

LITHO LAMINATING, LABELING & MOUNTING

Whoever first said, "a picture is worth a thousand words", got it right the first time! And the statement couldn't be more true than when it is applied to point - of - purchase retailing. P O P retailing, the practice of selling a product to a consumer in its protective package, has caused a revolution in packaging over the last 25 years. Mega square footage retailing outlets, warehouses and shopping clubs have grown, driving retailing, and attracting price sensitive buyers.

Packaging, in the transition, has gone from being only a shipping container to having to be a selling format. A selling format that communicates not only with shipping and warehousing bar codes, but also eloquently with words and pictures identifying contained products to attract and sell the viewing consumer/ target purchaser.

High end graphics is a term that has been coined for the highest quality sophisticated multi-color glossy printing that is required for the package to persuade and sell products to graphics conscious retail consumers.

High quality graphics on corrugated are produced by direct print, spot labeling, full sheet labeling, and by the use of preprinted liner. Direct print quality on single-wall corrugated has been continually improving with advances in flexographic printing; i.e. finer anilox, precise chambered doctor blade metering and thin photopolymer plate technology. Direct print sheetfed offset litho is also being used saving the expense of laminating or labeling. Finer E & F - flute profiles, now common, have made higher quality direct printing possible. Newly developed cheaper, thinner G - flute is even more suitable for high speed sheetfed litho printing/coating. Litho labeling still offers the highest print quality.

While more and more single-wall corrugated is being direct printed, it remains a challenge to print small precise dots on an inherently un-even surface.

Several years ago direct print was forecast to grow at a 30% annual rate, spot labeling at a 12-15% rate and label laminating at a 16-20% rate. A recent survey (Paperboard Pkg 5/99) indicated the following amount of labeling activity: spot labeling being done at 61% of corrugating plants, 44% of sheet plants, and 46% of folding carton plants with full label application being done at 34% of corrugating plants, 48% of sheet plants and 31% of folding carton plants.

Litho labeling describes the process of gluing (typically 70# printed/coated paper) to single-wall corrugated, while lami-

nating is used to describe the process of gluing (typically 10-12 pt. printed/coated board) to single-face corrugated. Both processes are used to produce cartons and displays featuring the highest quality printed sheetfed offset litho decoration. Mounting is used to describe the process of laminating a full printed/coated label to foam board or chip board. Displays are commonly fabricated from the mounted label foam board while folding cartons are fabricated from the mounted label chip board.

Litho laminating equipment (offered by at least 7 manufacturers to the corrugated, folding carton and printing industries) will typically process 60# to 0.038 inch litho sheet, aqueous adhesive laminating it, spot or full sheet, to any substrate from 0.012 to 0.125 inch, including , C, D, E, and F flute, single-face and single-wall, at speeds of up to 10,000 sheets per hour. Specific equipment will process heavier stocks, larger label sheets and run in-line or roll to sheet.

Most, if not all litho sheet for laminating is going to be either aqueous or UV coated. Some might be both aqueous prime coated and then in-line or off-line UV coated or varnished. Inks will be conventional litho oxidizing/polymerization types or they could be UV. New hi-bred conventional/UV inks are also used effectively with in-line UV coating.

Experience tells us that aqueous coated litho printing is generally no problem to the laminating process. If there is a potential for a problem it would be an attack of the aqueous coating by the amines contained in an aqueous laminating adhesive. This could result in resolubilization of an aqueous coating. These amines could also have an affect on an alkaline sensitive pigment in an ink causing a color shift.

Generally, aqueous coatings are more forgiving than UV coatings. The UV curing process, and the infrared output of UV mercury arc lamps can cause localized heating over dark colors. This consequently can lead to a sheet with spot dryness problems. There is also greater difficulty removing adhesive moisture through a UV coating compared to an aqueous coating. Care must also be taken with coating selection so that score cracking does not become an issue.

Several problems can emerge when litho laminating. The most common are blistering or bubbling. Both of these are related to the grain direction of the litho printed sheet. Grain direction becomes a factor because paper will grow when moisture is added to it as it is when aqueous adhesives are

OVER

applied in the laminating process. The grain direction of a litho printed sheet should run across the laminating machine so that when the label is applied it is rolled on allowing the label to grow in the machine direction. Whenever blistering and/or tunneling are observed one should always first check grain direction.

Blistering or bubbling is also sometimes seen when the substrate that a label is being laminated to is a foam board material with a slippery liner attached to it. These defects may form during laminating or later during the adhesive curing process.

Blistering can also be caused by an adhesive that is not compatible with the two materials being laminated together. Sometimes bubbles can form as a result of an adhesive drying too slow. An easy correction is to simply run the machine a bit slower so that the adhesive starts drying slightly before the litho label makes contact with the substrate being laminated to. Obviously another solution is to change to a faster drying adhesive. Care must be taken with this approach because when an adhesive dries too fast, adhesion problems can be produced. This can in turn be seen as wrinkles or adhesive lines that are visible. The amount of adhesive applied can also cause bubbling. This can result when too much moisture is applied to the litho sheet which can cause distortion. Adhesives should be metered correctly to apply the thinnest possible application to produce target bonding and defect free laminations.

When laminating metallized printed/coated substrates, especially plastic films, one must realize that there is no place for the adhesive moisture to go but down into paperboard substrates. It is more critical with film laminates to choose the correct adhesive.

A climate controlled environment is best for any laminating operation offering better control over process variables involving, substrates, adhesive viscosity, and machine. Environmental temperature and relative humidity variations can have a notable affect on the drying time of an adhesive. Be careful not to store printed material in a non-controlled environment and then bring them into a controlled area for laminating.

Moisture present in the laminating, labeling or mounting process from the adhesives utilized, requires that the overprint coated label sheet have good block resistance.

Whenever you consider coating, consider **CORK!**for leading expertise in formulating for laminating, labeling and mounting.

LOOK TO CORK!..... for all of your coating and varnish needs, for both **aqueous** & **UV/EB** coatings and varnishes.