Phenol Removal Resin

Cat. No. phenolRE-01 **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Phenol Removal Resin
Description	Phenol Removal Resin is a powerful adsorptive resin based on adsorption functions, made from crosslinked polystyrene, without any ionic functional groups. It is mainly used for adsorbing phenol and its compounds, chlorinated hydrocarbons and other chlorine-containing substances, surfactants, amino acids, fatty acids, etc., in aqueous solutions. phenolRE-01 is also widely used in the pharmaceutical industry for the purification of various compounds.
Matrix structure	Polystyrene copolymer
Physical form	Moist spherical beads
Functional group	None
Screen size (wet)	US mesh 18 to 40
Particle size (95% min.)	0.3-1.0 mm
Moisture content	57±3%
Specific gravity of beads	1.02-1.05 g/mL
Porosity of dry	0.4 mL/mL of bead

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beads	
Surface area of dry beads (min.)	550 m²/g (BET)
Bulk density	700-750
pH range	0-14
Maximum Temperature Stability	150 centigrade
Solubility	Insoluble in any solvent
Test Purpose	The adsorption effect of Phenol Removal Resin on organic substances.
Test Materials and Equipment	Wastewater sample 1L of Phenol Removal Resin 1 resin column (Φ40mm×1200mm) or PVC pipe (as per actual situation) Beakers, tubing, and other testing equipment
Resin Test Steps	1. Install a Φ40mm×1200mm resin column. 2. First, rinse the resin column with pure water. Slowly fill the column with 1 L of Phenol Removal Resin (Note: be sure to use pure water for filling the resin). Fill each column with 1 L of resin, taking care to prevent resin from spilling outside the column. 3. Connect the tubing, and backwash the resin bed with pure water to a height of at least 40% of the resin bed. The backwash flow rate should be 20 BV/H (i.e., 20 L of raw water per hour through the resin bed). Backwash for 20 minutes. 4. After backwashing, drain the pure water and allow the resin to settle. 5. Filter the raw water sample to remove solid impurities. Solid particles should be less than 1 micron, and the oil content in the water should be controlled to below 5 ppm. The water should not contain strong oxidizing agents. 6. Let the raw water flow into the resin column at a flow rate of 10 BV/H (i.e., 10L of raw water per hour through the resin bed). 7. Monitor the quality of the effluent from

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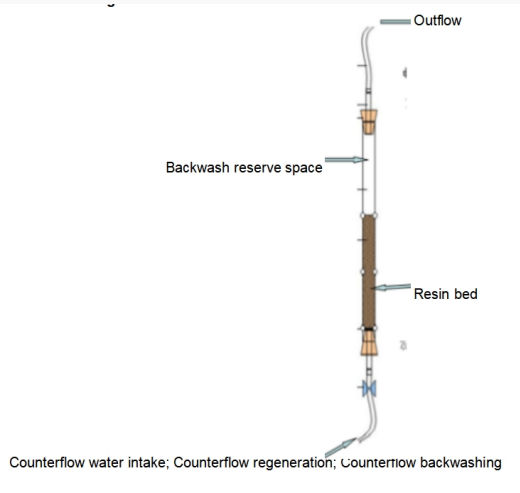
	the resin column or periodically check the effluent quality (it is recommended to take water samples every half hour for testing). When the concentration of organic substances in the effluent increases or exceeds the expected value, regenerate the resin.
Regeneration Steps	1. Backwash the resin with pure water for 15 minutes, ensuring an expansion rate of 30%-50%. 2. Introduce a 4-5% sodium hydroxide (NaOH) solution in counterflow at a flow rate of 4 BV/H (i.e., 4L of regenerating agent per hour through the resin bed). Run for about 30 minutes. 3. Afterward, introduce pure water or softened water in counterflow at a flow rate of 4 BV/H (i.e., 4L of rinse water per hour through the resin bed). Run for about 30 minutes. 4. After regeneration is complete, continue the operation. 5. When the resin is not in use for an extended period, it must be stored in a moist state after regeneration.
Storage	Storage of Resin in Unused State During resin storage, both the inner and outer packaging should be kept intact. The resin should be protected from freezing, exposure to direct sunlight, and rain, and should be stored in a dark place at room temperature. Packaging Considerations The inner and outer packaging of the resin effectively protects it from contamination, loss, and moisture evaporation. If the packaging is damaged or opened, it may cause resin leakage and contamination. Loose resin particles could cause a slip hazard on the floor, which could lead to resin loss and pose a safety risk to personnel (slipping or falling). Additionally, long-term exposure of resin to air increases the risk of physical, chemical, and biological contamination, potentially degrading the resin. It can also lead to moisture evaporation from the resin's surface and interior, affecting its performance. Therefore, once the resin packaging is opened, it should be used as soon as possible. Unused resin should be re-sealed for storage (using the original packaging, but ensuring the packaging is intact and clean). If any damage to the packaging is found during storage, it should be promptly repaired or repackaged. It is important to note that if the resin becomes dry due to moisture loss, do not directly rehydrate it with water, as

this could cause the resin to swell too quickly and fracture its structure. Instead, slowly add concentrated saltwater to the resin and allow it to stand for at least 1 hour to allow the internal and external solution systems to reach equilibrium. Afterward, gradually reduce the saltwater concentration through continuous treatment to exchange the saltwater, and then wash the resin thoroughly with pure water. For highly dried resin, it is recommended to first optimize parameters such as saltwater concentration, addition speed, and equilibration time in a laboratory, and confirm the process before scaling it up. Temperature Considerations The recommended storage temperature for the resin is 5-40 centigrade, and the packaging should not be exposed to ultraviolet light. The resin should be stored away from extreme temperature environments, such as radiators, cold storage rooms, or boilers. If the storage or transportation environment is likely to experience low temperatures, the resin should undergo a saltwater replacement treatment before being sealed to prevent freezing inside or outside the resin. If the resin freezes for any reason, it should be allowed to thaw naturally. Storage After Resin Loading and Use After the resin has been loaded and used in the system, if it is to be shut down for maintenance or due to seasonal shutdowns, the resin should undergo full regeneration and washing before being sealed for storage (to prevent microbial growth during long-term storage, the resin is often stored in a 10% NaCl saltwater solution or a 10% NaCl + 2% NaOH alkaline saltwater solution). Water Injection to Prevent Moisture Loss For resin that will be stored in a resin column for a short period, it should undergo full regeneration and washing. A certain amount of clean deionized water should be injected into the column to preserve the resin, ensuring a stable liquid level above the resin bed by at least 2 cm. Saltwater Replacement to Prevent Freezing If the downtime coincides with winter or when the environment is cold, to prevent the resin from freezing during storage, the resin should undergo full regeneration and washing, and then be soaked in saltwater to replace the internal and external water of the resin bed. Before resuming operation, the resin should be rinsed and exchanged with clean deionized water. Saltwater (or Alkaline Saltwater) Soaking to Prevent Contamination If the resin is stored in the column for a long

	period, there is a risk of microbial growth such as algae or bacteria. To effectively suppress this, the resin should be fully regenerated and cleaned (to maintain its cleanliness), and then soaked in a 10% NaCl saltwater solution or a 10% NaCl + 2% NaOH alkaline saltwater solution. The resin should be stored in the corresponding saltwater or alkaline saltwater solution to effectively prevent microbial growth.
Schematic Diagram of Resin Column	

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