Interoperability demonstrations
CAPE-OPEN European Annual Conference
CO-LaN Annual General Meeting – Lyon 2012

Microsoft® Excel

MATLAB®

Microsoft® Excel Add-In

Simulis® Thermodynamics

Toolbox MATLAB

Plug CAPE-OPEN

A.P.I. (C++, VB...)

« Client » applications

Thermodynamic expert

Property Packages
(Multiflash, PPDS...)

"Socket" CAPE-OPEN

"Socket" RefProp

RefProp

Specific library

..."know-how"

P.M.E. CAPE-OPEN
(Aspen Plus, Hysys, ProII...)

..."know-how"

Calculation kernel

« Client » applications

ProSimPlus, ProPhy Plus...
« Thermodynamic socket »

Demo

Simulis Thermodynamics
Client Application

COCO TEA
Server Application

CAPE-OPEN Property Package
Creation of a P.P using TEA
Selection of the TEA P.P. (version 1.0 or 1.1) using Simulis Thermodynamics
Calculation with TEA P.P. using Simulis Thermodynamics features within Microsoft Excel

<table>
<thead>
<tr>
<th>Ethanol</th>
<th>Water</th>
<th>Tb (TEA)</th>
<th>Tr (TEA)</th>
<th>Tr (Simulis)</th>
<th>Tb (Simulis)</th>
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<td>78.2570317</td>
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« Thermodynamic plug »

Demos

Simulis Thermodynamics
Server Application

CAPE-OPEN Property Package

COCO COFE
Client Application
Demonstration 1

Thermodynamics

Simulis®

Expert Mode

VBScript

DLL

Specific library

CAPE-OPEN

Socket

CAPE-OPEN

RefProp

A.P.I.

Microsoft Excel Add-In

Toolbox

MATLAB

Plug CAPE-OPEN

COCO COFE

ProSim
Creation of a Simulis Thermodynamics P.P. (compliant 1.1 and 1.0) based on native models
Selection of this Simulis Thermodynamics P.P. within COCO COFE
Use of this Simulis Thermodynamics P.P. for calculating properties of a stream within COCO COFE

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<tr>
<th>name</th>
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<td>Pa</td>
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<tr>
<td>temperature</td>
<td>355</td>
<td>K</td>
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<td></td>
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<tr>
<td>mole fraction [ETHANOL]</td>
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<td>molar phase fraction [Liquid]</td>
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<td>vapor composition</td>
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<td>entropy</td>
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Demonstration 2

Simulis®
Thermodynamics

COCO COFE

Plug
CAPE-OPEN

A.P.I.
(C++, VB...)

Toolbox
MATLAB

Microsoft
Excel
Add-In

Expert Mode
VBScript
DLL)

"Socket"
CAPE-OPEN

"Socket"
RefProp

RefProp

Specific
library
Creation of a Simulis Thermodynamics P.P. (complaint 1.1 and 1.0) based on REFPROP models
Selection of this Simulis Thermodynamics P.P. within COCO COFE
Use of this Simulis Thermodynamics P.P. for calculating properties of a stream within COCO COFE
Demo

« Unit socket »

COCO COUSCOUS
Server Application

CAPE-OPEN Unit Operation

ProSimPlus
Client Application
Selection of a CAPE-OPEN flash belonging to the COUSCOUS library within ProSimPlus
Use of this CAPE-OPEN flash within ProSimPlus
Thank you...