

RESINTECH SIR-400 is a free base form macroporous heavy metal selective weakly basic anion resin. *SIR-400* has unique thiuronium functionality and is able to remove mercury and other heavy metals to very low levels (when present as divalent cations). *RESINTECH SIR-400* is also quite selective for noble metal cations. *SIR-400* is intended for mercury removal and for removal/recovery of various precious metals, when present in cationic form. *RESINTECH SIR-400* is supplied in the free base form.

FEATURES & BENEFITS

- **PRECIOUS METALS RECOVERY**

Precious metals can be concentrated on the resin and recovered by incineration of the resin after use

- **LARGELY UNAFFECTED BY CHLORIDE OR SULFATE CONCENTRATION**

Removes divalent precious metals from anionic complexes

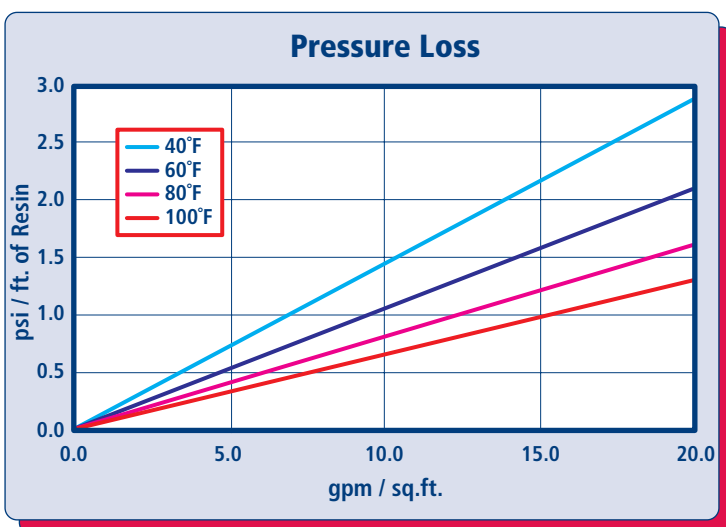
- **EFFECTIVE AT LOW PH**

Can operate in significantly acidic environment, 2 to 6 pH, typical of many leachate conditions

- **ENHANCED SELECTIVITY FOR DIVALENT PRECIOUS METALS**

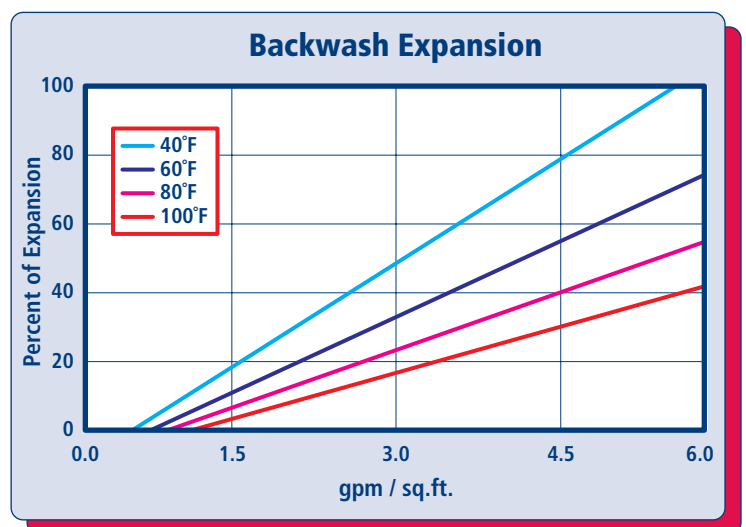
Able to reduce cationic and elemental forms of mercury, gold, platinum and palladium to extremely low ppb levels

HYDRAULIC PROPERTIES



PRESSURE LOSS

The graph above shows the expected pressure loss of *ResinTech SIR-400* per foot of bed depth as a function of flow rate at various temperatures.



BACKWASH

The graph above shows the expansion characteristics of *ResinTech SIR-400* as a function of flow rate at various temperatures.

RESINTECH® SIR-400

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Macroporous
Functional Group	Thiuronium
Physical Form	Spherical beads
Ionic Form as shipped	Free Base
Total Capacity	
Free base form	1.5 meq/mL
Water Retention	
Free base form	35 to 50 percent
Approximate Shipping Weight	
Free base form	44 lbs./cu.ft.
Screen Size Distribution (U.S. mesh)	16 to 50
Maximum Fines Content (<50 mesh)	1 percent
Minimum Sphericity	95 percent
Uniformity Coefficient	1.6 approx.
Resin Color	White to tan

Note: Physical properties can be certified on a per lot basis, available upon request

SUGGESTED OPERATING CONDITIONS

Maximum continuous temperature	
Free base form	175°F
Minimum bed depth	36 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	25 psi
Operating pH range	2 to 6 SU
Service flow rate	0.5 to 2 gpm/cu.ft.

Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.

For operation outside these guidelines, contact ResinTech Technical Support

APPLICATIONS

PRECIOUS METALS REMOVAL

Removal of precious metals by *RESINTECH SIR-400* generally follows the metals solubility in the presence of sulfide ion. Metals load according to their relative sulfide affinities. However, high concentrations of "tramp" metals may also load and may prevent loading of more desirable metals. The order of selectivity of Resintech SIR-400 shown in the following sequence:



SIR-400 does not remove anionic complexes of metallic cations. The presence of chelating agents such as EDTA interfere with SIR-400's performance. As pH increases, capacity decreases. For most heavy metals, there is a critical pH above which the metal is no longer present as a free cation. In most cases, the best-suited pH will be less than 7.0. The thiuronium groups contained in SIR-400 become deactivated at pH greater than 10.

CAUTION: DO NOT MIX ION EXCHANGE RESIN WITH STRONG OXIDIZING AGENTS. Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials, such as ion exchange resins.

MATERIAL SAFETY DATA SHEETS (MSDS) are available for all ResinTech Inc. products. To obtain a copy, contact your local ResinTech sales representative or our corporate headquarters. They contain important health and safety information. That information may be needed to protect your employees and customers from any known health and safety hazards associated with our products. We recommend that you secure and study the pertinent MSDS for our products and any other products being used. These suggestions and data are based on information we believe to be reliable. They are offered in good faith. However we do not make any guarantee or warranty. We caution against using these products in an unsafe manner or in violation of any patents; further we assume no liability for the consequences of any such actions.

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SIR-400 rev 1.2