

Making our world more productive



CAPE-OPEN 2022 ANNUAL MEETING

Workflow improvements applying CAPE-OPEN Amine wash units in process design with UniSim Design at Linde Engineering

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Pullach, 21 September 2022



Agenda



- Process Simulation:
 - Status prior Cape Open
 - Status using Cape Open
- Process Simulation – Example using Cape Open
- Features we are targeting for
- Your Questions

Process Simulation - Status prior Cape Open

Case Unit Operation



Linde GMPS
Property Data

Holistic Plant
Simulation

Process Data
Transfer File

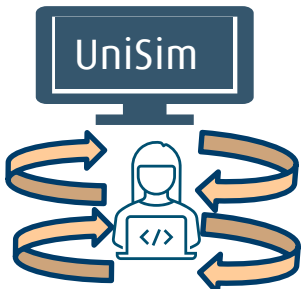
Databases

- Equipment Design
- Piping Design
- Plant Safety
- Plant Control & Instrumentation

Different simulation
environment required

Manual transfer
of input data with iterations

Time consuming,
quality issues,
different property data



Amine

Stand-Alone
Simulation

e.g. BASF OASE® Connect, ProTreat®

Process Simulation

Linde
Engineering
Databases

Engineering

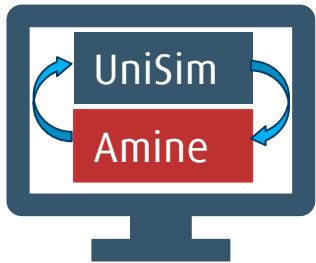
Process Simulation – Status using Cape Open

Case Unit Operation



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Process Data
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- Equipment Design
- Piping Design
- Plant Safety
- Plant Control & Instrumentation

“All in one” simulation
for integrated process design

Quality improvement

Resource saving

Cape Open integrated
Amine Wash Unit

e.g. BASF OASE® Connect, ProTreat®

Process Simulation

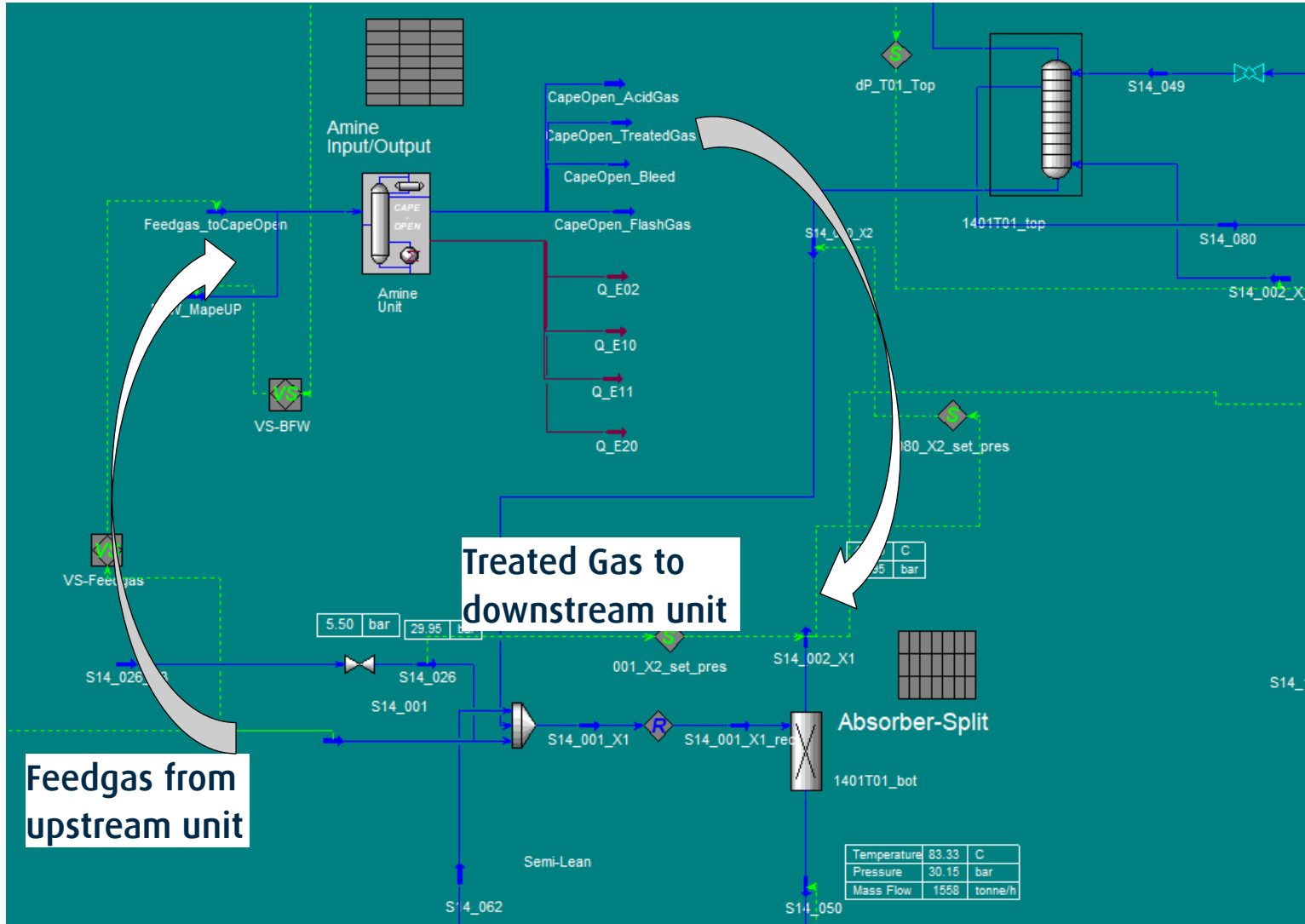
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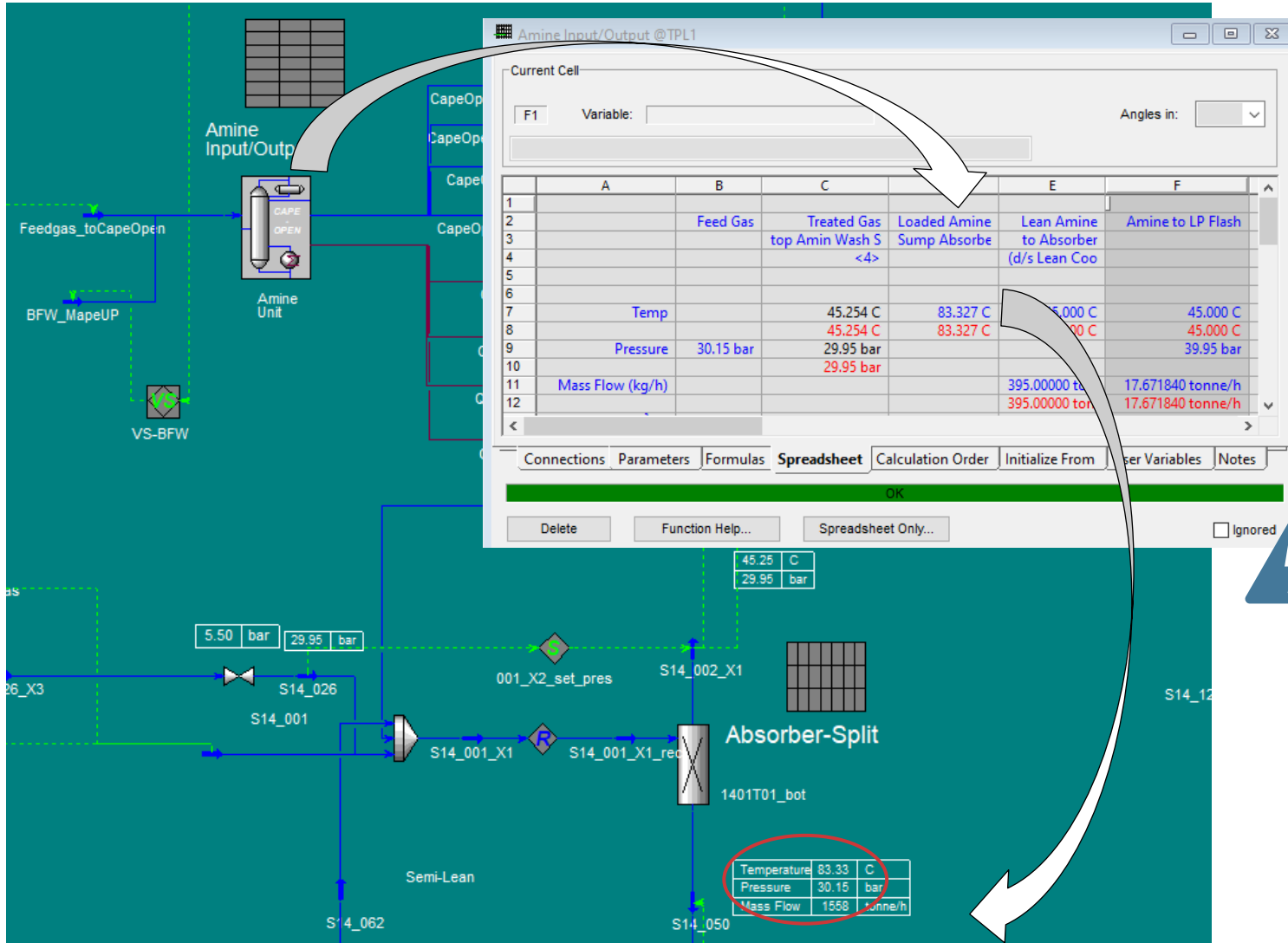
Happy User

Process Simulation - Example using Cape Open: Using Input and Output Ports



- Design of amine wash unit is done inside the amine wash unit application
- Using Input and Output Ports of Cape Open:
 1. Solving the Amine Cape Open Unit with input parameters from UniSim:
e.g. Feedgas to amine unit
 2. Simulation result from Cape Open Unit is transferred to UniSim
e.g. Treated Gas

Process Simulation - Example using Cape Open: Using variables via spreadsheet



Using variables for accessing simulation results from Cape Open Application

1. Importing simulation results from Cape Open Application into UniSim spreadsheet

2. Exporting to UniSim Streams

Process stream data not consistent due to different property package

Features we are targeting for



- Making (more) internal process variables accessible:
all variables from stand-alone applications shall be available via Cape Open-Units
- Quicker response time when accessing Cape Open variables via UniSim spreadsheets
- Improvement regarding handling of integrated simulation files
- Equalisation of thermodynamic properties (Cape Open Thermo Package) to prevent inconsistent process stream data (e.g. duties / temperatures of heat exchangers)



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Your Questions...





Thank you for your attention

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