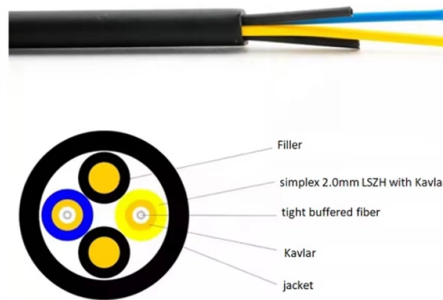


Nordic Three-Way Catalytic Spectrometer



AI Overview

The Nordic Three-Way Catalytic Spectrometer likely refers to a specialized analyzer for measuring precious metals in automotive three-way catalysts, used in research and industry applications.

Overview A three-way catalyst (TWC) is a key component in gasoline engines that simultaneously oxidizes hydrocarbons (HC) and carbon monoxide (CO) while reducing nitrogen oxides (NOx) into harmless products like water, nitrogen, and carbon dioxide. These catalysts typically contain precious metals such as platinum (Pt), palladium (Pd), and rhodium (Rh) coated on a ceramic monolith with alumina and rare earth oxides. Accurate analysis of these metals is crucial for both performance evaluation and recycling.

Analytical Instruments Handheld three-way catalytic analyzers, such as the K-980 PLUS, are designed for rapid, non-destructive measurement of Pt, Pd, Rh, and other elements in automotive catalysts. These devices can detect multiple elements ranging from magnesium to uranium, providing results in parts per million to 100%. Features include automatic calibration, one-button operation, and rugged design for field use. Such instruments are widely used in precious metal recovery, quality control, and research.

Nordic Context The Nordic Symposium on Catalysis, organized by the Nordic Catalysis Society, is a biannual event that brings together researchers and industry professionals to discuss advances in heterogeneous, homogeneous, and biocatalysis, including thermal, electrocatalysis, and photocatalysis. Instruments like the Nordic Three-Way Catalytic Spectrometer are likely showcased or discussed at such conferences, highlighting their role in catalyst characterization and development.

Applications

- Automotive catalyst testing:** Ensures optimal conversion efficiency and compliance with emission standards.
- Precious metal recovery:** Determines the content of Pt, Pd, and Rh for recycling purposes.
- Research and development:** Supports catalyst design, performance optimization, and material inn...

Article Content

Three-way catalyst | Umicore Automotive Catalysts

A three-way catalyst oxidizes exhaust gas pollutants (HC and CO) and reduces nitrogen oxides into the harmless components water, nitrogen, and carbon dioxide.

Trends in NO_x and NH₃ emissions caused by three-way catalysts

In Fig. 2, the NO_x and NH₃ emissions from the front and rear of the three-way catalyst are analyzed under steady-state conditions (1500, 2000 and 2500 rpm) of the LPG engine.

Three-Way Catalyst System Design and Emission ...

In this research, the three-way catalysts after-treatment system design enhancement for flow uniformity index, backpressure as well as flow distribution near the lambda sensor is analyzed

Equipment

The equipment used by CSI Nordic is state of the art and we have an almost complete spectrum for chemical analysis, mechanic testing and microstructure analysis av all materials.

Raman Spectroscopy Characterization of Amorphous Coke

Examples on the real-world field application of Raman spectroscopy with systematic analysis of the intensity variation of D and G bands corresponding to the change of excitation laser

Evaluation of On-Board Diagnosis Methods for Three-Way Catalytic ...

On-board diagnosis (OBD) aims at detecting malfunctions of emission-related components of road vehicles. It is required by legislation in United States and the European Union, as it is

Three-Way Conversion (TWC) Catalyst | ECMS

We were awarded the National Medal of Technology and the United Nations Award of the Decade, for the development of the first three-way automotive emissions

Multi-objective optimization of the three-way catalytic converter on ...

This paper investigated the effect of a Palladium/cerium dioxide (Pd/CeO₂) three-way catalytic converter on the combustion and emission characteristics of a gasoline engine. The

Produkte

The three-way catalytic converters are able to reduce three groups of pollutants in the exhaust gas of combustion engines. In addition to the various hydrocarbons (HC) and carbon monoxide (CO), the

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Key design and layout factors influencing performance of three-way ...

To address this gap, we herein theoretically and experimentally explore the key design and layout factors influencing TWC performance under transient driving conditions, starting with the

Trends in NO_x and NH₃ emissions caused by three-way catalysts

As a result, it was confirmed that there is a trade-off relationship between NO_x reduction and the generation of NH₃ in the three-way catalyst system. a decrease in ambient temperature

What Is a Three Way Catalytic Converter? 2026 Essential Guide for ...

Learn what a three way catalytic converter is, how it works, its components, chemical reactions, failure symptoms, and role in reducing vehicle emissions.

Three way catalysts | Johnson Matthey

Gasoline fuelled vehicles utilise a three-way catalyst that can reduce carbon monoxide (CO), hydrocarbon (HC) and oxides of nitrogen (NO_x) emissions by

High-throughput screening of multimetallic catalysts for three-way ...

This study outlines a comprehensive high-throughput process for synthesizing and assessing multimetallic catalysts for three-way catalysis, unveiling promising alternatives to precious metals

Comprehensive study of the light-off performance and surface properties ...

The light-off performance of engine-aged model three-way catalysts composed of a mixture of Pd/Al₂O₃ and Pd/CeO₂-ZrO₂ was evaluated by using a simulated exhaust gas and

Integrated Performance Monitoring of Three-Way Catalytic Converters

Abstract This study reports the performance of a self-regenerating perovskite, LaFeCoPdO₃ as a three-way catalyst (TWC) and its use for self-diagnostic by means of integrated

3-Way Catalyst Systems for Rich-Burn Natural Gas Generators

NSCR (Three-Way Catalyst) Systems Advanced Emissions Control for Rich-Burn Natural Gas Engines Reduces key engine emissions (NO_x, CO and HC) Meet EPA and regulatory emissions requirements

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