Changes with *OGT Suite* Version 8.0

ProTreat® & SulphurPro®

Release date: Oct 2022

1. **Thermal Oxidizer** and **Stack**
    a. Two new SulphurPro blocks to model sulphur plant incineration
    b. Rigorous kinetics model for the destruction of reduced sulphur species, carbon monoxide, hydrogen and ammonia
    c. Rigorously model both natural draft and forced draft flowsheet configurations
    d. Calculate pressure drop through the vessels
    e. Stack hydraulic calculations with an insufficient stack draft warning.
    f. Component-wise emissions reporting in Stack

2. **Sulphur Storage Block**
    a. New SulphurPro block to model sulphur storage and degassing
    b. Rigorous kinetics for H_2S degassing from liquid sulphur
    c. Calculate H_2S evolution with a specified sweep gas inlet
    d. Optional sparge gas inlet for modeling degassing
    e. Options for calculating Catalytic degassing include Morpholine, Ammonium Sulfite, Aromatic Amine, and Urea
    f. Account for oxidation of evolved H_2S to SO_2 in the headspace
    g. Represent various configurations such as in-pit degasser, sulphur pit, above ground sulphur storage tank, etc.

3. **CAPE-OPEN Property Package**
    a. ProTreat® is now a CAPE-OPEN compliant property package plug
    b. Create property packages from ProTreat with desired compounds and thermodynamic method
    c. Use within any CAPE-OPEN compliant thermodynamic socket

4. **Hybrid Solvents Properties Update**
    a. Incorporated several new data sets for physical and transport properties for hybrid solvent mixtures of sulfolane and amines
    b. Better agreement with plant data

5. **DIPA Heat Capacity Refit** – Refit of DIPA heat capacity to give better agreement with field data

Changes With *ProTreat*® Version 7.0

Release date: May 2022

1. **New Physical Solvent – Sulfolane**

2. **New Thermodynamic Package – Hybrid Solvents**
    a. Rigorously model mixtures of amines and physical solvents
    b. Accurate VLE, physical properties and mass transfer characteristics for **blends of water, amines and sulfolane**

3. **Major COS Model Update**
    a. Accurately predict the chemical absorption of COS in columns
    b. Rigorous reaction chemistry and kinetics model

4. **DIPA Model Update**
    a. Complete refit of DIPA VLE and physical properties
    b. Incorporated latest published data
    c. Improved mercaptans predictions

5. **New DOW Solvents**
    a. UCARSOL™ HS-101
    b. UCARSOL™ HS-102
    c. UCARSOL™ HS-115
    d. UCARSOL™ AP-802
    e. UCARSOL™ LE-713
    f. UCARSOL™ LE-777
    g. UCARSOL™ LE-801

6. **New Hydrogenation Reactor Block**
    a. **First-Gen Cobalt-Molybdenum Catalyst**
    b. Rigorous reaction kinetic model
    c. Hydrothermal ageing model
    d. Catalyst poisoning model
    e. Layer catalyst and inert sections in the same bed
    f. Calculate pressure drop across the catalyst bed
    g. Advanced vessel rating and sizing options

7. **Sulphur Converter Improvements**
    a. New kinetic model for **Titania Catalyst**
    b. Completely reworked interface
    c. Layer Alumina and Titania catalyst along with inert support layers in the same bed
    d. Calculate pressure drop across the catalyst bed
    e. Advanced vessel rating and sizing options

8. **Burner Block Improvements**
    a. Advanced reaction control of H2S thermal splitting and partial oxidation to model **Acid Gas Fired Reheaters**
    b. Effluent temperature spec
    c. Solver variables implemented

9. **New Sulphur Conversion and Recovery Tables**
    a. Flexible calculation and display of Sulphur conversion and/or recovery on the Flowsheet
    b. User ability to create and customize any number of calculation 'stages'

10. **Callouts Improvements**
    a. Create and manage templates from new or existing callouts
    b. Change default callout configuration
    c. Add callouts by right-clicking on flowsheet streams

11. **Duplicator Block Reference Stream feature** – Seamless duplication of any flowsheet stream including internal streams

12. **Reworked Convergence Dashboard**
    a. Completely reworked flowsheet convergence dashboard to easily monitor and troubleshoot convergence
    b. Minimize, close, dock or float for convenience

13. **Docking/Floating capabilities** for the Flowsheet Window, Stream Table and Convergence Dashboard

14. **Graphics Update** – High resolution for flowsheet drawings and other windows

15. **Usability Improvements**
    a. Cntrl+Scroll to zoom flowsheet
    b. Hold Space key to multi-insert a selected palette block
    c. Drag to reorder components in the components manager
    d. Drag to reorder streams in the stream table
    e. File Auto-backup/Recovery system
    f. Unit manager changes in the PTR mode gets transferred to the PTD mode

16. Significant convergence speed improvement

Changes With *ProTreat*® Version 6.6

Release date: May 2021

1. **Improved Piperazine-CO_2 kinetics**
    a. Re-assessment of Piperazine-CO_2 reaction kinetics leads to faster predicted CO_2 pick up in mass transfer rate limited columns
2. **Data Call Outs for Streams**
    a. Fully customizable to display any value in any units
    b. This block can be added and specified in either the PTD (input file) or PTR (results file). If specified in the PTR, that information is carried back to the PTD.
    c. Callouts appear in flow sheet exports and Custom Excel Reports
    d. Values are automatically updated with each run
    e. Can be placed anywhere on the flowsheet or minimized to save space
3. **Two new flowsheet blocks**
    a. **Reheater** – Heat transfer rate-based block for sulfur plant simulation
        i. Includes sizing, rating, and simple energy balance modes
        ii. Rigorous heat transfer and pressure drop calculations
        iii. Auto-generated utility streams
    b. **Burner** – Simulates combustion operations
        i. Auto-generated air and tempering steam streams
        ii. Emission factors for estimating emissions
4. **Calculated Pressure Drop** feature available for most blocks
    a. Pressure drop through blocks responds to changes in flow rate and density
    b. **Import From Results** button makes data entry easier: First run the block with its design pressure drop, then on subsequent runs the pressure drop will scale up or down from that fixed point.
5. Improvements to **Column block**
    a. **Liquid inventory** reported including trays, packing, and (optional) sump
    b. **Downcomer backup** reported for trays if downcomer clearance is provided
    c. More variables available to plot
    d. Methods can be chosen for hydraulics and mass transfer in packed sections. Mass transfer methods include equilibrium stage.
    e. Improved convergence stability
    f. New **CO_2 Kinetics Adjustment Factor for Reactive Amine**
6. **Automatically renumber all streams** with a new command in the Edit menu
7. **New driverless HASP keys** available
8. Other improvements
    a. New flowsheet components: C_5 – C_8 alkenes
    b. Several **new units** added to Unit Manager
    c. Several minor improvements to flowsheet drawing and stream auto-routing
    d. Case Study can now manipulate amine concentration in Control Block
    e. Gibbs Reactor includes fugacity effects at high pressure and more accurate flame temperatures
    f. Updated VLE for butyl mercaptan in MDEA
    g. Improved model for ICE3137 solvent

h. New stream warning for salts of ammonia and CO_2 precipitating from aqueous liquids
i. Minor bug fix for Sulfur Converter block related to catalyst loading spec