Agenda

- Short Introduction of Presenters
- Neste Oil in Brief
- Neste Jacobs in a Nutshell
- Neste Oil Naantali Refinery
- The Dehexanizer Unit APC Solution
- Why OPC UA, Benefits
- Q&A

Neste Oil in Brief

- A refining and marketing company focused on premium-quality traffic fuels
- Refining capacity: 15 million t/a of petroleum products and 2 million t/a of renewable diesel
- Net sales: €17.5 billion (2013)
- Operations in 15 countries; employs approx. 5,000 people
- Listed on the Helsinki Stock Exchange
- Largest owner: the Finnish State (50.1%)
Neste Oil Worldwide

Neste Jacobs in a Nutshell

Technology, Engineering and Project Services Company
- Personnel more than 1000
- Offices in Porvoo, Turku, Naantali, Kotka, Gothenburg and Abu Dhabi
- Local Site Offices: Singapore, Rotterdam and Nynäshamn
- Owners: Neste Oil 60% and Jacobs Engineering Group 40%

Business Areas
- Hydrocarbon Industries (Oil & Gas, Petrochemicals)
- Emerging Industries (Biorefining, Biopharma, Chemicals and Utilities)

Competence Centers
- Technology & Process
- Project Management & Engineering
Neste Oil Naantali Refinery

Oil Refining at Naantali Refinery

1. Crude Oil Distillation 1 and 2
   - Crude Oil
   - Other Feed

2. Gasoline Sulfur Removal
3. Jet Fuel Processing
4. Solvent Sulfur Removal
5. Gas Oil Sulfur Removal
6. Hydration
7. Vacuum Distillation
8. H2S Feed
9. Sulfur Plant
10. Solvent Distillation
11. Solvent Aromatic Removal
12. TCC Unit
13. Gas Collection
14. Thermal Cracking
15. Gasoline Reforming
16. TCC-Gasoline Sulfur Removal
17. Propylene Butane
18. Light Solvents
19. Special Gasoline
20. Industrial and Engine Gasoline
21. Jet Fuel
22. Heavy Solvents
23. Diesel and Light Fuel Oil
24. Heavy Fuel Oil Bitumen
25. Sulfur
DEHEXANIZER UNIT
APC APPLICATION

Dehexanizer Process Unit

- The purpose of Dehexanizer process unit is to remove hexanes in distillate in such a way that the columns bottom product has the desired amount of hexanes.

- Optimization of the process unit is done by maximizing the amount of valuable bottom product - motor gasoline - against aromatics specification and minimizing the amount of distillate.

- Feed: 40 tonnes / hour

- Estimated benefit is X k€ / year
Advanced Process Control – What Does it Do?

- Benefit of APC (e.g., decreased recovery costs, increased production)
- The true product specification (MAX)
- Control target

ADC not in use
APC decreases variation
The control target can be shifted towards the actual product specification

Neste Oil Naantali Plant Wide Advanced Process Control System

- NAPCON® Advanced Process Control System
  - Multivariable, predictive control software including dynamic real time optimizer
  - 24/365 real time process control
  - Demand of high reliability and robustness
  - Update frequency 5 sec (database, calculations), 30...60 sec (controls)

DMZ
APC’s
OPC UA Server & Database
OPC UA Client (UA Gateway)
DCS OPC Server

DCS ESD
Process
Control Room
Web APC User Interface
Why OPC UA? What is the Catch for Us?

- OPC UA plays a significant role in our future installations
- OPC UA gives us the means and possibilities to create SECURE and SCALABLE solutions
- We can make solutions that are tailor-made based on the needs of our business, but still based on a SOLID and STANDARDISED foundation
- Furthermore, the solutions are incorporated in our existing infrastructure
- And finally, the expected life cycle for this APC solution is anything from 15 to 20 years

Questions & Contacts

Questions, anyone?
Please, come and discuss at the booth!

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