

Sabon RL Jr, Cheng EY, Stommel KA, Hennen CR.

**Glass particle contamination: influence of aspiration methods and ampule types.**

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Glass particle contamination of the contents of single-dose glass ampules can occur upon opening. In our study we determined if different aspirating techniques or different ampule types had any effect on glass particle contamination. In part 1 of this study different aspiration techniques were evaluated. The four groups included a control group of 3 mm tubing, an 18-g 1.5-inch needle, a filter needle, and an in-line filter. A significant reduction in glass particle contamination was found when using either an in-line filter or a filter needle compared with the control group or when aspirating through an 18-g needle. The average number of glass particles found per ampule for each group was 100.6 +/- 16.3, 65.6 +/- 18.7, 1.3 +/- 0.3, and 1.2 +/- 0.3, respectively, for the control group, 18-g needle, filter needle, and in-line filter. In part 2 we examined four types of glass ampules: transparent metal etched, transparent chemically etched, amber metal etched, and amber chemically etched. There was a significantly greater number of glass particles found in the transparent metal etched ampules compared with that found in the other three ampule types. Transparent metal etched ampules yielded an average total number of particles per ampule of 45.9 +/- 15.4 compared with 3.2 +/- 0.9, 6.0 +/- 1.7, and 3.1 +/- 0.6, in the transparent chemically etched, amber metal etched, and amber chemically etched ampule types, respectively. This study demonstrates that using drugs supplied in ampules other than transparent metal etched type and by using filters will decrease the risk of parenteral injection of glass particles.