NETL DEVELOPS COATING TECHNOLOGY TO PROTECT PIPELINES FROM CORROSION AND IMPROVE SAFETY AND RELIABILITY

The invention protects against corrosion in natural gas, hydrogen, and carbon dioxide (CO₂) pipelines that can cause catastrophic failure events.



The new material can be applied to steel structures in a cold spray process to protect them from the effects of corrosion.

Internal corrosion in pipelines is due primarily to the presence of water, CO₂, and hydrogen sulfide contained in natural gas and it can result in leakage, cracks, and rupture of the pipeline leading to explosion hazards and methane emissions.

 The NETL innovation is a cold spray coating consisting of a new zinc-rich material that creates an effective protective layer for internal pipeline corrosion protection.

RESEARCH PRIORITIES







PERFORMERS

- In addition to uses for new pipelines, the new coating can be used as structural material to repair used/damaged pipeline.
- It remains stable regardless of temperature/pressure changes of the service environment.
- The coating can also self-heal when damaged by forming protective corrosion products.



ACCOMPLISHMENTS 2023



Fossil Energy and Carbon Management