

Petrochemical - Cracking furnace

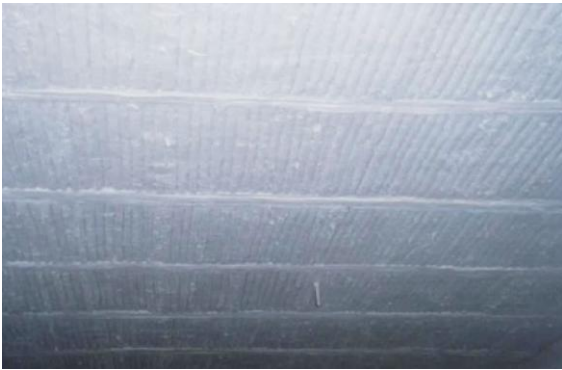


A cracking furnace is one of the key equipment in large-scale ethylene production units. It operates by using gaseous hydrocarbons (such as ethane, propane, and butane) and liquid hydrocarbons (such as light oil, diesel, and reduced-pressure diesel) as feedstock. These hydrocarbons undergo thermal cracking

at high temperatures between 750°C and 900°C,

producing various petrochemical raw materials, including ethylene, propylene, butadiene, acetylene, and aromatic hydrocarbons.

There are two main types of cracking furnaces: light diesel oil cracking furnaces and ethane cracking furnaces. The furnace design is typically a vertical box-type heating furnace, consisting of two main sections: the upper section is the convection section, and the lower section is the radiation section. The radiation section contains vertical furnace tubes where the hydrocarbon feedstock is heated and undergoes the cracking reaction. The furnace temperature can reach around 1260°C, with oil and gas



burners located on both sidewalls and the bottom of the furnace.

Given the high furnace temperature and the weak reducing atmosphere inside the cracking furnace, refractory lining materials are crucial for its performance. Based on our many years of design and construction experience, and considering the large number of burners typically distributed at the bottom and sidewalls of the furnace, the lining material choice for the cracking furnace includes lightweight bricks for the 4-meter-high furnace wall, while the rest of the furnace uses components containing zirconia fibers as the refractory lining material on the hot face. This includes the use of CCEWOOL® RCF Blanket HPS, CCEWOOL® RCF Blanket LZ, and CCEWOOL® RCF Blanket 2600.

