ArDSieve™

CHROMATOGRAPHIC COLUMN TO SEPARATE Ar AND O_2

Benefit from the new breakthrough in material science with the ArDSieve™ chromatographic column that separates argon and oxygen molecules.

Separating argon and oxygen in chromatography has always been difficult as both molecules coelute unless operated at cryogenic temperature using expensive setup. This is even more true when trace ppb argon need to be separated from pure oxygen.

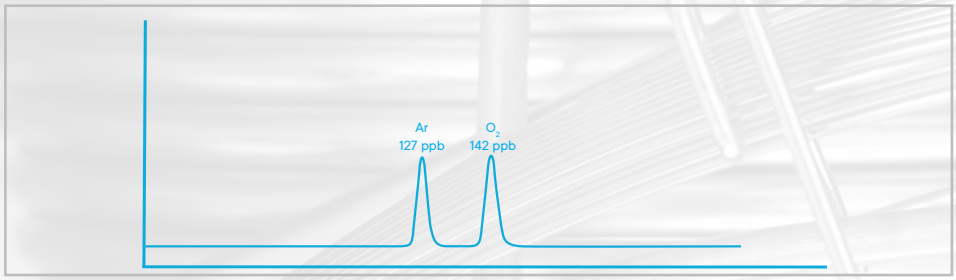
This is a story of the past with the ArDSieve™ column.

UNIQUE FEATURES

- Resolve Ar and O_2 separation at 50 °C column temperature. No need for cryogenic temperature
- Improved separation compared to other columns due to proprietary plasma oxidation treatment
- Improved peak symmetry and reduced eddy diffusion with narrow mesh size range (60/65)
- Improved peak symmetry with ASDevices LipLOK™ end column fittings
- Increased durability with HydraGuard™ protection layer
- No need for consumable oxygen trap
- Achieve lower limit of detection compared to GC system using O_2 traps

APPLICATIONS

- Trace measurement argon in pure oxygen
- Trace measurement argon in electronics bulk gases
- Any other analysis that requires Argon and O_2 separation



PROPRIETARY ArDSieve™ MATERIAL

The material used in the ArDSieve™ column is the outcome of an intensive R&D program and decades of experience. The material is a combination of clinoptilite, an ion exchanged chabazite and proprietary treatments.

OXIDATION TREATMENT

Recent advances in material science have allowed ASDevices™ to better oxidise its solid phase material. This is made possible with a proprietary mixture containing O_2 which is introduced into a plasma chamber.

This treatment considerably improves the efficiency and provides a better argon and oxygen separation.

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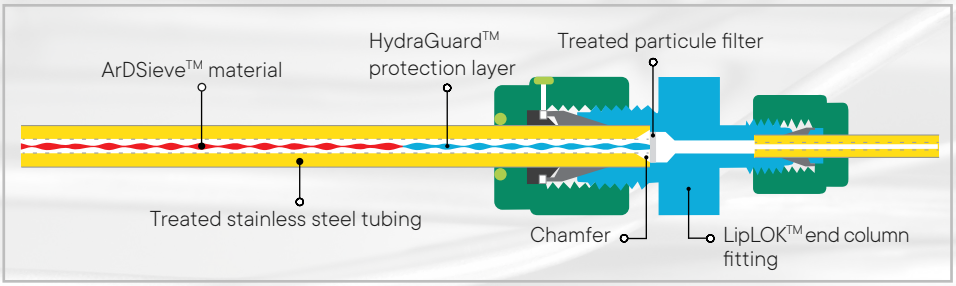
DEHYDRATION AND HYDRAGUARD™ LAYER

In order to obtain a good argon and oxygen separation, it is important to properly dry the column material. With our decades of experience, we have developed an enhanced dehydration process which further improves the column performance. We have also introduced a moisture protection layer which we have called HydraGuard™. The HydraGuard™ layer which is on both sides of the column avoids column contamination when manipulating the column or when a contaminated sample is injected.

ASDevices PACKED COLUMN DESIGN FOR PERFORMANCE

Doing pack column is easy. Doing great pack column is difficult, especially when trying to measure trace impurities. At ASDevices™, we have over 30 years of experience that we share with our customers.



MESH SIZE

Mesh size range is very often overlooked with packed column. Having a large mesh size range causes eddy diffusion which is well known in chromatography to increase peak broadening. The other issue is reproducibility from one column to another. We consequently manufacture all of our columns with a mesh size of 60/65 for optimum performance.

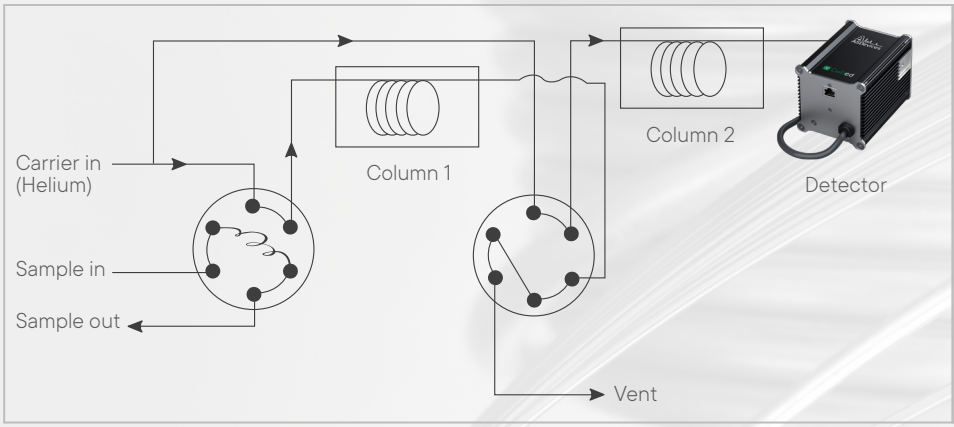
LipLok™ FITTING TECHNOLOGY

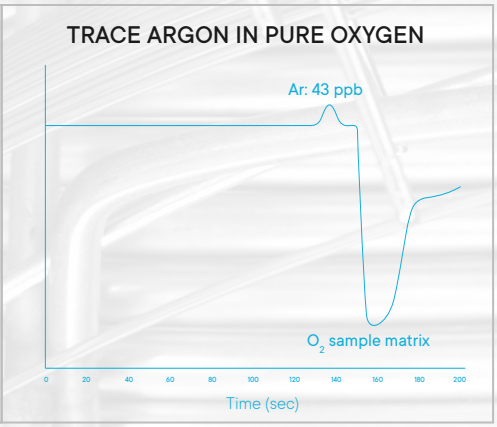
Compatible with the industrial standard double ferrule type

- Leak detection capability
- Better leak integrity
- No dead volume

TYPICAL CHROMATOGRAPHIC SETUP

The schematic below represents a typical chromatographic setup used with the ArDSieve™ column to measure trace argon in electronics bulk gases. Combining the Ar/O_2 separation properties of the ArDSieve™ column with the sensitivity of our Cubed™ detector based on our Epd technology* provides a powerful tool to achieve sub ppb limit of detection and this without the maintenance associated with traditional GC instruments based on O_2 traps.





MEASUREMENT	COLUMN 1	COLUMN 2	DETECTOR
Ar in O_2 sample	ArDSieve™ 60/65	ArDSieve™ 60/65	Cubed™
Ar in H_2, N_2 sample	Molecular Sieve 5A 60/65	ArDSieve™ 60/65	Cubed™
Ar in he	ArDSieve™ 60/65		Cubed™

All ASD products respect CE/RoHS (CSA optional) standards.

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* = patent pending

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