PUROLITE
ION EXCHANGE RESINS

Product Data Sheet

PUROLITE® S924

Chelation Resins

CHELATING RESIN FOR MERCURY REMOVAL, REGENERABLE

Purolite S924 is a chelating resin, polystyrene based and designed for the selective removal of mercury. The mercury is strongly bound to the functional groups to form highly stable complexes with high selective affinity compared with those of other heavy metals. Even so the high selectivity for metals such as silver, copper, lead, cadmium, nickel and cobalt, makes this resin useful in waste treatment and hydrometallurgical processes. The high selectivity for mercury is largely unaffected by high chloride or sulphate content of the effluent. Effluent solutions that may typically contain 0.01-25ppm of mercury can be treated to reduce the concentration to significantly less than 5ppb residual mercury. Purolite S924 can load up to 150 g (16 lb/cu.ft) of mercury per litre of resin. Purolite S924 is designed for the removal of moderately low concentrations of soluble mercury salts from brine streams used to produce caustic soda and chlorine where mercury cells are used, and may be regenerated with concentrated hydrochloric acid solutions. In the process for the manufacture of caustic soda and chlorine from brine, where all or part of the production uses mercury cells, the mercury rich regenerant acid may be neutralized with the sodium hydroxide to produce a recovered brine solution that may be recycled to the mercury cell process. Mercury may be present at very low concentrations and consequently run lengths are often long (thousands of hours). It is sometimes not economic to regenerate the resin for re-use. In such cases Purolite S920 may be preferred because of its higher capacity. Purolite S924 is prone to oxidation and long-term contact with the atmosphere is detrimental. It is recommended that this resin is shipped and stored under water. Also, free chlorine and other strong oxidizing agents may damage the resin. Their removal from solution by filtering through activated carbon is recommended.

Basic Features:

Application	Mercury Removal
Polymer Structure	Macroporous crosslinked polymer
Appearance	Spherical beads
Functional Group	Complex weakly acidic
Ionic form as shipped	H

Typical Physical and Chemical Characteristics:

Mercury Capacity min.		200 g/l
Moisture Retention (H)		45-51 %
Mean Size Typical		0.55-0.8 mm
Uniformity Coefficient (max.)		1.60
Swelling H->Namax		40
Swelling H->Hgmax		5
Specific Gravity		1.10 g/ml
Shipping Weight (approx.)		730-750 g/l
Temp Limit	Na^+	60 °C

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Temp Limit	Na^+	140 °F
pH Limits		0-13 (Stability)
pH Limits		1-11 (Operating)

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