

Article Overview

Argon purification tubes are specialized systems designed to remove impurities from argon gas, ensuring high-purity gas for spectrometer applications.

Overview

Argon purification tubes are used in laboratories to provide ultra-pure argon for optical emission spectrometry (OES), inductively coupled plasma (ICP) analysis, gas chromatography, and other analytical techniques. These systems remove impurities such as oxygen, nitrogen, carbon monoxide, hydrocarbons, carbon dioxide, hydrogen, and moisture, which can interfere with accurate spectrometer readings .

Key Components and Functionality

o Absorbent Tubes

- o Most purifiers use reactive getter tubes or 2-in-1 absorbent tubes containing materials like zirconium and aluminum oxide to chemically absorb oxygen, nitrogen, and hydrocarbons at high temperatures (450-800°C), .
- o Molecular sieve tubes are used to remove moisture and carbon dioxide at ambient or controlled temperatures, often embedded in a second furnace for regeneration .

o Furnaces and Temperature Control

- o Dual-furnace designs allow separation of high-temperature impurity removal and moisture absorption.
- o Automatic temperature controllers with thermocouples and sensors provide safety alarms and precise monitoring of furnace temperatures .

o Flow and Pressure Capabilities

- o Systems like the MP-2000 can handle flow rates up to 8 liters per minute and inlet pressures up to 17 bar, reducing impurities to less than 1 vpm .
- o EA3000N purifiers can provide flow rates up to 4 NM³/h, suitable for high-performance OES applications .

o Connection and Safety Features

- o Quick-connect couplings made of 316L stainless steel ensure leak-free connections .
- o Some models include LCD touchscreens for real-time monitoring of pressure, temperature, and operational status .
- o Modular designs allow continuous operation with one unit active while the other regenerates .

Maintenance and Lifetime

- o Absorbent tubes typically have a lifetime of several years (e.g., 5 years for Purespark) if operated according to manufacturer guidelines .

Argon Purification Tube for Spectrometer

- o Periodic replacement of getter tubes and molecular sieve tubes is required when they become exhausted .
- o Regeneration processes are often built-in, allowing repeated use without hydrogen or special facilities .

Applications

- o Metallurgy laboratories for spark OES and nitrogen channel analysis .
- o ICP and GC analysis as a carrier gas .
- o Vacuum chamber flushing and 3D metal printing in inert argon atmospheres .
- o High-purity argon supply for semiconductor and analytical instruments .

Summary

Argon purification tubes are essential for ensuring accurate and stable spectrometer measurements by removing trace impurities from argon gas. Modern systems combine high-temperature chemical absorption, molecular sieves, automated monitoring, and modular design to provide reliable, continuous, and safe high-purity argon for laboratory and industrial applications .

The RGP-1000 Argon Gas Purifier effectively removes impurities from inert gases like argon, helium, and krypton, ensuring precise

Introduction EA3000 is the best-selling fully-automatic touchscreen Argon gas purifier specific to OES (direct-reading spectrometer)

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Installing an MP-2000 Rare Gas Purifier in-line between your gas supply and instrument offers the reassurance of reducing total

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The Challenge One High Purity Systems (HPS) customer, a photonics developer focused on the industrial,

It would be thus reasonable if the exhausted argon could be collected and recycled back into the system. The purity of argon needed

Complete atomic emission spectra classroom kit A classic atomic theory demonstration and a must-have



Argon Purification Tube for Spectrometer

With flow rate up to 4NM3/h, EA3000 can provide the best integrated independent argon purification

Our portfolio of ICP-MS argon tubing, auxiliary gas tubing, plasma gas tubing is customized for Agilent ICP-MS systems. High purity

More than 30 years of experience on 2000 arc/spark optical emission spectrometers and vacuum chambers led to develop the

Argon gas purifiers are widely used in electronics, metallurgy, machinery, chemical, atomic energy and other economic sectors, for

Made in Germany The rare gas purification system for any type of optical emission spectrometers The rare gases are obtained from

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