



coperion

Latest Developments in Polyolefin

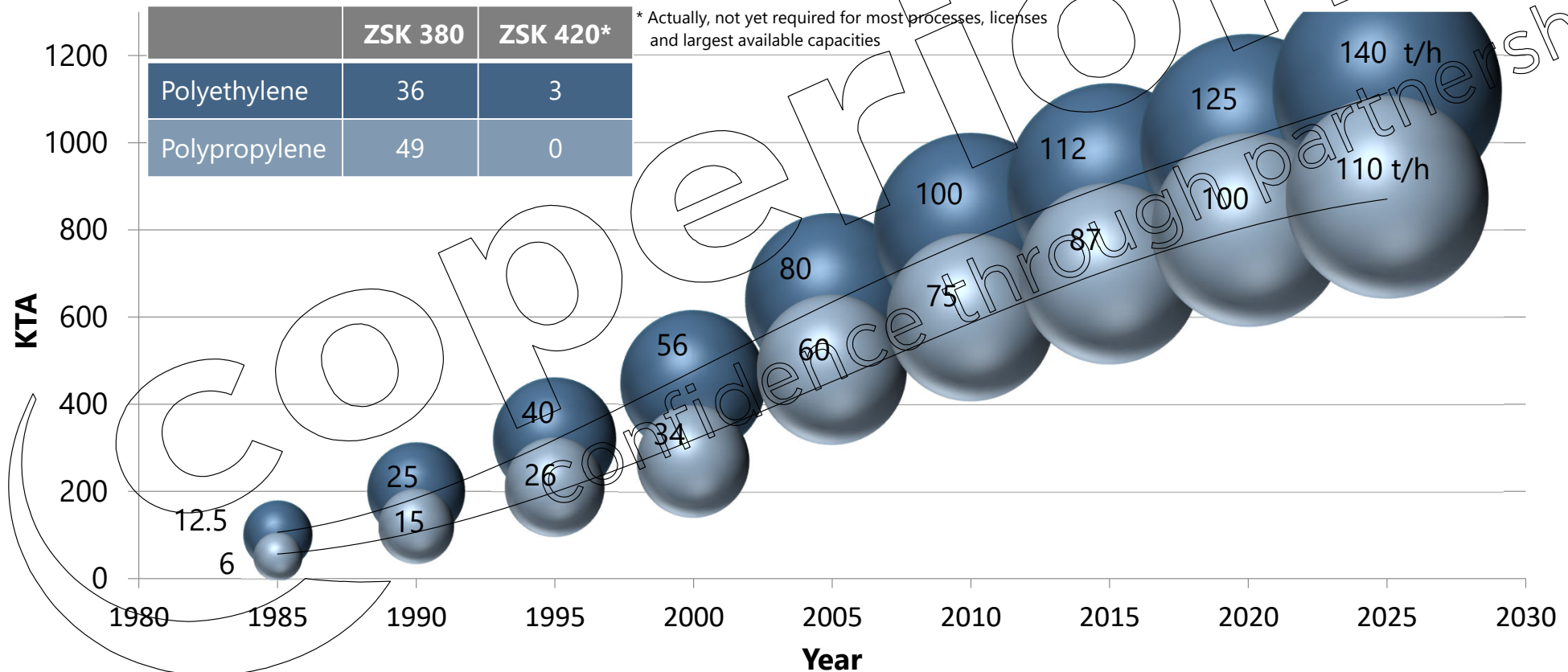
Overview

Clark Son (Jihyung Son) / Deputy General Manager

Capacity growth in Polyolefin plants



The trend is going up [Enduser에서 요구되는 Plant Capacity가 우상향하고, 주로 Coperion의 ZSK 380으로 Cover되고 있음.]



Product demands steadily increasing

Bimodal HDPE

- Demands for > 100 t/h
- Energy efficient processes and lower operating costs (에너지 효율성 / Low OPEX)
- No pellet fines generation
- Coloring of pipegrades (driven by infrastructure developments)

HDPE / LLDPE

- Demands for 100 t/h - 150 t/h
- Energy efficient processes and lower operating costs (에너지 효율성 / Low OPEX)
- No pellet fines generation

PP

- Demands for 100 t/h - 120 t/h
- Energy efficient processes and lower operating costs (에너지 효율성 / Low OPEX)
- No pellets fines generations
- High peroxide ppm's requirement challenge homogenization in extruder and pelletizer performance (높은 peroxide 함유율에도 높은 균질화 요구)
- Request for devolatilization and deodorizing (잔류 성분 제거 요구)

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Key components for mega capacity plants



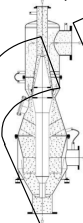
Ready for 1000 kta and more

[Coperion에서는 Mega Capacity Plant (120tph)를 위해 Extruder를 포함한 주요 Components에 대해 기술 개발 및 생산]

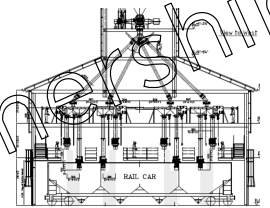
High Pressure **Powder**
Rotary Valve ZXQ
Capacity >140tph



Pellet Cleaner / Elutriator UGS
Capacity >150tph



Railcar Loading Facility
Capacity >400tph



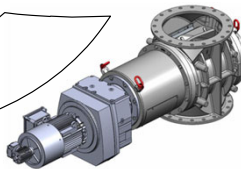
Additives

ZSK- Extruder System
Capacity up to 150 t/h
Av. torque: 481,000 Nm

Blending

Elutriation

Process / Chopping Rotary
Valves
Capacity > 125 tph
Torque up to 14000 Nm



High Pressure **Pellet**
Rotary Valve ZVH
Capacity >170tph



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Compounding & Extrusion in Polyolefins

October 24, 2024 4

Extruder Layout



[L Line이 아닌 Straight Line으로 효과적인 Plot 활용이 가능]

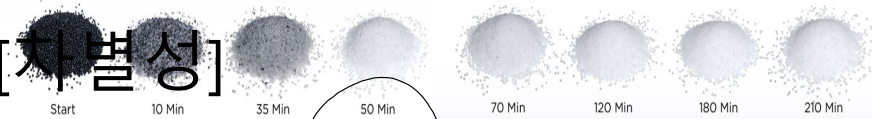
ZSK 380 Mc

ZSK 70 Mc18



COPERION`s differentiators on the market [차별성]

COPERION could provide unique advantages for the customers



Coperion Lean Concepts:

- Holistic optimizations downstream the reactor
[Reactor 후단의 전반적인 효율화]
- Saving potentials in space, building, equipment, CAPEX/OPEX,

Energy Savings:

- e.g. pressure reduced discharge @ Diehead housing / Screen Pack ...
- Optimited screw profiles by improvement
- Also as retrofit

Color Change:

- Colored pipe grades on one line „due to self cleaning“
- „With process guarantee“
- No waste, all prime-product

Quality / Reliability:

- Increase of overhaul cycles through tech. features
→ 98% onstream (proven data)
- Monitoring systems
- Emergency spares stock

Highest capacities:

- actually: 1000 kta for PE, 750 kta for PP
- Equipment for even high capacities available
- „Economy of scale“

Unique technical features:

- e.g. non-destructive clutch (Gear Box Protection / EKW)
- on-line filter screen (Consequential Operation)
- Superpositioning gearboxes,



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very much for
your attention.

You're very welcome to follow us.

