

instrAction® SIL o

Resin for the removal of heavy metals or precious metals from organic solutions or industry waste with enhanced stability and productivity.

General Description

instrAction® SIL o series resins are a newly developed coated silica resin dedicated to the removal of heavy and precious metals from organic media. The resin was designed and tested by instrAction. Its silica backbone along with its polyvinyl amine coating and thiourea groups gives it a unique combination of mechanical stability at elevated pressure along with a highly selective functional layer for heavy metal scavenging from organic media. SIL o type resins were developed for single-use and industrial applications with a constant flow and low back pressure and cannot be regenerated.

Performance Benefits

General

- Homogeneous flow at low back pressure.
- Linear pressure drop gradient for the whole bed depth.
- Mixing/combination with other filter media like activated carbon or ion exchange resins is possible.
- High physical and chemical stability.

Heavy Metal Removal

- SIL o resins with thiourea groups for complexation of platinum group elements and Hg^{2+} , Ag^{2+} or Au^{2+} .
- Heavy metals or precious metals are removed from the media in a single filtration step.
- Good wettability for commonly used solvents in homogeneous catalysis, e.g. toluene, xylene, etc.
- Reliable depletion rate with high capacities* because of stable bindings.

About instrAction

instrAction has been committed to implementing breakthrough innovations for the water treatment industry. Since its founding, instrAction has been expanding its activity at a fast pace. The know-how combines the selectivity of absorber resins with the demands for modern water purification.

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* depending on cartridge dimension, particle size and bed height

Typical Application

instrAction® SIL o series resins are especially designed for the use in industrial process streams. The main application of the instrAction SIL o-resins is the removal of heavy metals or precious metals from organic media through binding, combined with longevity and robustness. The SIL o series resins are mainly used in single-use filtration systems and are not intended to be recycled. Precious metals can be recovered by incineration of the loaded SIL o resin followed by a refining step.

Resin Characteristics

Resin Type	instrAction® SIL o
Available Particle Sizes and Structures	• 30 – 70 µm, irregularly shaped resin • 100 – 300 µm, irregularly shaped resin • 315 – 500 µm, irregularly shaped resin • 600 – 1400 µm, irregularly shaped resin
Matrix	Crosslinked functionalized polyvinyl amine on silica gel support
Shipment Form	according to customer needs
Appearance	white to tan
Functional Groups	Thiourea
Support	Silica

Product Data

Applicable pH range	0 – 10
Bulk Density	0.85 g/cm ³
Operating temperature	4 – 60°C
Regeneration	not applicable
Volume Change	not applicable
Pre-Treatment:	Flush with 10 BV solvent at 10 BV/h
Storage Conditions:	at 10 - 30°C protected from light

Technical Integration

- Preferable separate packed layer of resin to guarantee constant water flow through the resin bed.
- Volume and particle size depend on allowed back pressure, required flow rate and cartridge dimension.
- Resin can be combined with any other filtration technology.

Additional Information & Regulations

Toxicity

The safety data sheet must be followed. It contains additional data on product description, transport, storage, handling, safety and ecology.

Disposal

In the European Community resins for water filtration have to be disposed of according to the European waste nomenclature which can be accessed on the internet-site of the European Union.

Storage

It is recommended to store resin at temperatures above the freezing point of water under the roof in dry conditions without exposure to direct sunlight.

Disclaimer

This document contains important information and must be read in its entirety.

The instrAction resins were developed for the purification of drinking water as well as industrial applications. They are dedicated to the binding of heavy metals or bacteria from solution. The resins exhibit a remarkable buffer capacity, therefore careful control of the pH value is strongly recommended, to ensure reproducible performance.

The instrAction resins are usually applied in cartridges, columns or stirred tanks. The use as bulk material is limited to exceptional cases.

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Our products are sold per the current version of our General Conditions of Sale and Delivery.

If any questions occur, please contact an instrAction specialist!

instrAction. Pioneering water filtration technology.