

Wednesday Gasifier Process Sheet

- Thermal calculations are enabled, initial temperatures of particles and gas in bed set to 1300 K
- Chemical reactions are included
- Initial bed mass is 4800 kg
- Initially filled with N₂ at 200 kPa

| Boundary | Fluid Flow | Particle Flow |
|---|---|---|
| Fluidizing Air | Mass flow rate = 0.691 kg/s Temperature = 700 K Gas (mass fractions): 0.77 N ₂ , 0.23 O ₂ | None |
| Steam Sparger through 204 injection nozzles | Mass flow rate = 0.296 kg/s Velocity = 10 m/s Temperature = 900 K Gas: pure H ₂ O | None |
| Fresh Coal Feed | Mass flow rate = 5 g/s Velocity = 5 m/s Temperature = 500 K Gas (mass fractions): 0.77 N ₂ , 0.23 O ₂ | Fresh coal at 1 kg/s |
| Cyclone Diplegs | Velocity = 0.5 m/s Temperature = 1300 K Gas: pure N ₂ | Cyclone dipleg particles with flow rate set to match elutriation into each cyclone. |

