CAPE-OPEN Update in PRO/II v9.4 & v9.3

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CAPE-OPEN Update in PRO/II v9.4 & v9.3

Agenda

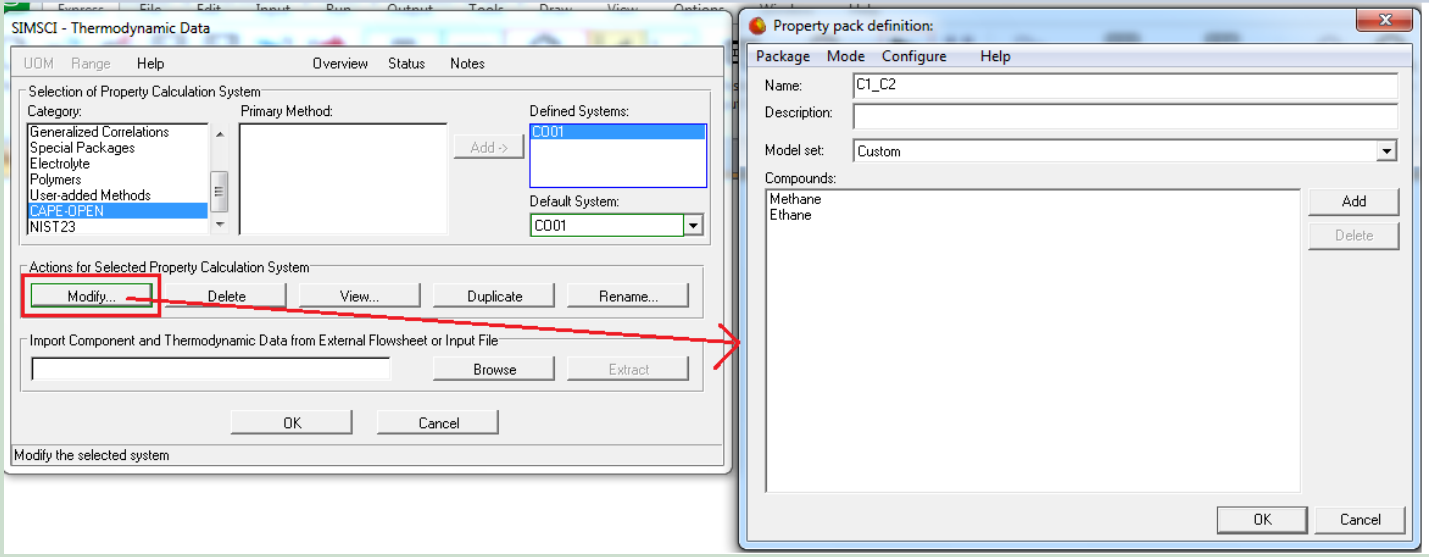
- **CAPE-OPEN Update in PRO/II v9.4**
  - Property Package Persistence Support in PRO/II (covered in last year CAPE-OPEN annual meeting at Mörfelden).
  - Edit Property Package from within PRO/II.
  - Add Property Package compounds as Non-Library compounds in PRO/II and take pure compound properties from Property Package.
  - Demo of new CAPE-OPEN features in PRO/II v9.4.

- **CAPE-OPEN Update in PRO/II v9.3**
  - Improvements in v9.3.

CAPE-OPEN Update in PRO/II v9.4

Edit CAPE-OPEN Thermo Property Package from within PRO/II

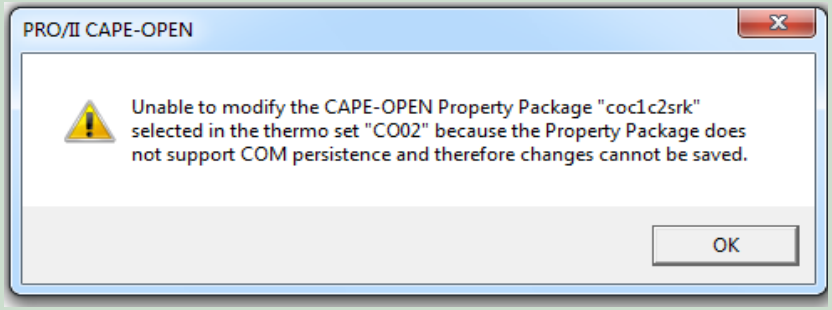
- Till PRO/II v9.3, user could not modify (i.e edit) the PP from within PRO/II and hence user can't add or delete compounds or modify compound properties or change thermodynamic method etc., in PP.



CAPE-OPEN Update in PRO/II v9.4

Edit CAPE-OPEN Thermo Property Package from within PRO/II

- From PRO/II v9.4 onwards, user can edit the PP provided, if PP
  - Supports COM persistence
  - Supports Edit() and ICapeUtilities Interface
- The modifications made in the PP during edit are saved in the .DAT file which is zipped in to prz. So, the modifications made in the PP are applicable only to that specific prz.
- Message box will pop up, if edit is not possible. For example:



CAPE-OPEN Update in PRO/II v9.4

Add PP Compounds as Non-Library Compounds in PRO/II and take pure compound properties from PP

- Requirements:
  - CAPE-OPEN Thermo socket implementation in PRO/II is not handling CAPE-OPEN Property package compounds that have no CAS number.
  - Compound properties are taken from the PRO/II databank and not from the CAPE-OPEN Property package. Compound properties (eg. MW, criticals etc) are taken from the Pro-II databank and not from the CO PP. All the available properties for the components should be obtained using the GetComponentConstant method.

CAPE-OPEN Update in PRO/II v9.4

- **Implementation:**

  - Add all the compounds defined in PP as Non-library compounds (i.e. User added compounds), irrespective of whether the compounds consist CAS number or not.

  - Only the fixed (constant) compound properties are taken from the PP and fill it to the Non-library compounds that were added by the PP.

  - The temperature dependent compound properties (such as vapor pressure, thermal conductivity, viscosity, Ideal Gas Enthalpy, Surface Tension etc.) and pressure dependent compound properties are not filled-in for the Non-library compounds that were added by the PP.

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CAPE-OPEN Update in PRO/II v9.4

- **Implementation:**
  - User is not allowed to edit the fixed (constant) compound properties in PRO/II (Fixed Properties DEW) as this will cause mismatch between PP and PRO/II. If user is allowed to edit, the CAPE-OPEN specification don't allow setting the compound properties in PP and hence mismatch.
  - PP should provide all the required compound properties. If any required compound properties are missing, an error should be returned by either PRO/II or PP
  - When user deletes PP in PRO/II, all the Non-library compounds from PRO/II component slate that are associated with that PP are deleted. However, if the compound is a library compound, it will not be deleted. Also, if the same compound is available in another PP, it will not be deleted.

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CAPE-OPEN Update in PRO/II v9.4

- **Implementation:**

  - The naming convention for the Non-library compounds to be added in PRO/II should use the same name as it is available in the PP. For example: methane compound in PP should be added as User added compound with name as methane in PRO/II.

  - PRO/II allows a maximum length of 16 characters for compound name for Non-library compounds. If PP compound name is having more than 16 characters, then a Non-library compound is created with first 16 characters.

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CAPE-OPEN Update in PRO/II v9.4

- **Implementation:**
  - If PRO/II component slate already consists the same compound (either library compound added by the user or non-library compound added by the earlier added PP), then
    - adding the PP will not add the same compound again. It will make use of the existing compound.
    - The compound properties are picked from SIMSCI or PROCESS databanks if it is a library compound and a message is popped up.
    - If the compound was added by the earlier PP, the compound properties were picked from the PP which is added later.

  (contd...)

CAPE-OPEN Update in PRO/II v9.4

- **Implementation:**
  - When user click on “Modify” push button to open the PP GUI {provided if PP supports persistence and Edit() method}
    - The fixed compound properties are read again from the PP on committing the Thermo DEW in PRO/II. This is because user may or may not modified the compound properties (ex: change Molecular weight) or add/delete the compounds or add/delete/modify the property calculations.
    - Fixed compound properties are not updated for the library compounds.

CAPE-OPEN Update in PRO/II v9.4

Demo of new CAPE-OPEN features in PRO/II v9.4

CAPE-OPEN Update in PRO/II v9.3

- **Improvements in PRO/II v9.3 (Petroleum Fractions Interface)**
  - Add support for AsphaltenesC7, CarbonContent, NitrogenBasic, ParaffinNormal, Wax, FRMax and PeptizingPower.
  - CompletePetroProperties()
    - Call SetPetroCompoundProp() first and then call SetPetroBulkProp()
    - Update PRO/II stream composition, if molecular weights were updated and the composition was set on mass basis by the CAPE-OPEN Unit.
  - SetPetroBulkProp()
    - Issue when stream having light ends contribution.
    - GetPetroBulkProp() is reporting value as “Missing” after SetPetroBulkProp()

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Q &A