



Petrochemical & Refining High-Temperature Insulation Solutions

Advanced Thermal Management for Ethylene Cracking,
Hydrogen Reforming, Fired Heaters & Process Piping

ENERGY EFFICIENCY

FURNACE LINING

HEAT CONTAINMENT

PROCESS RELIABILITY

ENGINEERING HIGH-TEMPERATURE SOLUTIONS FOR THE GLOBAL PETROCHEMICAL INDUSTRY

Superior Thermal Management for Petrochemical & Refining Applications

The petrochemical and refining industry operates under extreme temperatures, continuous production demands, and intense pressure to reduce energy costs and emissions. From ethylene cracking furnaces to steam methane reformers, API 560 fired heaters, and complex pipeline networks, every thermal process demands insulation engineered for reliability, efficiency, and long service life.

CCEWOOL® & CCEFIRE® bring over 20 years of global expertise in high-temperature insulation to the petrochemical sector. Our integrated product portfolio delivers systematic furnace lining, piping insulation, and complex node sealing solutions for every critical thermal zone.

20+

YEARS
GLOBAL
EXPERIENCE

40+

COUNTRIES
SERVED

1600°C

MAX
TEMPERATURE
GRADE

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The Petrochemical & Refining Industry Challenge

High Temperatures. Continuous Operation. Relentless Energy Demand.

The petrochemical and refining industry is a cornerstone of global energy and materials supply, encompassing ethylene cracking, hydrogen production, hydroprocessing, catalytic reforming, crude distillation, sulfur recovery, and complex high-temperature piping systems. Equipment operates continuously under extreme heat, thermal cycling, flue gas erosion, and chemically aggressive atmospheres — placing stringent demands on furnace lining integrity, sealing structures, piping insulation, and operational stability.



Critical Thermal Equipment in Petrochemical Plants

Tubular fired heaters are the core thermal equipment in refining and petrochemical plants. Their thermal efficiency depends not only on the combustion system, but also on furnace lining structure, heat loss control, and critical node sealing. Key equipment categories include:

Ethylene Cracking Furnaces

Highest-temperature furnaces in the petrochemical industry, operating above 1,100°C with ultra-short residence times for optimal ethylene yield.

Steam Methane Reformers

Core hydrogen production equipment operating under high heat load, continuous production, and stringent tube temperature uniformity requirements.

API 560 Fired Heaters

Crude distillation, hydroprocessing, catalytic reforming, and cracking heaters designed per API 560 standard for refinery processes.

Convection & Flue Systems

Waste heat recovery sections, flue stacks, and exhaust ductwork where heat recovery efficiency directly impacts fuel consumption.

Process Piping Networks

Steam lines, transfer lines, hot gas pipelines, and high-temperature process piping requiring continuous insulation and thermal bridge control.

RTO/RCO Systems

Regenerative thermal oxidizers, catalytic oxidizers, and tail gas treatment systems for VOCs and emissions abatement.

Key Industry Drivers

- Rising energy costs and carbon reduction mandates
- Demand for extended run cycles between turnarounds
- Need for improved furnace thermal efficiency
- Stricter shell temperature and safety requirements
- Optimization beyond single-product replacement

Thermal Loss Impact

Heat losses through furnace walls, roofs, burner ports, tube penetrations, flanges, and flue systems directly increase fuel consumption, destabilize process temperatures, and shorten equipment life. Systematic insulation design is no longer optional — it is a competitive necessity.

CCEWOOL® Solutions for the Petrochemical Industry

A Systematic Approach to Furnace & Piping Insulation

Petrochemical insulation optimization is not about simply switching to one insulation product. It requires a **systematic, zone-by-zone approach** that considers furnace structure, process temperature, furnace atmosphere, burner arrangement, flue gas velocity, maintenance cycles, and safety requirements.

Product System for Complete Thermal Management

Ceramic Fiber Modules & Blankets

Low heat storage, rapid thermal response, excellent thermal shock resistance. Ideal for radiant section roofs, upper sidewalls, and large-area hot-face linings. Temperature grades: 1,100°C to 1,600°C.

Ceramic Fiber Boards & Papers

Rigid and semi-rigid insulation for backup layers, convection section linings, door interiors, and interface sealing. Excellent machinability and dimensional stability under thermal cycling.

Ceramic Fiber Textiles & Custom Shapes

Cloth, tape, rope, and yarn for flexible sealing, expansion joint compensation, and complex geometry sealing. Vacuum-formed shapes for burner blocks, peephole liners, tube penetrations, and custom nodes.

Insulating Fire Bricks

Ultra-low thermal conductivity backup insulation where space is limited but thermal resistance requirements are high. Insulating fire bricks for structural backup and burner zone composite linings.

Stone Wool Blanket & Board

Thermal insulation and fire protection for process piping, storage tanks, vessels, ductwork, and utility equipment. Helps reduce heat loss, improve personnel protection, and maintain energy efficiency across refinery and petrochemical facilities.



Engineering-Driven Results

CCEWOOL® solutions help petrochemical producers achieve:

- **Reduced shell temperatures** and heat losses
- **Lower fuel consumption** and improved efficiency
- **Faster furnace heat-up** and operational flexibility
- **Improved temperature uniformity** for product quality
- **Extended lining service life** and reduced maintenance
- **Minimized thermal bridging** at critical nodes

Zone-Based Design Philosophy

Every furnace and piping zone has unique thermal, mechanical, and chemical demands:

- **Radiant Section Roof & Upper Walls** — Low heat storage, high efficiency
- **Burner Zone & Lower Walls** — Composite lining for structural stability
- **Convection Section** — Backup insulation, heat recovery
- **Tube Penetrations & Nodes** — Sealing continuity, thermal bridge control
- **Flue & Duct Systems** — Heat loss minimization
- **Process Piping** — Thermal bridge control, maintainability

Ethylene Cracking Furnace

Energy Optimization & High-Temperature Insulation for Maximum Ethylene Yield

The ethylene cracking furnace is the core thermal equipment of ethylene plants and one of the highest-temperature, most energy-intensive furnaces in the petrochemical industry. The cracking reaction must be completed within an extremely short residence time, so furnace thermal efficiency, temperature uniformity, and lining stability directly impact ethylene yield, fuel consumption, and furnace tube service life.

Lining optimization is not simply about upgrading temperature ratings. It requires systematic engineering around radiant section thermal efficiency, effective heat transfer to cracking tubes, burner zone operational stability, flue gas waste heat utilization, and long-term maintenance cycles.

Radiant Section Roof — Low Heat Storage Lining

The roof bears significant radiant heat load and is a primary zone for heat loss and lining heat storage. Most fuel heat should transfer to cracking tubes, not be absorbed by the lining or lost through the shell. CCEWOOL® zirconia-grade ceramic fiber modules, high-grade modules, and backup blankets significantly reduce lining heat storage, enabling faster thermal response during startup, shutdown, and load adjustments while reducing roof heat dissipation.

Products: Zirconia Ceramic Fiber Modules | High-Grade Modules | Backup Blankets

Upper Sidewall — High-Efficiency Fiber Lining

Upper radiant walls experience high-temperature flue gas and thermal radiation but less flame impingement than the burner zone. CCEWOOL® ceramic fiber modules serve as hot-face lining with backup blankets for continuous insulation. Ceramic fiber paper compensates for anchor systems, module joints, and structural transitions to control thermal bridging.

Products: Ceramic Fiber Modules | Blankets | Paper for Joint Compensation

Burner Zone & Furnace Floor — Composite Lining

The most severe operating environment, with direct flame radiation, combustion gas erosion, and frequent thermal cycling. Pure fiber hot-face structures are unsuitable here. CCEFIRE® insulating fire bricks or structural refractory layers provide mechanical support and erosion resistance, backed by CCEWOOL® ceramic fiber boards and blankets as high-efficiency backup insulation.

Products: CCEFIRE® IFB | Structural Refractory | Ceramic Fiber Boards | Blankets

Convection Section & Flue Gas Heat Recovery

The convection section recovers heat from high-temperature flue gas for feedstock preheating, dilution steam superheating, and waste heat recovery. CCEWOOL® boards, blankets, and microporous boards optimize backup insulation. Paper and textile seals address access doors, thermocouple ports, and flange connections.



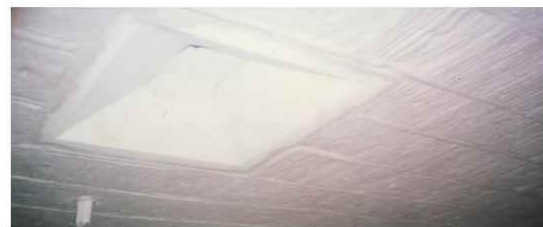
System Value

Systematic cracking furnace lining optimization delivers:

- Reduced fuel consumption
- Controlled shell temperatures
- Improved cracking reaction conditions
- Faster thermal response
- Extended lining service life
- Stable, efficient thermal environment for long-cycle operation

Design Priority

- **Roof & upper walls:** Low heat storage, high efficiency
- **Burner zone & floor:** Structural stability, erosion resistance
- **Convection section:** Heat recovery optimization
- **Complex nodes:** Sealing continuity



Steam Methane Reformer & Hydrogen Production

Insulation Optimization for Tube Heat Absorption Efficiency & Long-Term Reliability

The steam methane reformer (SMR) is a core thermal equipment in refinery hydrogen production, hydrogen energy supply, ammonia synthesis, and methanol production. Natural gas, refinery gas, or other light hydrocarbon feedstock reacts with steam over catalyst to produce hydrogen-rich syngas. The endothermic reaction requires continuous large heat input, so the reformer operates under high temperature, continuous production, and high heat load conditions.

Lining design must maximize heat transfer to reformer tubes and catalyst beds rather than being absorbed by the lining or lost through the shell. The focus is on reducing ineffective heat loss while ensuring long-term lining structural reliability.

Radiant Section Roof & Upper Sidewall — Low Heat Storage

The core zone where steam reforming occurs. Heat should transfer to reformer tubes, not be absorbed by the lining. CCEWOOL® zirconia ceramic fiber modules, high-grade modules, and high-purity blankets build a lightweight, low-heat-storage lining that reduces lining heat absorption, improves temperature response, and lowers fuel consumption over long-term operation.

Products: Zirconia Fiber Modules | High-Grade Modules | High-Purity Blankets

Burner Zone & Lower Sidewall — Composite Lining

The burner zone endures direct flame radiation, combustion gas erosion, and thermal cycling. CCEFIRE® insulating fire bricks, lightweight high-alumina bricks, or castable refractory serve as working and transition layers, while CCEWOOL® ceramic fiber boards and high-purity blankets provide high-efficiency backup insulation behind the structural layer.

Products: CCEFIRE® IFB | High-Alumina Bricks | Ceramic Fiber Boards | Blankets

Convection Section & Flue System

The convection section recovers flue gas waste heat for feedstock preheating, steam superheating, and boiler feedwater heating. CCEWOOL® boards, blankets, and microporous boards optimize backup insulation for convection sections, flue systems, and waste heat recovery zones. Paper and textile products seal access doors, thermocouple ports, and flanges.

Products: Ceramic Fiber Boards | Blankets | Microporous Boards | Paper, Textiles

Tube Penetrations & Critical Node Sealing

In large-scale reformers, tube wall penetrations, burner ports, peepholes, thermocouple holes, access doors, and expansion joints are where thermal bridges and leakage concentrate. Though small in area, they significantly impact lining continuity and furnace operational stability. CCEWOOL® paper for interface insulation, textiles for flexible sealing, and vacuum-formed shapes for tube penetration and burner port structures are custom-engineered to match specific geometries.



System Value

Reformer insulation optimization addresses:

- Tube heat absorption efficiency
- Furnace thermal balance
- Long-term operational stability
- Fuel consumption reduction
- Shell temperature control
- Thermal bridge and leakage minimization

Engineering Approach

Zone-by-zone configuration matches the right material to each thermal environment — from radiant section to convection section, from burner zone to critical sealing nodes — for comprehensive system performance.



API 560 Fired Heater Solutions

High-Efficiency Insulation, Low Heat Loss & Long-Cycle Operation for Refinery Fired Heaters

API 560 is the widely adopted fired heater design standard for the refining and petrochemical industry, applicable to crude distillation heaters, hydroprocessing heaters, hydrogen reformers, catalytic reforming heaters, cracking furnaces, and various process heaters. These units operate continuously under high temperature, high heat load, and demanding production schedules. Furnace thermal efficiency, shell temperature, fuel consumption, and maintenance cycles are all closely tied to lining structure.

Radiant Section Roof & Upper Sidewall — Low Heat Storage

The core heat exchange zone bearing the majority of furnace thermal load. Fuel combustion heat should transfer to tubes and process media, not be absorbed by the lining. CCEWOOL® ceramic fiber modules form a continuous, lightweight hot-face lining; blankets provide backup thermal resistance; boards reinforce local structural transitions. This low-heat-storage structure reduces shell heat loss, improves thermal response, and helps control shell temperature.

Products: Ceramic Fiber Modules | Blankets | Boards

Burner Zone & Lower Sidewall — Composite Lining

Subject to direct flame impingement, high-temperature gas turbulence, and thermal cycling. CCEFIRE® insulating fire bricks provide structural stability and erosion resistance for the lower wall and burner transition areas, backed by CCEWOOL® ceramic fiber boards or blankets as high-efficiency backup insulation. This structure balances reliability and insulation performance.

Products: CCEFIRE® IFB | Ceramic Fiber Boards | Blankets

Convection Section & Flue System

Recovers flue gas heat for process media heating, improving overall furnace efficiency. CCEWOOL® boards, blankets, and microporous boards optimize convection backup, flue system, and waste heat recovery zone insulation. Paper and textile products seal access doors, thermocouple ports, and flue gas sampling points.

Products: Ceramic Fiber Boards | Blankets | Microporous Boards | Paper, Textiles

Doors, Observation Ports & Complex Node Sealing

Local thermal bridges and leakage concentrate at doors, peepholes, burner ports, expansion joints, and various openings. Though limited in area, they significantly impact furnace draft stability, thermal efficiency, and operational safety. CCEWOOL® paper, textiles, and custom shapes provide targeted node reinforcement.

Products: Ceramic Fiber Paper | Cloth, Tape, Rope | Vacuum-Formed Shapes

Maintenance & Energy Retrofit Solutions

Fired heaters and process equipment with high-temperature control lines



API 560 Design Priority

- **Radiant section:** Low heat storage, high efficiency
- **Burner zone:** Structural stability, erosion resistance
- **Convection section:** Heat recovery optimization
- **Doors & nodes:** Sealing continuity
- **Maintenance:** Modular, maintainable design

Long-Term Value

Zone-by-zone design reduces fuel consumption, controls shell temperature, minimizes thermal bridging, and improves thermal efficiency — supporting stable, long-cycle operation for refinery fired heaters.



Convection, Flue & Waste Heat Recovery

Waste Heat Utilization Optimization & System Energy Efficiency Design

In petrochemical and refining plants, convection sections, flues, and waste heat recovery systems recover flue gas heat, improve thermal efficiency, and reduce fuel consumption. Hot flue gas from the radiant section enters the convection section to heat process media, boiler feedwater, steam, or combustion air, improving overall heater energy utilization. Insulation design directly impacts waste heat recovery efficiency, equipment shell temperature, flue draft stability, and long-term operational reliability.



Convection Section Backup Insulation

Convection sections contain extensive tube bundles for secondary heat exchange between flue gas and process media. The hot-face structure prioritizes durability, while the backup layer controls heat loss and shell temperature. CCEWOOL® ceramic fiber boards provide continuous stable backup insulation; blankets handle corners, transitions, and complex structures; microporous boards deliver higher thermal resistance in space-constrained positions.

Products: Ceramic Fiber Boards | Blankets | Microporous Boards

Flue & Stack Insulation

Flue systems transport hot flue gas to stacks or waste heat recovery equipment. Inadequate insulation causes continuous heat loss and elevated external temperatures, affecting workplace conditions. CCEWOOL® blankets for large-area wrapping of flues, elbows, and stack connections; boards for rectangular ducts and flat surfaces; microporous boards for thickness-constrained zones with higher performance requirements.

Products: Ceramic Fiber Blankets | Boards | Microporous Boards

Waste Heat Recovery Connection Sections

Modern heaters integrate air preheaters, waste heat boilers, and other recovery devices. Connection ducts, hot air pipes, and bypass systems are often where heat loss and temperature drop are most pronounced. CCEWOOL® blankets and boards for connection section outer insulation; microporous boards for equipment interfaces and space-limited areas; paper and textiles for flange and access port sealing reinforcement.

Products: Blankets | Boards | Microporous Boards | Paper, Textiles

Access Doors, Cleaning Ports & Observation Holes

Convection sections and flue systems require access doors, cleaning ports, observation holes, sampling ports, and thermocouple ports for maintenance and monitoring. These openings concentrate thermal bridges, leakage, and cold air infiltration. CCEWOOL® boards for door linings, paper for thin gaskets and interface compensation, textiles for frame edges and port perimeters, and custom shapes for special structures maintain sealing continuity while preserving maintenance accessibility.

Products: Ceramic Fiber Boards | Paper | Cloth, Tape, Rope | Custom Shapes

System Value

Optimization of convection, flue, and waste heat recovery systems delivers:

- Reduced flue gas heat loss
- Improved waste heat recovery efficiency
- Controlled equipment shell temperatures
- Stable flue draft operation
- Enhanced long-term reliability
- Minimized node-level leakage

Key Principle

Optimization is not simply adding insulation thickness. It is about improving waste heat utilization, reducing external heat dissipation, and controlling critical node heat loss — while maintaining equipment maintainability.



High-Temperature Process Piping & Hot Gas Lines

Energy Insulation, Thermal Bridge Control & Maintainable Design for Process Piping

Petrochemical and refining plants contain extensive high-temperature process piping and hot gas lines, including furnace outlet pipes, transfer lines, steam pipes, flue gas pipes, exhaust systems, and waste heat recovery connections. These systems operate under continuous high temperature, thermal cycling, vibration, and continuous production conditions — directly impacting plant energy consumption, equipment safety, and operational stability.

Compared to furnace body insulation, piping systems face more complex nodes: flanges, valves, expansion joints, supports, wall penetrations, and frequent maintenance areas. Discontinuous insulation at these points creates thermal bridges, local hot spots, and continuous heat loss.

Straight Pipe Sections & Hot Gas Lines

Straight sections account for the majority of piping length and are the primary zone for continuous heat loss. CCEWOOL® ceramic fiber blankets for large-area flexible wrapping; foil-faced blankets for areas requiring outer protection and clean installation; microporous boards for space-constrained positions requiring higher thermal resistance. Continuous insulation structure reduces along-line heat loss and maintains stable process temperatures.

Products: Ceramic Fiber Blankets | Foil-Faced Blankets | Rock Wool Blankets

Valves, Flanges & Instrument Interfaces — Removable Insulation

Valves, flanges, filters, sampling ports, and instrument connections are where insulation is most often missing. These components require frequent maintenance; fixed insulation structures are often not restored after removal, creating permanent thermal bridges. CCEWOOL® provides custom-sized removable insulation jackets with ceramic fiber blankets or microporous board cores, high-temperature composite outer layers, and paper/custom gaskets for local reinforcement — maintaining thermal performance while enabling repeat disassembly and reinstallation.

Products: Removable Insulation Jackets | Blankets | Microporous Boards | Paper, Gaskets

Expansion Joints & Complex Node Sealing

High-temperature piping continuously expands and contracts during operation. Expansion joints, flexible connections, and equipment interfaces must accommodate displacement while maintaining insulation continuity. CCEWOOL® blankets as flexible insulation layers, textiles for edge sealing and gap compensation, paper for interface insulation and thermal bridge control, and custom shapes for special structures reduce heat loss without compromising thermal displacement compensation.

Products: Blankets | Cloth, Tape, Rope | Paper | Custom Shapes

Supports, Hangers & Wall Penetration Thermal Bridge Control

Supports, hangers, pipe shoes, wall sleeves, and equipment mounting points



System Value

Process piping insulation optimization delivers:

- Reduced heat loss along pipe runs
- Controlled surface temperatures for personnel safety
- Minimized thermal bridge effects
- Improved maintainability at valves and flanges
- Stable process temperature profiles
- Enhanced long-cycle operational efficiency

Design Philosophy

Piping insulation is not simply increasing thickness. It requires systematic design around heat loss control, thermal bridge management, maintenance accessibility, and personnel safety — using zone-specific materials from straight runs to complex valve nodes.



RTO/RCO Incinerators & Tail Gas Treatment

Low Heat Storage Lining, Flue Insulation & Thermal Efficiency Optimization for Waste Gas Treatment

RTO (Regenerative Thermal Oxidizer), RCO (Regenerative Catalytic Oxidizer), thermal oxidizers (TO), waste gas incinerators, and tail gas treatment systems are widely used in petrochemical, refining, fine chemical, coating, and VOCs abatement applications. These systems operate under high temperature, thermal cycling, flow switching, and corrosive flue gas environments. Insulation design directly impacts thermal recovery efficiency, fuel consumption, equipment startup/shutdown response, and maintenance costs.

Combustion Chamber — Low Heat Storage Lining

The core zone for waste gas oxidation reactions. Traditional dense linings have high heat storage, leading to long startup times and high energy consumption during startup/shutdown cycles. CCEWOOL® ceramic fiber modules build a low-heat-storage lining for the combustion chamber roof, upper walls, and non-high-erosion areas; blankets serve as backup insulation; boards address access doors, chamber covers, and flat insulation zones. For direct flame impingement and high-velocity zones, a composite structure with refractory working layer and fiber backup is recommended.

Products: Ceramic Fiber Modules | Blankets | Boards | Composite Refractory + Fiber

Regenerative Chamber & Shell Temperature Control

The regenerative chamber is where RTO systems achieve high thermal recovery efficiency, with heat storage media (honeycomb ceramics or packed beds) performing the primary function. CCEWOOL® products serve as peripheral insulation and shell cooling layers. Boards, blankets, microporous boards, and CCEFIRE® IFB form composite insulation structures on regenerative chamber sidewalls, tops, access doors, and shells — reducing heat transfer to the shell and improving thermal utilization.

Products: Ceramic Fiber Boards | Blankets | Microporous Boards | CCEFIRE® IFB

Flue & Tail Gas Transport System

High-temperature flues, exhaust pipes, bypass ducts, and waste heat recovery connections extend throughout the tail gas treatment system. These large-area, long-length zones are significant sources of continuous heat loss. CCEWOOL® blankets for round ducts, elbows, and complex curved surfaces; boards for rectangular ducts and flat structures; microporous boards for space-constrained, high-performance zones; CCEFIRE® IFB for structurally demanding backup areas.

Products: Blankets | Boards | Microporous Boards | CCEFIRE® IFB

Valves, Access Doors & Complex Node Sealing

Valve switching zones, access doors, manholes, peepholes, and expansion joints are more prone to leakage than large-area linings. Particularly when switching valves operate frequently, inadequate interface sealing causes not



System Value

RTO/RCO insulation optimization delivers:

- Reduced fuel consumption
- Improved thermal recovery efficiency
- Controlled equipment shell temperatures
- Faster startup/shutdown response
- Enhanced long-term operational stability
- Minimized node-level leakage

Design Priority

- **Combustion chamber:** Low heat storage, fast response
- **Regenerative chamber:** Shell temperature control
- **Flue system:** Heat loss minimization
- **Valves & nodes:** Sealing stability



Product Portfolio for Petrochemical Applications

Complete High-Temperature Insulation Product Range

CCEWOOL® and CCEFIRE® provide a comprehensive portfolio of high-performance insulation products for petrochemical and refining applications. Each product category serves specific temperature, mechanical, and application requirements across all thermal process zones.

 CERAMIC FIBER BLANKET Up to 1,600°C	 CERAMIC FIBER MODULE Up to 1,600°C	 CERAMIC FIBER BOARD Up to 1,430°C	 CERAMIC FIBER PAPER Up to 1,430°C	 CERAMIC FIBER TEXTILE Up to 1,260°C
 CERAMIC FIBER CUSTOM SHAPE Up to 1,430°C	 MICROPOROUS BOARD Up to 1,050°C	 CALCIUM SILICATE BOARD Up to 1,000°C	 INSULATING FIRE BRICK Up to 1,760°C	 REMOVABLE INSULATION JACKET Custom

Core Product Technologies

Ceramic Fiber (RCF) Products

Alumina-silicate fiber products with excellent high-temperature stability, low thermal conductivity, low heat storage, and superior thermal shock resistance. Classification temperatures from 1,100°C to 1,430°C. Available as blanket, module, board, paper, textile, bulk, and vacuum-formed shapes.

Low Biopersistent Fiber (LBP) Products

Alkaline earth silicate (AES) fiber products with enhanced solubility and biosafety characteristics. Classification temperatures of 1,200°C and 1,300°C. Exempt from carcinogen classification under GHS and IARC standards. Certified by Germany's Fraunhofer Institute.

Polycrystalline Wool (PCW) Products

High-alumina fiber produced via sol-gel technology with up to 73% Al₂O₃ content. Classification temperature of 1,600°C. Extremely low shot content, superior corrosion resistance, and excellent thermal stability for the most demanding high-temperature applications.

Microporous Insulation

Ultra-low thermal conductivity boards providing maximum thermal resistance in minimum thickness. Ideal for backup insulation where space is constrained but thermal performance requirements are high. Available in multiple density grades.

Insulating Fire Bricks (IFB)

Lightweight refractory bricks combining structural integrity with good thermal insulation. Multiple temperature grades from 1,260°C to 1,760°C. Suitable for burner zones, lower sidewalls, furnace floors, and structural backup layers in composite lining systems.

Stone Wool Blanket & Board

Thermal insulation and fire protection for process piping, storage tanks, vessels, and duct systems. Designed to reduce heat loss, improve personnel protection, and enhance energy efficiency across refinery and petrochemical facilities.

Custom Engineering

Beyond standard products, CCEWOOL® provides custom vacuum-formed shapes, precision-cut boards, tailored textile assemblies, removable insulation jackets, and application-specific composite designs — all engineered to your equipment's exact dimensional and performance requirements.

Engineering Services & Partnership

Harnessing 20+ years of high-temperature insulation expertise to deliver engineered solutions for the global petrochemical and refining industry.

Application Engineering

Our technical team works directly with your plant engineers to analyze furnace and piping operating conditions, identify critical heat loss zones, and develop customized lining and insulation configurations. We provide heat flow calculations, thermal efficiency analysis, and detailed material recommendations for each thermal zone — from radiant sections to complex piping nodes.

Installation Support & Supervision

On-site installation guidance ensures lining systems are installed correctly and perform as designed. From module anchoring to expansion joint detailing, tube penetration sealing to removable jacket fitting, our supervision services help achieve the designed thermal performance and extend lining service life.

Custom Fabrication

Vacuum-formed shapes, custom-cut boards, tailored textile assemblies, removable insulation jackets, and application-specific composite structures — manufactured to your drawings and specifications. We work from your 2D/3D CAD models to deliver precision-engineered insulation components.

Global Supply Chain

With manufacturing and warehousing operations across Asia and North America, CCEWOOL® provides reliable, timely delivery to petrochemical producers worldwide. Our North American warehouses in Charlotte, NC and Youngstown, OH ensure rapid response for urgent turnaround and maintenance requirements.

Quality Assurance

All CCEWOOL® products are manufactured under ISO 9001 quality management systems. We provide factory inspection reports per EU and ASTM standards, CE certification, REACH registration, and independent laboratory test results to verify material performance for petrochemical applications.

Maintenance & Retrofit Support

Turnaround planning, rapid-repair material packages, and post-installation thermal performance assessment. Our modular, maintainable insulation designs help shorten furnace downtime, rapidly restore lining performance, and support long-cycle operation between planned turnarounds.

Why Partner with CCEWOOL®

- **20+ years** of specialized experience in high-temperature insulation fiber technology
- **Complete product portfolio** covering all temperature grades and application requirements
- **Engineering-driven approach** — we design solutions, not just supply products
- **Global presence** with brand agents in 40+ countries and North American warehousing
- **Proven quality** validated by 30+ international exhibitions and independent certifications
- **Customer transparency** with real-time production and shipment video documentation



Advanced Thermal Engineering & Fabrication Solutions

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CCEWOOL® specializes in providing comprehensive thermal energy-saving solutions for industrial kilns and furnaces across the petrochemical, refining, metallurgy, power generation, ceramic, glass, and new energy sectors. Our engineering team combines materials science expertise with practical application knowledge to deliver optimized furnace lining and piping insulation solutions that reduce energy consumption and improve process reliability.