

PRACTICAL SHEETING AND PACKAGING METHODS FOR THE SOHO MARKET

RANDY LORENZ

DIFFERENT METHODS OF PACKAGING CUT SIZE SHEETS FOR THE SMALL OFFICE/HOME OFFICE MARKET POSE CHALLENGES FOR FINISHING OPERATIONS.

THE AMOUNT OF CUT SIZE SHEETS BEING CONSUMED IN the U.S. small office/home office (SOHO) market is increasing each year. In 1997 the SOHO market, which is defined as home offices and business offices with one to nine employees, consumed 596 thousand tons of cut size sheets. In that same year the small office market, which is defined as business offices with 10 to 99 employees, consumed 1229 thousand tons of cut sheets. As an overall percentage of the 1997 cut size sheet market, the SOHO market consumed 11.5% and the small office market consumed 23.5%.

The projected compound annual growth rate for cut size sheets in the SOHO segment is approximately 10.3%, and in the small office segment approximately 5.7% compounded annual growth is projected through 2000. In comparison, the overall U.S. cut size sheet market has a projected growth rate of approximately 6% compounded annually from 1995 to 2000. **Table I** provides figures for the different size office segments.

The SOHO and small office markets are a major segment in the cut size sheet market and are growing at a rapid pace. Due to the dynamic growth in the market, cut sheet converting capacity is also increasing to meet the needs of these markets.

SOHO PACKAGING METHODS

One of the major differences in the SOHO and small office markets in comparison to the medium and large office segments is how the cut sheets are packaged. Any discussion on practical sheeting and packaging solutions for the SOHO market needs to begin with the type of packaging used for the cut sheets. The particular packaging will determine the type of packaging machines or systems with which the sheeter must interface, the num-

ber of discharges the sheeter is required to do per minute, the number of webs most logical to be run on the sheeter, and the speed of the sheeter. Unlike the traditional commodity market, where reams are almost exclusively kraft wrapped and sheet counts are 500 sheets per ream, the SOHO market currently uses five major packaging methods in addition to kraft wrap. Sheet counts can be from 10 to 2500 sheets. Additional packaging methods are being added as new office equipment products for the SOHO market are developed and existing products improved.

Kraft overwrap is still the most common packaging method used in the SOHO market, but polypropylene film overwrap, shrink film wrap, one-piece paperboard envelopes, two-piece paperboard setup or folding cartons, and corrugated packaging systems are gaining in popularity. As the volume of cut sheets increases in these alternative packaging methods, the trend in the industry is to automate or semi-automate the packaging process after the sheeter, which has a major impact on how cut size sheeters are designed and operated.

Shrink wrap is the second most common packaging method. It is affordable in both material and capital equipment costs and is very flexible. It has the benefit of allowing the consumer to see the product and also enables top sheets to be used for point of purchase advertising. The shrink wrap machine can be directly interfaced in-line with the sheeter, but it has the flexibility to be moved where it is needed in the plant with the optional wheels package.

Polypropylene overwrap has the same advantages as shrink wrap but is a more durable material. Although the material costs are higher, it can be printed on for high quality point of purchase graphics. Polypropylene overwrap can be done on a dedicated overwrap machine or

	1995	1996	1997	1998	1999	2000	CAGR*
SOHO	481	531	596	659	715	784	10.3%
Small Office (10 - 99)	1099	1156	1229	1308	1382	1453	5.7%
Medium Office (100 - 249)	687	733	789	847	898	942	6.5%
Medium Office (250 - 499)	864	918	981	1039	1084	1117	5.3%
Large Office (500+)	1335	1424	1517	1598	1666	1716	5.1%
Total	4468	4764	5114	5452	5746	6013	6.1%

*Compound annual growth rate

I. U.S. cut size sheet consumption, in thousands of tons. Numbers do not add exactly due to rounding.

combination kraft and film overwrap machines. Existing kraft overwrap machines can be upgraded to wrap both materials.

One-piece paperboard envelopes are used to package coated cut sheets used in color inkjet printers and other products, such as overhead transparencies, that are relatively expensive and have only occasional use. Sheet counts are normally between 10 and 30 per envelope. Due to the cost of the product and the requirement for zero scratches or markings, production speed is a secondary consideration when producing these sheets.

There are two preferred methods for producing sheets for packaging in one-piece envelopes. The first is to produce the products on the sheeter in sheet counts of 100 to 500. The reams are then transported to an off-line automatic or semi-automatic packaging system. These systems typically consist of sheet batching and feeding equipment for determining the sheet count and then feeding the sheets via a dedicated lugged conveyor into an automatic packaging machine or semi-automatic packaging line. These packaging methods allow for more efficient utilization of the sheeter but have higher capital costs because of the packaging systems.

The alternative for packaging one-piece envelopes is to run the sheeter at reduced speeds and manually pack the one-piece envelopes as the product is discharged from the sheeter. This method requires more labor but less capital investment.

The sheeter is usually run with just one web, regardless of the packaging method used. The reason is that a typical sheet count is 10 to 30 with high quality specifications, and the sheets are packaged in one-piece envelopes.

Two-piece setup or folding cartons are gaining in popularity because they protect the unused sheets and

can be easily stored on a shelf. Sheet counts are usually from 50 to 500. Examples of products sold in this packaging are printing, writing, and coated papers and labels. The trend in the industry is to automate the process instead of performing this task manually. If a two-piece set-up box is used, the reams are automatically inserted into the tray portion of the box as they discharge from the sheeter. Further downstream, the top is automatically placed over the bottom of the tray. In Europe, two-piece folding cartons are being used instead of setup boxes because of their lower cost and the increased speeds at which the sheeter and packaging

machines can be run.

Bulk Pack is an emerging alternative packaging solution for cut sheets for the SOHO market. Bulk Pack is available in several system configurations. The advantages of Bulk Pack are the convenience of purchasing more than 1000 to 2500 sheets at one time, ease of handling, point of purchase display, and the protection of sheets that a corrugated container offers. Interfacing the sheeter to the bulk packaging equipment is dependent on the type of bulk packaging that is being done.

SOHO SHEETING METHODS

Practical sheeting solutions for cut sheets for the SOHO market depend on the packaging materials and methods needed for the product being produced, but several trends and conclusions can be identified.

Due to lower ream counts, shorter orders that increase the number of size changes, and multiple packaging options, cut sheets using alternative packaging methods to kraft wrap are typically produced on modified 5 to 7 pocket Lenox fixed bed sheeters or new dedicated 2 to 6 pocket cut size sheeters.

Existing 5 to 7 pocket cut size sheeters are being modified or rebuilt to increase their ream discharge cycle times from their original design of a maximum of 4 reams/min to 5 or 6 reams/min. This allows the sheeter to be run at higher speeds when producing reams with a low ream count. The other major reason for the rebuild or modification of these existing cut size sheeters is to provide additional interface options for the various packaging equipment options.

An example of these modifications would be to increase the discharges from 4 to 5 cycles/min and add the mechanical and electrical interface for feeding reams directly to a two-piece setup box cartoning machine.

New cut size machine purchases are considered when the rebuild or modification of existing equipment will not meet the production requirements needed. Benefits of new 2 to 6 pocket cut size sheeters are maximum ream discharge cycles of 10 to 13 cycles/min, maximum production speeds of 1200 to 1600 ft/min, and size change times from 10 to 30 min. Also, they allow the advantage of discharging reams from the drive side, operator side and/or front of the machine. Several manufacturers have recently introduced sheeters that have the ability to run both cut size and folio sheets on the same machine. New cut size sheeters can also be configured to include as standard equipment chip board inserters and specialized punching systems.

An additional advantages of new cut size sheeters is the possibility of using on-the-fly splicers instead of shaftless rollstands due to the affordability of web splicers at narrow web widths.

SUMMARY

The SOHO market for cut sheets in alternative packaging methods has grown to the point where dedicated and flexible sheeting and packaging machines are being utilized. Practical sheeting and packaging solutions include both new and modified existing equipment. As the SOHO market continues to grow, the key to sheeting and packaging equipment will be flexibility and affordability in an emerging and changing marketplace. **TJ**

Lorenz is sales and marketing manager, paper and converting industries, with Evtac Inc., Downers Grove, IL 60515.

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