

Baxa Corporation

**Using SmartPak[®] Pharmacy Bulk
Packages with the Rapid-Fill[™] Automated
Syringe Filler**

Technical Paper

A value analysis of the system synergies for automated syringe preparation with Samson Medical Technologies' pharmacy bulk packages.



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Abstract

This paper summarizes the significant system synergy of preparing antibiotic syringes using the Baxa Rapid-Fill Automated Syringe Filler (ASF) and Samson Medical Technologies' SmartPak pharmacy bulk packages. Each product, alone, provides many features and benefits for syringe preparation. The Rapid-Fill ASF is safe, compact and fast. SmartPak pharmacy bulk packages are efficient and minimize the risk of contamination by eliminating steps in the process for reconstituting and pooling multiple bulk drug vials. The individual benefits of both products offer even greater synergy when used together as a system for preparing batch antibiotic syringe doses.

The Rapid-Fill Automated Syringe Filler

The Baxa Rapid-Fill Automated Syringe Filler™ (ASF) fills, caps and labels sterile syringes. This system feeds proprietary banded and tip-capped 12 mL syringes through a compact machine that attaches to bulk solution bags. The operator simply loads the syringes and the bulk source container, then programs the ASF using the integrated computer screen. The result is labeled and capped syringes – typically in 5 mL and 10 mL volumes.

There are many benefits to the ASF system for general use in pharmacy syringe filling. These benefits can be expanded through the synergy with bulk pharmacy bags, described later in this paper.

Key Rapid-Fill ASF benefits are:

- **Safety.** The system minimizes touch contamination and supports barcode labeling for pharmacist verification.
- **Compact.** Designed to operate within standard pharmacy hoods.
- **Fast.** Fills, caps and labels 200 syringes in 15 minutes.

Information and a video demonstration of the Automated Syringe Filler are available at <http://www.baxa.com/rapidfill/>.

SmartPak Pharmacy Bulk Packages

Samson Medical Technologies provides cefazolin sodium in sterile bulk bags that contain either 100 grams or 300 grams of powder for reconstitution. Each SmartPak consists of two sterile bags. The inner bag, which holds the sterile drug, is made of an additive-free polymer. This polymer is compatible with many anti-infective powders. The inner bag features two ports to facilitate the addition of diluents and withdrawal of constituted doses, respectively, consistent with hospital pharmacy compounding protocol. The outer bag protects the inner bag (and the material contained within) from light, moisture and oxidation. This bag is not in contact with the drug product and consists of a four-layer laminated aluminum foil, with the internal layer made of an additive-free polymer.

SmartPak Bags have a four-liter capacity, giving the compounding pharmacist a great deal of latitude to supply the most appropriate concentrations for the patient population being served.

The SmartPak bag is compatible with commercially available pumps, tube sets, syringes and most automated filling systems. Independent studies¹ have shown that replacing traditional 10-gram pharmacy bulk packages with one SmartPak bag containing 300 grams of Cefazolin results in a savings of 45 minutes dose-preparation time. Additional SmartPak products – cefuroxime, ceftioxin, ceftriaxone and nafcillin – are pending to expand the line.

Key SmartPak System benefits are:

- **Compliance.** Provides a closed system for reconstitution and withdrawal, utilizing disposable components; reducing manipulations and promoting aseptic compounding best practice.
- **Efficiency.** Reduces handling, with one bag equivalent to up to 30 typical pharmacy bulk packages.
- **Flexibility.** Capacity permits ability to vary concentration according to patient need, e.g., for pediatric and/or geriatric patients.
- **Safety.** Unbreakable plastic bag reduces risk of technician injury and drug wastage.
- **Compact.** Space-saving package – a typical hospital can store a four-month supply in one drawer. Occupies less space in dumpster than glass, reducing trash removal cost.

Information and a product demonstration of the SmartPak sterile bulk bags are available at <http://www.samsonmt.com/>.

Rapid-Fill and SmartPak: System Synergies

Using the SmartPak pharmacy bulk package is an obvious complement to an automated filling system such as the Rapid-Fill ASF. As noted in the profiles above, each of the products, individually, offers value for health-system pharmacies. Together, the automated syringe filler and pharmacy bulk package systems complement each other in a variety of important areas.

- **Enhanced pharmacy labor productivity.** In one cefazolin example, only one 300 gram SmartPak bag must be reconstituted, compared to 30 ten-gram vials. SmartPak eliminates virtually all of the reconstitution steps and *all* of the transfer steps into a larger bulk bag. Once the SmartPak is reconstituted, the ASF takes over the tedious process of filling and labeling syringes by automatically producing the doses. The result is a tremendous, quantifiable increase in labor productivity. Improved technician job satisfaction is an additional bonus for the process.
- **Reduced Risk of Contamination.** Using closed systems, pharmacies can achieve a significant reduction in handling and injections, therefore reducing the potential for touch contamination. SmartPak bags are reconstituted with only one diluent injection into the bulk bag, as compared to the many manipulations required to reconstitute and transfer up to 30 bulk vials. ASF

syringes are automatically produced without intervention, therefore eliminating human touch contamination potential during the filling and capping process.

- **Superior labeling.** Throughout the entire syringe preparation process, components are labeled and traceable. SmartPak bag labeling is complete once the reconstitution date is added after injecting the diluent into the bag. ASF finished syringes have custom, user-definable and programmed labels automatically applied to every dose after it is filled and capped.
- **Safety.** Using these systems, users have far fewer opportunities for needle stick injuries, as puncture steps are reduced and even eliminated.
- **Less hazardous material disposables.** Fewer needles are used to produce the doses, reducing the sharps disposal volume.
- **Reduced waste material.** Preparing bulk bags and automating syringe filling eliminates all of the glass vials and other IV preparation disposables.
- **Less pharmacy inventory.** A single SmartPak replaces many standard pharmacy bulk package vials and additional preparation disposables required for the reconstitution and transfer process. The automated syringe filler combines syringes, tip caps and labels in a single disposable. Both systems contribute to a vast reduction of products needing to be stocked for a complete syringe preparation program.

Baxa offers additional technical support to help you successful in combining these two efficient and productive syringe preparation systems. Please contact your Baxa representative or Customer Support for a document presented in a policy and procedure format that can be readily incorporated into any organization. The title is "Bulk Antibiotic Reconstitution for SmartPak[®] with Rapid-Fill[™] ASF Delivery."²

Summary

Both the Automated Syringe Filler and SmartPak products offer many individual benefits for streamlining pharmacy syringe preparation. Used together, they provide significant synergies that result in one of the safest and most efficient methods for compounding pharmacies to prepare IV syringes.

References

- ¹ On file at Samson Medical Technologies, Cherry Hill NJ.
- ² Copyright 2007, Baxa Corporation.