

# RESERVOIR SIMULATION SUITE

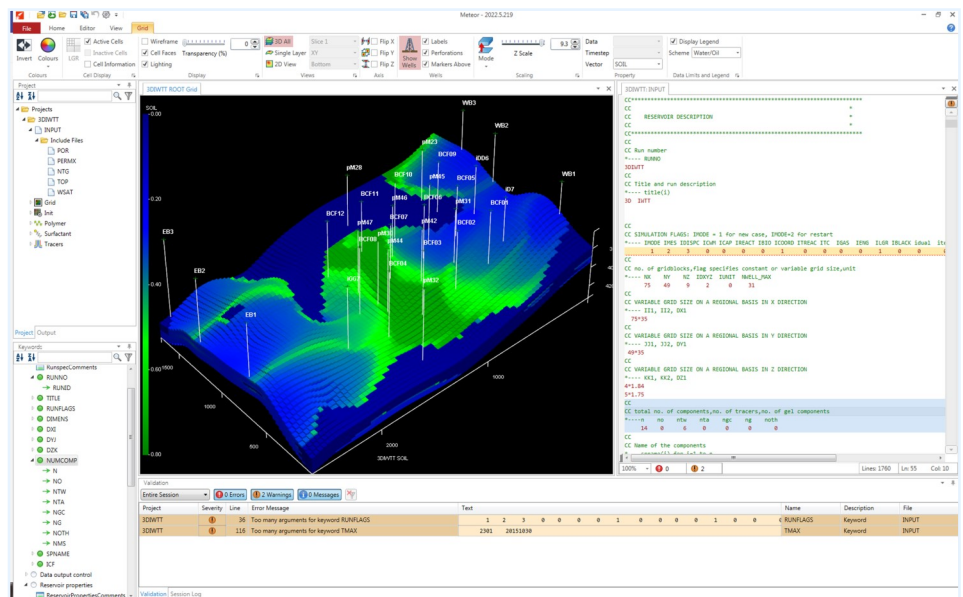
## Meteor

### The Reservoir Simulator for Chemical EOR

**Meteor** is a powerful reservoir simulator for Chemical EOR. It supports all of the main CEOR processes, including polymer, surfactant, ASP, tracers and geochemical reactions. Meteor uses detailed chemical and physical modelling of complex CEOR processes and can represent three liquid phases, allowing Type III microemulsion to be modelled. Simulation of the chemical processes has been optimised, in terms of performance and memory, allowing multi-million cell models to be handled, so that Meteor can be used for corefloods, pilot studies and field-scale applications. The simulator input and output formats are fully UTCHEM compatible, making it straightforward to transition from UTCHEM to Meteor.

## KEY FEATURES

- Supports polymer, surfactant, ASP, tracers
- Includes geochemical reactions
- Three liquid phases (including Type III microemulsion)
- Fully UTCHEM compatible
- Efficient simulation engine (*Meteor Engine*):
  - ◆ Optimised for speed and memory use
  - ◆ Provides detailed user feedback
  - ◆ Can simulate multi-million cell models
- Advanced user interface (*Meteor Desktop*)
  - ◆ Input file parsing, validation and editing
  - ◆ Input data validation and error checking
  - ◆ Keyword intelligence and syntax highlighting
  - ◆ Simple views of chemical EOR properties
  - ◆ 3D visualisation of grid geometry and properties
  - ◆ Launching and monitoring of multiple runs
- *Meteor Desktop* can be used with UTCHEM



#### *Meteor Desktop*

- **Dedicated commercial chemical EOR simulator**
- **Supports polymer, surfactant, ASP, tracers and geochemical reactions**
- **Detailed chemical and physical modelling of CEOR processes**
- **Models three liquid phases (including Type III microemulsion)**
- **Highly optimised simulation engine (*Meteor Engine*)**
- **Simulates corefloods, pilot studies and the full field (multi-million cells)**
- **Fully UTCHEM compatible**
- **The *Meteor Desktop* user interface allows loading, viewing, validating, editing and launching CEOR simulation models in both the *Meteor Engine* and UTCHEM**



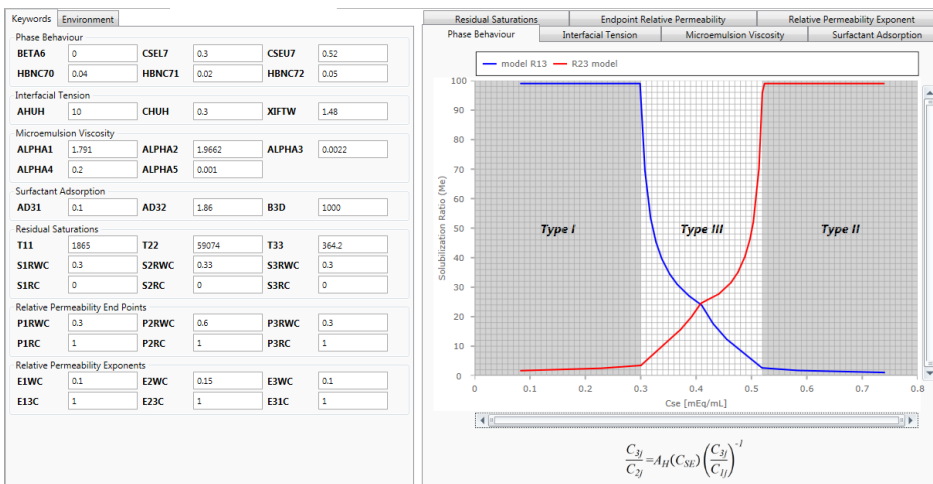
## Benefits

- Accurate chemical and physical modelling
- Handles three liquid phases
- Input model validation saves time and increases productivity
- Advanced error checking and runtime feedback
- Scalable solution: handles multi-million cell simulation models, so Meteor can be used for coreflood models and the full field
- Complete end-to-end CEOR solution with other Sciencesoft CEOR applications, including S3chembuild, S3quickbuild, S3control, S3optima and S3GRAF
- Easy transition from UTCHEM
- Meteor Engine and Meteor Desktop can be licensed separately, allowing flexible simulator licence usage
- Affordable and easy to use

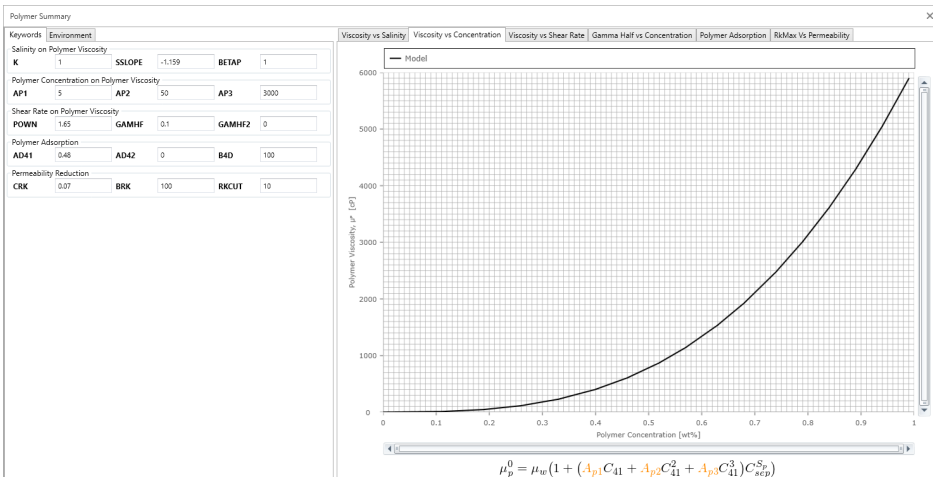
## Concept Views

- Polymer
- Surfactant
- ASP
- Tracers

**Meteor** comprises two components: the *Meteor Engine*, which is a highly efficient, UTCHEM-compatible simulation engine, and *Meteor Desktop*, an easy-to-use interface that validates the simulation input data, provides views of the grid geometry and CEOR properties, and allows editing of the input, and launching and monitoring of runs. *Meteor Desktop* and the *Meteor Engine* can be licensed separately, allowing *Meteor Desktop* to be used with UTCHEM, and for efficient licence usage.



Surfactant phase behaviour view



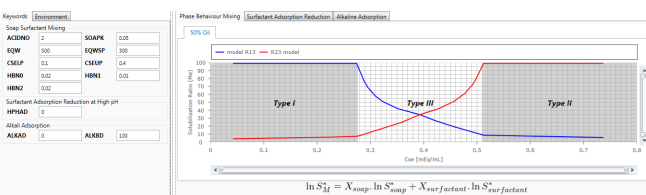
Polymer concentration view

| Water Tracers |                           |                         |                       |                          |                      |              |                                     |          |                   |
|---------------|---------------------------|-------------------------|-----------------------|--------------------------|----------------------|--------------|-------------------------------------|----------|-------------------|
| Name          | TIC Partition coefficient | TIC Salinity dependence | RDC Decay coefficient | RET Adsorption parameter | TMW Molecular weight | T2D% Density | Reactant?                           | Type     | TAC Reaction rate |
| 1 W1T1        | 0.2                       | 0.5                     | 0                     | 1.5                      | 0                    | 0            |                                     | Simple   | 0                 |
| 2 W1T2        | 0.44                      | 0.65                    | 3                     | 3                        | 76                   | 2.1          | <input checked="" type="checkbox"/> | Reactive | 0.5               |
| 3 W1T3        | 3                         | 2                       | 1                     | 1                        | 54                   | 2.2          |                                     | Product  | 0                 |

| Gas Tracers |                           |                         |                       |                          |
|-------------|---------------------------|-------------------------|-----------------------|--------------------------|
| Name        | TIC Partition coefficient | TIC Salinity dependence | RDC Decay coefficient | RET Adsorption parameter |
| 1 G1T1      |                           | 12.10                   | 0.00                  | 0.22                     |
| 2 G1T2      |                           | 3.00                    | 0.00                  | 0.13                     |
| 3 G1T3      |                           | 3.00                    | 0.00                  | 0.67                     |

Tracer view



ASP view



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