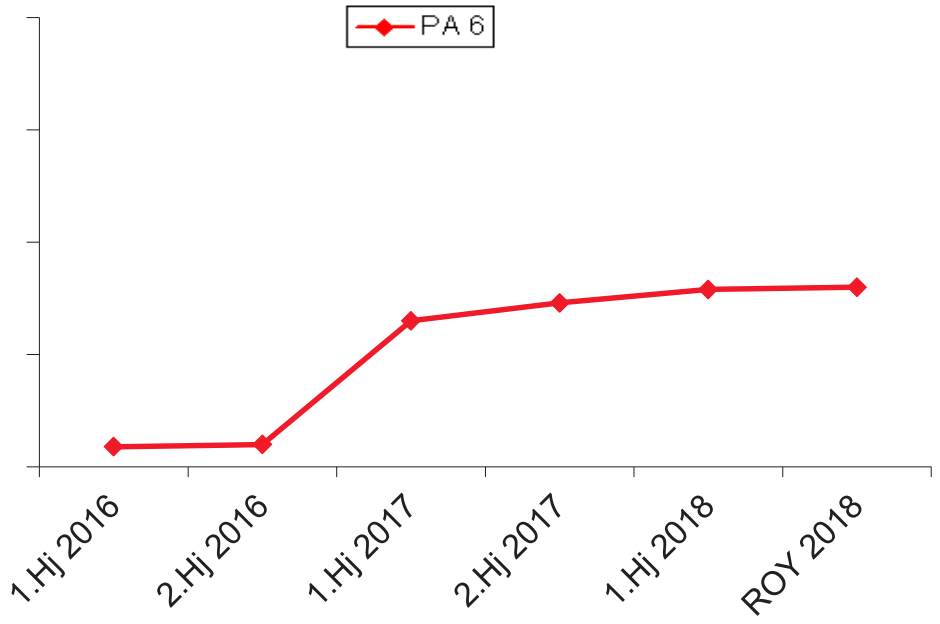
- PBT:

Base raw material costs, especially Butanediol, rising
Availability is limited with long supplier lead times
Food grades remain in higher price bracket

- PET:

Prices currently firm
Good weather increases demand for PET bottles and keeps pricing high
Prime PET market remains tight

Raw Material Price Development: PA 6



PA 6

- Base Materials:

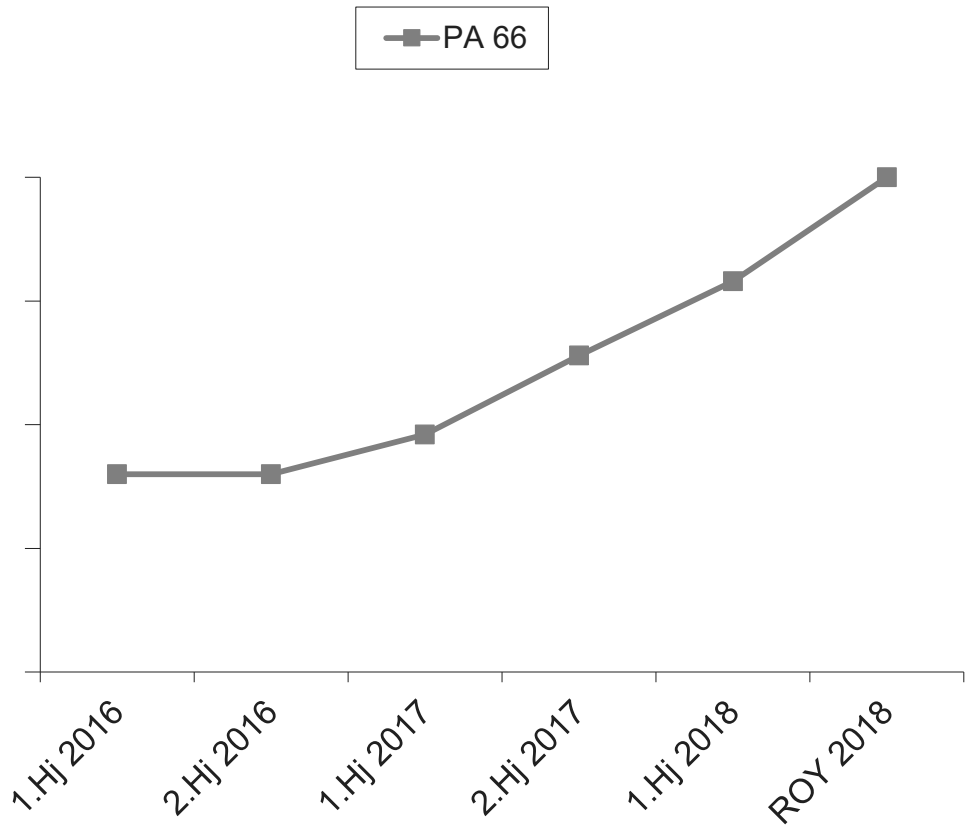
  PA 6 = Caprolactam, Benzene

- Continued increase in production of caprolactam in China

- Caprolactam prices remain at a very high level

- Polymer prices stable this year so far

Raw Material Price Development: PA 66



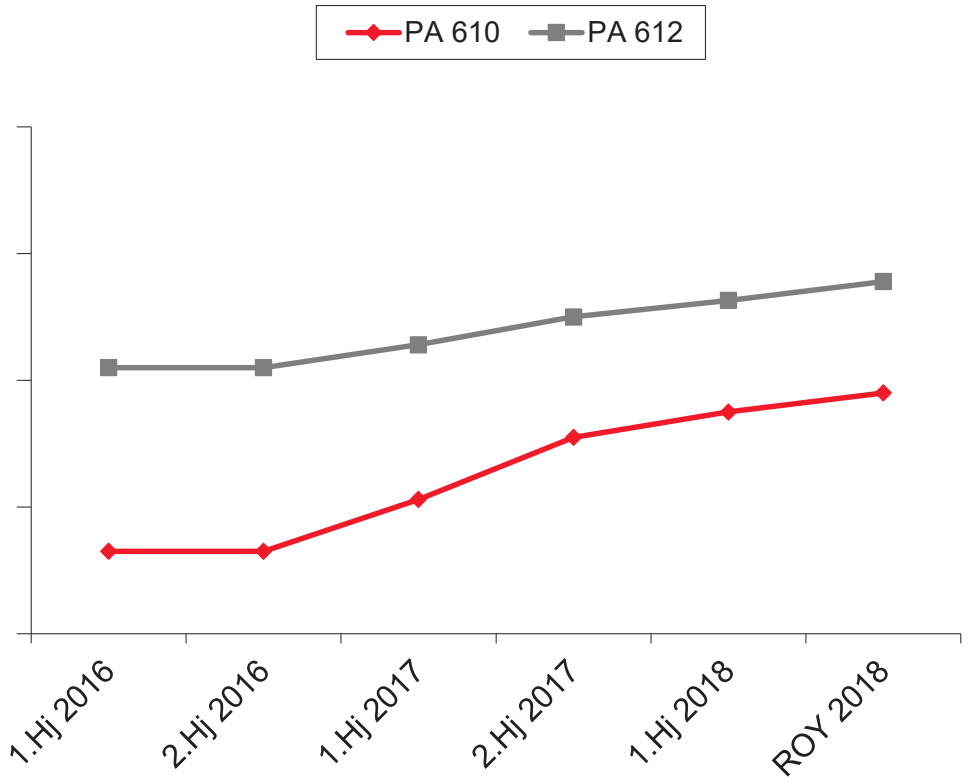
PA 66

Base Materials:

PA 66 = 50 % Adipic Acid, 50 % HMD

- Severe worldwide shortage of base materials = poor availability
- Strong demand for PA 66 polymer from automotive and electronics industries
- Further increases inevitable

Raw Material Price Development: PA 610 and PA 612



Base materials:

PA610: Sebacic Acid
HMD
PA612: Butadiene
HMD

- Worldwide shortage of PA12
- Limited availablity of material and high demand for injection moulding applications
- Supplier‘s market
- Further increases expected

- 610 development mirrors 612

Outlook