



Powered by NAFTPack (NP) Engine, our exclusive computational Thermo-Kinetic engine, the software includes a pre-configured package for ethane cracking – specifically designed for ethylene furnaces – and performs high-fidelity calculations along the entire coil length, including:

- Reaction rates along coil length
- Coke formation profiles
- Component conversion and yields
- Byproduct prediction (methane, butadiene, etc.)

Technical Highlights

3D Furnace Visualization

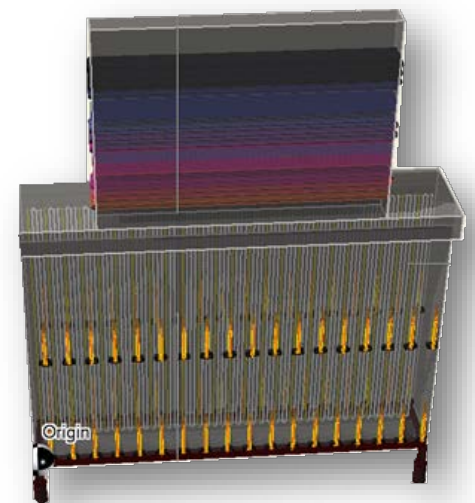
- Interactive coil temperature profiles
- Real-time coke deposition mapping

Seamless Integration




- Import from Aspen HYSYS, Petro-SIM
- Standard outputs (XLSX, CSV, PDF, HTML)

Feedstock Versatility

- Methane/ethane/propane and other light components
- Naphtha feed (under development)

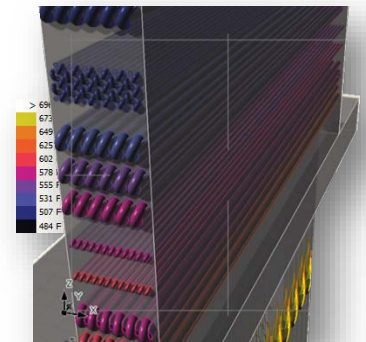


Target Users

-  **Olefin Plant Operators:** Debottlenecking, feed flexibility analysis
-  **Furnace Designers:** Coil geometry optimization
-  **Process Engineers:** Process Optimization, Emission reduction studies

Case Study

FURNACE TYPE	Box w. CS
TUBE ORIENTATION	Vertical
TUBE LOCATION	Central (Double Fired)
BURNER TYPE & NO	LNB, 72 (Multi Level)
FUEL TYPE	Fuel Gas (NG & Prod. Gas)
NO OF TUBE BANKS	6
NO OF FURNACE PROCESS FLUIDS	3
DRAFT TYPE	Induced



<i>Result</i>	<i>Design</i>	<i>Simulation</i>
Heat Released [Gcal/h]	59.02	59.1
Furnace Duty [Gcal/h]	54.9	54.8
Firebox Duty [Gcal/h]	26.6	26.3
Convection Duty [Gcal/h]	28.31	28.5
Overall Efficiency [%]	92.5	92.8
Box Efficiency [%]	45.07	44.6
Ethane Conversion [%]	67	66.5
COT [°C]	847	849
COP [bara]	1.82	1.8
Average Heat Flux [Mcal/h.m2]	55.56	55.42
Bridgwall Temperature [°C]	1169	1168
Crossover Temperature [°C]	679	672.3
Max Skin Temp. [°C]	1009	1011
Flue Gas Quantity [kg/h]	88385	88289
MW of Effluent (wet) [g/mol]	18.37	18.44
Ethane in Effluent [wt.%]	25.01	25.2
Ethylene in Effluent [wt.%]	40.53	39.3

