BARRACUDA VIRTUAL REACTOR®

ENGINEERING SOFTWARE FOR INDUSTRIAL GASIFIERS
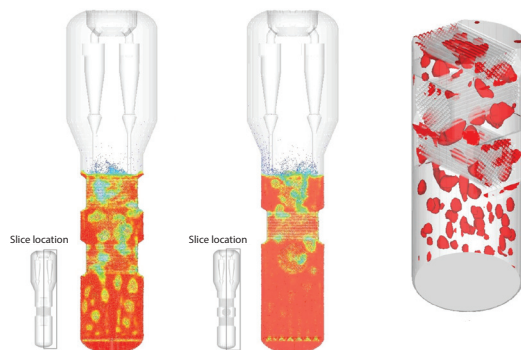
MODEL MULTIPLE STYLES OF GASIFIERS: COAL - BIOMASS - MULTI-FUEL:
Fluidized-Bed   •   Transport   •   Entrained-Flow

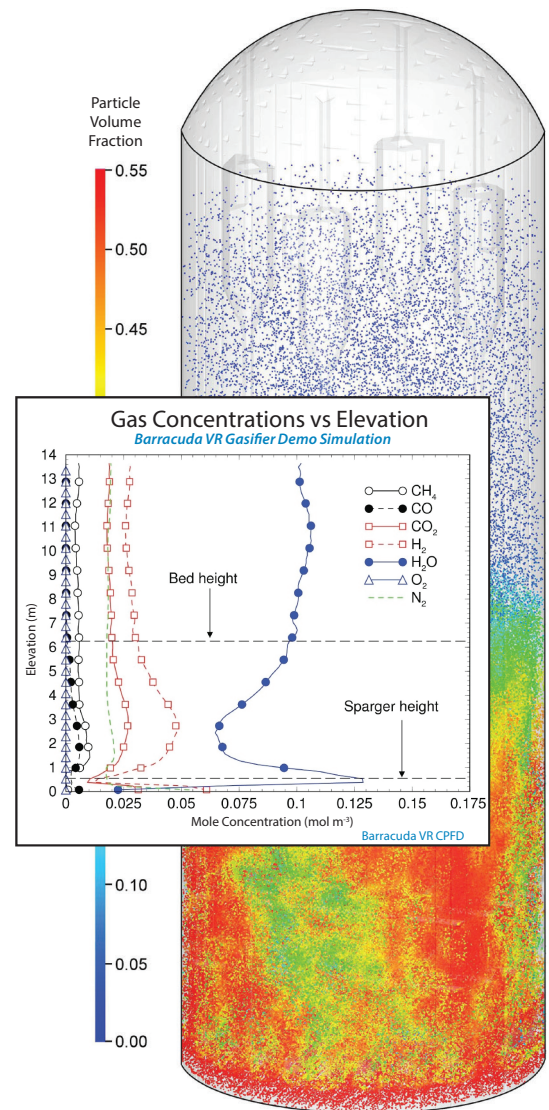### Model how your Gasifier will operate

- Fluidization characteristics
- Thermal profiles (hot/cold spots, axial/radial profiles)
- Chemical reactions (outlet composition, local/global)
- Particle size changes (shrinking or swelling)
- Syngas composition and yield

Optimize Gasifier design and operation, reduce the risk of problems and increase reliability

- Scale-up to a commercial size operating unit
- Ensure proper mixing of gases and particles
- Design spargers, feeds, heaters, cyclones, diplegs
- Minimize 'fines' blowover and particle segregation
- Reduce erosion / extend lifecycle
- Maximize conversion and reduce emissions

Particle Volume Fraction
- 0.55
- 0.50
- 0.45
- 0.10
- 0.05
- 0.00

Gas Concentrations vs Elevation
Barracuda VR Gasifier Demo Simulation

- CH$_4$
- CO
- CO$_2$
- H$_2$
- H$_2$O
- O$_2$
- N$_2$

Bed height

Sparger height

Elevation (m)

Mole Concentration (mol m^{-3})

Barracuda VR CPFD

Commercial Biomass (black liquor) Gasifier

Slice location   Slice location

Fluidized-Bed Coal Gasifier