

Advanced Configurations of Ceramic Static Mixers for Fossil Fuel Combustion

This technology has the potential to replace mortar checkerwall Claus furnace reactors thereby 1) reduce cost through reduced footprint and 2) remove SO₂ from emissions more effectively

Keywords: fossil fuel mitigation, acid rain mitigation, emission reductions, Claus reactors

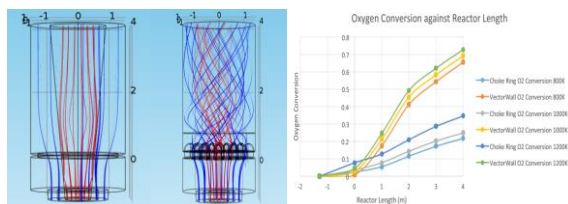
Process Implementation Readiness



Background and Technology Description

The natural gas industry relies upon efficient desulfurization methods to recover elemental sulfur and reduce the industry's production of sulfur dioxide (SO₂). The Claus Process is the industry standard for sulfur removal, but its high temperature operation impacts mortar-based furnaces' lifetime of operation.

Blasch Ceramics has created a proprietary mortarless technology called VectorWall™. In partnership with the College of Engineering at Rensselaer Polytechnic Institute they've modeled the high-speed thermodynamic processes of the Claus reactor furnace demonstrating the VectorWall™ is a superior technology.



Left: standard furnace component mixing

Middle: VectorWall™ component mixing

Right: increased O₂ conversion

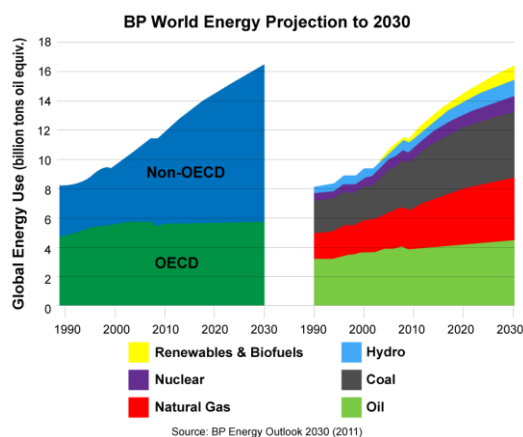
Technology Benefits and Value

- Complex 3-step turbulent flow model confirmed VectorWall™ system efficiency over choke ring
- Consumption of O₂ increases by 50-100%
- Greatly improved mixing offers potential for smaller reactor, reducing footprint and cost

Target Customers

Fossil-fuel Power Plants

Energy consumption around the world is projected to increase by 1.2 quadrillion BTU by 2020, according to the US Energy Information Administration.



- With fossil fuels predicted to dominate the market for the foreseeable future investment in more efficient combustion technology will generate long-term revenue streams

Intellectual Property

This technology is patented (U.S. Patent #8,439,102).

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