

Black Cation Resin

During the sulfonation step of the synthesis of cation exchange resin beads, solvent is added to swell the beads. Some common solvents are ethane dichloride or ethylene dichloride. These solvents or others are used to swell the beads before and during the sulfonation action.

Another solvent that can be used is propylene dichloride, which will allow the reaction to run at a higher temperature which can char the bead. The charring reaction occurs due in part to the higher reflux temperature of the reaction mixture. In any case the result is that dark color matter is deposited inside the resin structure resulting in a resin that is dark in color. The dark color is permanent and does not come out, even after years in service in chlorine containing waters. The higher reaction temperature increases productivity but at the expense of physical stability.

Other methods of making “dark cation resin” rely on adding small, or even trace, amounts of ingredients that can react at the lower temperatures with the sulfonating chemicals. This has the advantage of producing more physically stable products which are equivalent in toughness to premier grade resins.

The dark cation resin has all the same chemical and physical characteristics except for color, color throw, and taste. Since the propylene dichloride has a higher molecular weight and higher boiling point than ethane dichloride or ethylene dichloride, it must be distilled more thoroughly from the final reaction medium and the resin. Resintech CG8-BL and Resintech CG10-BL are two common black strong acid cation resin.

