



CAPE-OPEN related advances at Aspen Technology

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5th CAPE-OPEN European Conference

- Current State
- Recent advances
 - Aspen Plus
 - Aspen HYSYS
- Future outlook

Current State – Ideal

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reactions | Pet. Frac |
|---------------------|------------|------------|----------|-----------|-----------|
| 1.0 Thermo | Green | | | | |
| 1.1 Thermo | | Green | | | |
| Unit Operations | Green | Green | Green | | |
| Reactions | Green | Green | Green | Green | |
| Petroleum Fractions | Yellow | Yellow | Yellow | | |

Consumer of CO interfaces

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reactions | Pet. Frac |
|---------------------|------------|------------|----------|-----------|-----------|
| 1.0 Thermo | Green | | Green | Green | Grey |
| 1.1 Thermo | | Green | Green | Green | Grey |
| Unit Operations | | Green | Green | Green | Grey |
| Reactions | | | Green | Green | Grey |
| Petroleum Fractions | | | | | Grey |

Provider of CO interfaces

Legend: Green – Yes, Red – No, Yellow – not quite there yet

Current State – Aspen HYSYS 2006.5

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reacts | Pet. Frac |
|---------------------|------------|------------|----------|--------|-----------|
| 1.0 Thermo | Green | | | | |
| 1.1 Thermo | | Yellow | | | |
| Unit Operations | Green | Red | Green | | |
| Reactions | Red | Red | Red | Red | |
| Petroleum Fractions | Yellow | Yellow | | | |

Consumer of CO interfaces

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reacts | Pet. Frac |
|---------------------|------------|------------|----------|--------|-----------|
| 1.0 Thermo | Green | | Red | Red | Grey |
| 1.1 Thermo | | Green | Red | Red | Grey |
| Unit Operations | | | Red | Red | Grey |
| Reactions | | | | Red | Grey |
| Petroleum Fractions | | | | | Grey |

Provider of CO interfaces

Legend: Green – Yes, Red – No, Yellow – not quite there yet

Current State – Aspen Plus

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reacts | Pet. Frac |
|---------------------|------------|------------|----------|--------|-----------|
| 1.0 Thermo | Green | | | | |
| 1.1 Thermo | | Red | | | |
| Unit Operations | Yellow | Red | Green | | |
| Reactions | Red | Red | Red | Red | |
| Petroleum Fractions | Yellow | Yellow | Yellow | | |

Consumer of CO interfaces

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reacts | Pet. Frac |
|---------------------|------------|------------|----------|--------|-----------|
| 1.0 Thermo | Green | | Red | Red | Grey |
| 1.1 Thermo | | Red | Red | Red | Grey |
| Unit Operations | | Red | Red | Red | Grey |
| Reactions | | | Red | Red | Grey |
| Petroleum Fractions | | | | | Grey |

Provider of CO interfaces

Legend: Green – Yes, Red – No, Yellow – not quite there yet

Recent Advances

- Aspen Plus V7.0

- Duplicate Method Issues Addressed for 1.0 MaterialObject Interface
- Issues related to usage of Unit Operations and 1.0 Thermo Interfaces together have been addressed

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reactions | Pet. Frac |
|---------------------|------------|------------|----------|-----------|-----------|
| 1.0 Thermo | Green | | | | |
| 1.1 Thermo | | Red | | | |
| Unit Operations | Green | Red | Green | | |
| Reactions | Red | Red | Red | Red | |
| Petroleum Fractions | Yellow | Yellow | Yellow | Yellow | |

From yellow to green

Recent Advances

- Aspen HYSYS V7.0
 - Robustness of 1.1 Thermo Interface
 - Extend the ability of the CO unit operation socket in HYSYS with 1.1 Thermo Interface

| | 1.0 Thermo | 1.1 Thermo | Unit Ops | Reacts | Pet. Frac |
|---------------------|------------|------------|----------|--------|-----------|
| 1.0 Thermo | Green | | | | |
| 1.1 Thermo | | Green | | | |
| Unit Operations | Green | Green | | | |
| Reactions | Red | Red | Red | | |
| Petroleum Fractions | Yellow | Yellow | | | |

Experiences with 1.1 Thermo

- Ensure that the CopyMaterial Object is appropriately implemented
- Ensure that the SetMaterial Object is appropriately called

- Extend the space
 - 1.1 interfaces to thermo and unit operations in Aspen Plus
 - Robustness of the thermo and unit operation interfaces
 - Move forward in terms of providing our examples in VB.NET/C#