

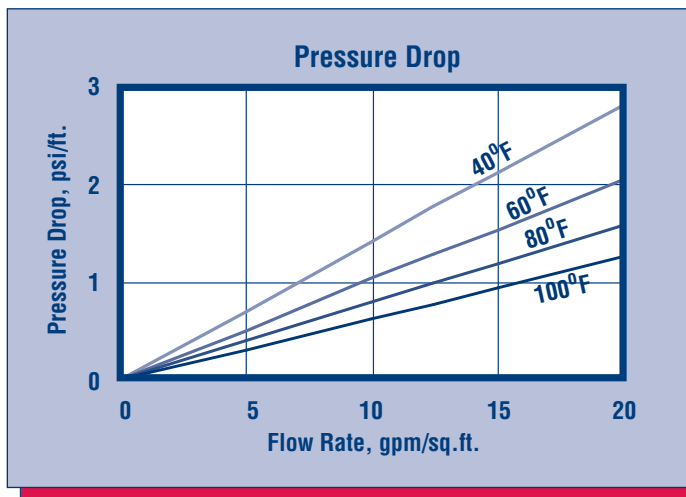
RESINTECH SIR-200 is a macroporous cation exchange resin with thiol functional groups. This resin has chelating properties for mercury and for noble metals when they are present as divalent cations. *RESINTECH SIR-200* is intended for use in removing cationic forms of mercury and/or noble metals from waste streams. *RESINTECH SIR-200* is able to operate in an alkaline environment (up to pH 10).

RESINTECH SIR-200 is supplied in the regenerated form as moist, tough, uniform beads. It cannot be regenerated by conventional techniques.

FEATURES & BENEFITS

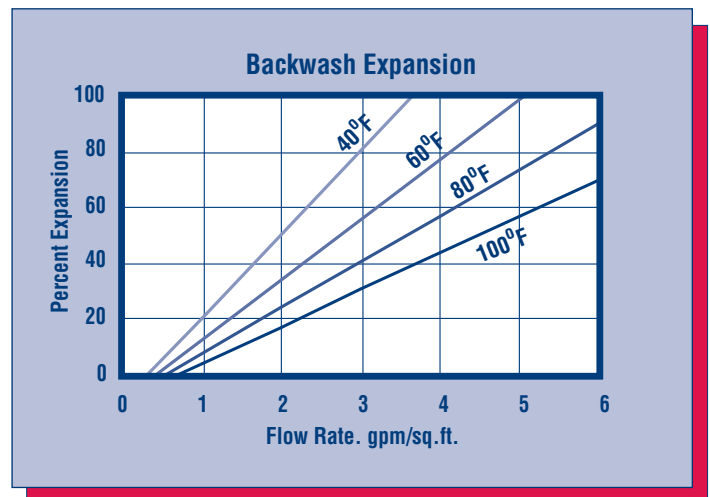
- ENHANCED SELECTIVITY FOR DIVALENT MERCURY**
 Able to selectively reduce, in the presence of other heavy metals the divalent cationic form of mercury to extremely low (ppb) levels.
- EFFECTIVE OVER WIDE pH RANGE**
 Able to operate in acidic and alkaline environments (2-10 pH).
- LARGELY UNAFFECTED BY CHLORIDE OR SULFATE CONCENTRATION**
 Can remove divalent mercury from anionic complexes.

HYDRAULIC PROPERTIES



PRESSURE DROP

The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate at various water temperatures.



BACKWASH

Before use, the resin bed should be backwashed at a rate that expands the bed by 25 to 50%. This will remove any air bubbles or fines trapped in the bed and will classify the bed, ensuring even flow distribution and low pressure drop.

Distributed By:

**APPLIED
MEMBRANES INC.®**

RESINTECH® SIR-200

PHYSICAL PROPERTIES

Polymer Structure	Macroporous, styrene/DVB
Functional Group	Thiol
Ionic Form (as shipped)	Hydrogen
Physical Form	Tough, spherical moist beads
Screen Size Distribution	16 to 50
+16 mesh (US STD)	< 5 percent
-50 mesh	< 2 percent
Water Retention (H+ Form)	45 to 50 percent
Solubility	Insoluble
Approx. shipping wt. (H+ Form)	45 lbs/cu. ft.
Swelling (H+ to Hg+2 form)	< 5 percent
Sphericity	> 95 percent
Specific Gravity:	
Hydrogen	1.10
Mercury Form	1.40

SUGGESTED OPERATING CONDITIONS

Maximum temperature	70°C (160°F)
Maximum free chlorine	Zero*
Minimum bed depth	3 ft.
Maximum pressure loss	25 psi
Backwash expansion	50 to 75 percent
Service flow rate	1 to 2 gpm/cu. ft.
pH	2 to 10

*NOTE: The functional groups of *RESINTECH SIR-200* are easily oxidized. It is essential to remove all free chlorine and other oxidants ahead of the resin bed.

REGENERATION

RESINTECH SIR-200 can be partially regenerated with concentrated hydrochloric acid. Complete regeneration may be possible with 5 molar hydrogen sulfide.

SUGGESTED OPERATING CONFIGURATION

Due to the relationship between operating capacity and leakage, it is suggested that operating systems utilize a primary and a polisher service vessel operated in series. The fresh resin is placed in the polisher vessel. When the primary vessel is exhausted, the polisher vessel becomes the primary. The exhausted resin is replaced and the primary vessel becomes the polisher.

OPERATING CAPACITY

RESINTECH SIR-200 has a very high affinity for mercury and for noble metals when these metals are present as divalent cations.

High concentrations of sulfates and chlorides have little or no effect on the selectivity or operating capacity of *RESINTECH SIR-200*.

The order of selectivity of *RESINTECH SIR-200* shown in the following sequence. Hg>Ag>Cu>Pb>Cd>Ni>Co>Fe>Ca>Na. *RESINTECH SIR-200* does not remove anionic complexes of metallic cations. The presence of chelating agents such as EDTA and NTA may interfere with *RESINTECH SIR-200*'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 thiol groups become deactivated at pH greater than 10.

The capacity of *RESINTECH SIR-200* generally increases as the influent concentration of precious metals increases, and as the allowable leakage increases. The following tables list approximate total capacities of *RESINTECH SIR-200* for various precious metals and the effect of leakage on expected operating capacities:

Metal Cation	Equilibrium Capacity meq/ml	Minimum PH
Mercury (Hg+2)	1.2	2
Silver (Ag+)	1.2	2
Copper (Cu+2)	1.1	3
Lead (Pb+2)	0.5	4
Cadmium (Cd+2)	0.5	4
Zinc (Zn+2)	0.3	5
Nickel (Ni+2)	0.2	5

EFFECT OF ENDPOINT LEAKAGE ON OPERATING CAPACITY (based on 20 ppm Hg+2 in the inlet)

100% leakage	-	100% of total capacity
10% leakage	-	50% of total capacity
1.0% leakage	-	5% of total capacity
0.1% leakage	-	0.5% of total capacity

The capacity of *RESINTECH SIR-200* for the monovalent forms of metals that can exist as either, is approximately 25% the capacity for the divalent forms.

Distributed By:

APPLIED
MEMBRANES INC.®

2325 Cousteau Ct. Vista, CA 92081 ☎ (760) 727-3711 📠 (760) 727-4427
🌐 www.appliedmembranes.com ✉ sales@appliedmembranes.com

***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.

RESINTECH is a registered trademark ® of RESINTECH INC.

SIR200serv053102