

November 95

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monocarboxylic acid solutions by using an anion exchange resin. Any halogen values remaining in the lower aliphatic monocarboxylic acid solution which has been contacted with the anion exchange resin are said to be further recoverable by contacting the
5 solution with another anion exchange resin or subjecting the solution to distillation.

US-A-2692855 relates to an ion exchange method of demineralising and sterilising liquids. It is therein stated that a preliminary demineralisation is necessary if solutions
10 containing dissolved ionised substances are contacted with a silver loaded resin, in order to avoid the exchange of silver ions by the cations of the solution.

Kerntechnik, 18 (1976), No 5, pages 207-209; CEW, vol, XVI, No. 10 (1981), pages 45-48 and "A study of fission product uptake
15 by selective ion loaded organic exchange resins" University of Bombay, 1974 Thesis of S.B. Hingorani show that the effect for any particular cation on silver loaded resins is not predictable,

EP-A-0196173 describes the removal of iodide impurities from non aqueous organic media such as acetic acid by the use of a
20 silver or mercury containing

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macroreticular strong acid cation exchange resin such as Amberlyst 15 (Amberlyst is a Registered Trade Mark).

EP-A-296584 also describes using silver exchanged macroreticular resins to purify acetic acid contaminated with iodide
5 impurities.

It has been found that a problem associated with the use of silver-exchanged strong acid cation exchange resins such as described in EP-A-0196173 is that the silver may be displaced by metals which may be present as contaminants in the carboxylic acid
10 and/or anhydride. This displacement of silver is undesirable as it may result in a lowering of the capacity and/or efficiency of the resin and it may also result in unacceptable product contamination with silver.

The technical problem to be solved therefore is to provide an improved process for the removal of iodide compounds from carboxylic
15 acids and/or carboxylic acid anhydrides.

Thus, according to the present invention there is provided a process for removing iodide compounds from a liquid composition comprising a carboxylic acid having 2 to 6 carbon atoms and/or a
20 corresponding carboxylic acid anhydride thereof, and metal ion contaminants, which process comprises contacting the liquid composition with a metal-exchanged ion exchange resin having strong acid cation exchange sites at least 1% of which are occupied by at least one metal selected from the group consisting of silver,
25 mercury, palladium and rhodium wherein prior to contacting with said metal-exchanged resin, the liquid composition is contacted with a cation exchanger in the acid form to remove at least a portion of the metal ion contaminants.

By using a cation exchanger to remove metal ion
30 contaminants prior to use of a resin having metal-exchanged strong acid cation sites, the displacement of silver, mercury, palladium and/or rhodium from the metal-exchanged sites by the metal ion contaminants is reduced.

The metal ion contaminants in the acid and/or anhydride may
35 arise from corrosion or the use of reagents in the up stream

selected from the group consisting of iron, potassium, manganese and sodium

Mixtures of carboxylic acids and carboxylic anhydrides may be used.

Preferably the process of the present invention is used for purifying acetic acid and/or acetic anhydride. The process of the present invention is particularly suitable for purifying acetic acid and /or acetic anhydride prepared by the carbonylation of methanol and/or methyl acetate as described, for example in our published European Patent Application EP-A-0087870, ~~the contents of which are hereby incorporated by reference.~~

The iodide impurities present in the liquid composition comprising carboxylic acid and/or anhydride may be C₁ to C₁₀ alkyl iodide compounds, hydrogen iodide or iodide salts. The process of the present invention is particularly suitable for removing C₁ to C₁₀ alkyl iodide compounds such as methyl iodide and hexyl iodide.

The present invention will now be illustrated by reference to the following examples.

Experiment 1 (Comparative Example)

To show the effect of metal ion contaminants on the performance of a silver-exchanged iodide-removing ion exchange resin the following experiment was performed.

A silver-exchanged Purolite Cl45 ion exchange resin (approximately 35% of cation exchange sites in silver form) was operated at 79°C with a feed of acetic acid to which had been added hexyl iodide equivalent to a concentration of about 500 ppb iodide and which also contained about 30 ppb iodide equivalent of other unidentified iodide compounds. The feedrate of acetic acid was initially 5 liquid hourly space velocity (LHSV) and then increased to 10 LHSV. Assuming that all the acid was fed at a 10 LHSV, the time on stream before iodide breakthrough was calculated to be 950 hours.

This lifetime is shorter than would be expected from the amount of silver present on the resin. The resin was examined and found to be contaminated with an amount of calcium ion equivalent to an average of 0.7 ppm in the feed. Analysis of silver, calcium and iodide at different positions in the resin bed are given in Table 1. The figures show that silver is moving down the resin bed, as