



# Cost-Effective Iron-Sodium Catalyst for Coal Gasification

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**Patent Status:** Patent Pending

## Description of Technology

University of Wyoming researchers have developed an economically sustainable and a cost-effective iron-sodium composite catalyst for the gasification of sub-bituminous coal. Catalysts are often used to improve the coal gasification process due to their efficiency, availability, and low cost. Coal gasification is used primarily for fuel and chemical production and requires coal, oxygen, steam, and very high temperatures. Catalysts have the capacity of lowering the gasification temperature, increasing conversion rates, and enhancing the production of the desired gases.

Recently, a sodium and iron composite compound has been found to be a promising catalyst for considerable reduction of the activation energy of the gasification of Wyodak coal. This composite catalyst is also environmentally-friendly and more cost-effective compared to alternative sodium-based catalysts that form non-volatile tars and are less desirable in terms of cost-effectiveness and applicability.

## Applications

This gasification catalyst is for Powder River Basin, Wyodak, or other sub-bituminous coal gasification.

## Features & Benefits

- Effective catalytic gasification
- Cost efficient
- Abundant supply of catalyst
- Prevents non-volatile tar production

## Market Opportunity

The use of this composite catalyst on coal gasification can improve the yields of useful gases including hydrogen and carbon monoxide. The composite catalyst can be used to utilize the advantages of its two component catalysts and overcome their shortcomings. This technology has the potential to economically and sustainably improve coal gasification.



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