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Sensor to Detect Seal Anomalies

Sensor technology detects seal viability data to predict catastrophic failure, enabling preventative maintenance and reducing safety risks and economic losses from equipment downtime.

Catastrophic failure in seals is difficult to predict and mitigate. Seals are an integral component in complex systems, yet commonly overlooked until failure occurs.

Researchers at Purdue University have developed technology capable of sensing the viability of a seal based on prior Purdue patented technology that designed life sensors for hydraulic hoses. The technology's use extended into various fields including tires, pipes, and composite materials, which led to another patent. This same technology's sensor data can help predict catastrophic failure of seals and determine the need for inspection or even preventative maintenance. This technology can reduce safety risks and economic loss due to equipment downtime.

Advantages:

-Predicts catastrophic failure of seals

-Determines the need for inspection or preventative maintenance

-Reduces safety risk and cost of lost production

Potential Applications:

-Machinery with seals

TRL: 8

Intellectual Property:

Provisional-Patent, 2007-12-21, United States | Utility Patent, 2008-12-22, United States | PCT-Patent, 2008-12-23, WO | CIP-Patent, N/A, United States

Keywords: Catastrophic failure prediction, seal viability sensing, life sensors, hydraulic hoses, equipment maintenance, preventative maintenance, safety

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Buildings, Infrastructure, & Construction/Structural Health Monitoring
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