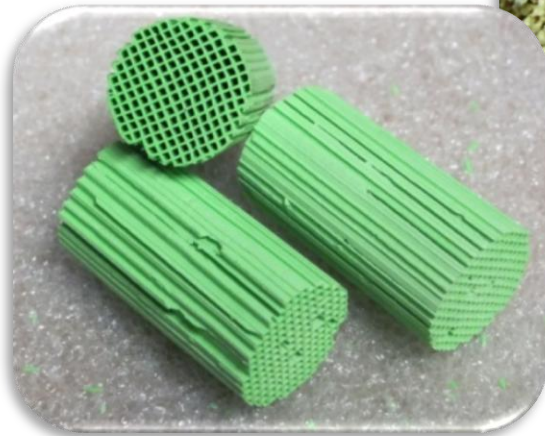
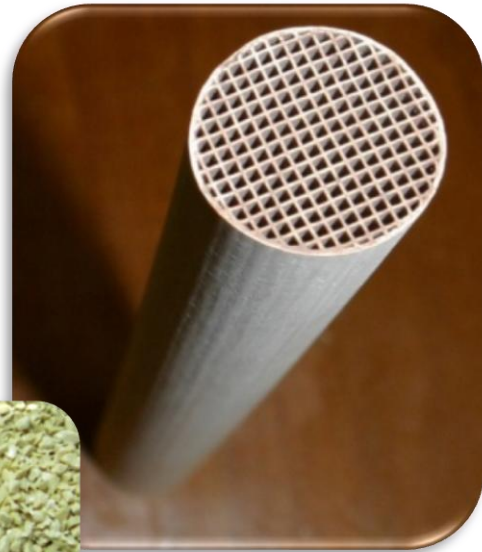


## Fuel Processing Catalysts

### NexTech's Catalyst Technology Portfolio

- High performance, *non-pyrophoric* water-gas-shift catalysts
- High performance hydrocarbon reforming catalyst
- Catalysts for reforming of ethanol and synthetic diesel fuels
- Non-PGM catalysts for *bio-gasification* and *tar clean-up*



### Catalyst Development Capabilities

- State of the art catalyst *synthesis, characterization and testing*
- Complex nanoscale oxides and composites
- Expertise in synthesis of specialty ceria and zirconia supports
- Optimized *homogenous dispersion* of catalytically active metals
- Catalyst kinetic testing, modeling and stability studies
- Testing with sulfur bearing fuels

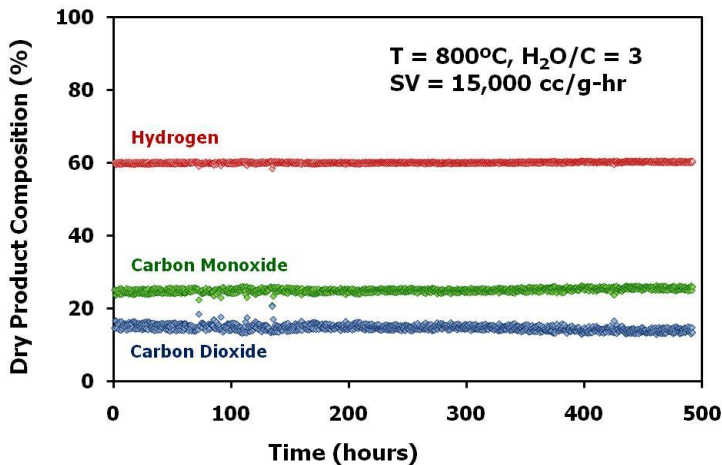
### Catalyst Packaging

- Pellets
- Foams
- Granules of various sizes
- Extruded shapes and membranes
- Complex architecture using combined methods
- Wash coating of substrates ~ ceramic and metallic monoliths



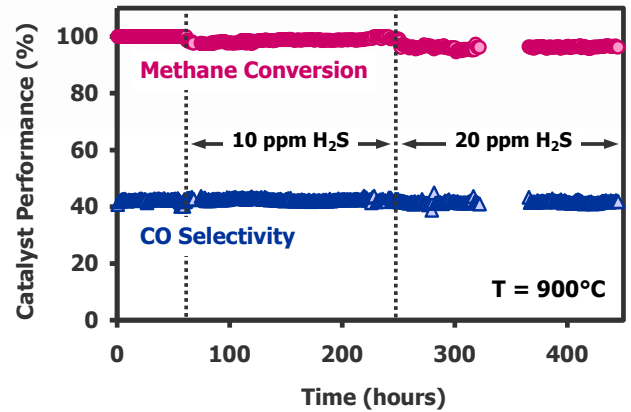
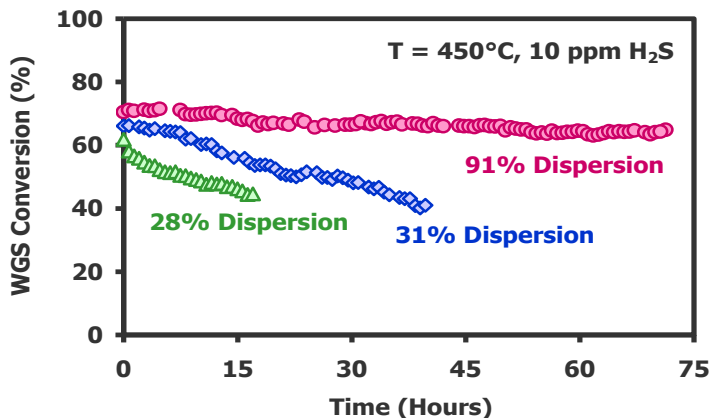
## Biomass Gasification Tar and Methane Reforming

NexTech's non-precious metal catalyst is effective for steam and dry reforming of tars and methane in gasified biomass. This catalyst provides exceptional stability during reforming of simulated biomass gasifier exhaust in the presence of ethane, ethylene and H<sub>2</sub>S



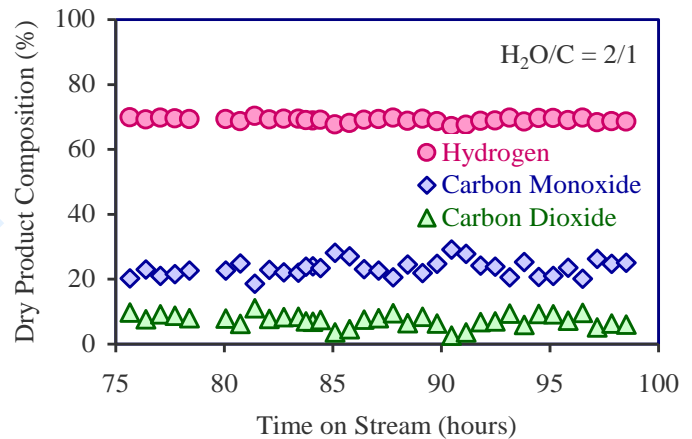
## Lower Hydrocarbon & Alcohol Reforming

NexTech has demonstrated a range of precious metal catalyst formulations that are highly active for ethanol and lower hydrocarbon reforming. These materials have been optimized to maintain high activity and stability with very low precious metal loading minimizing the raw material production costs. Additionally, these catalysts have been demonstrated on metallic supports.



## Reforming of Synthetic Diesel Fuel

NexTech recently developed a family of oxide catalysts that do not contain precious metals. As shown to the left, this catalyst is very active for steam reforming of synthetic diesel fuel



## WGS Catalysts

NexTech pioneered the development of highly active and non-pyrophoric Pt/ceria water gas shift catalysts. The graphic to the left shows that optimization of homogenous precious metal dispersion is key for achieving high WGS activity and durability in the presence of sulfur.