

GUIDELINES FOR DIRECT FOOD CONTACT INSERTS

NS11
(6/06)

Introduction:

The necessity of providing complete information regarding the printing process and all available press parameters is of great importance in enabling Colorcon to provide the best possible ink formula necessary to produce a quality printing job. With direct food contact insert printing, it is vital that we have thorough knowledge of the food product, packaging conditions and end-use requirements to which the insert will be subjected. The following checklist should help in providing the necessary information to enable us to anticipate any potential problems or interactions which might occur between the food product and the printed insert.

Type of Product

- a) Be as specific as possible (Lay's Potato Chips, White Wonder Bread, frozen beef/poultry, Tender Vittles cat food, etc).
- b) Is the product dry, wet or greasy? If wet or greasy, what is the approximate moisture, grease, fat or oil content? Be careful! Some so-called "dry" products may contain fairly high levels of moisture or grease such as "soft" pet foods, breads, cookies, tea and /or coffee.

Coupon Insertion/Storage Conditions

- a) Hot when inserted, cooled to room temperature (obtain temperatures if possible).
- b) Inserted hot, then flash frozen.
- c) Inserted at room temperature, stored at room temperature, or refrigerated, etc.

End-Use Conditions:

- a) Abrasiveness of product - example, potato chips vs. white bread or dry cereal.
- b) Shelf life of product (how long the insert is likely to be in contact with the product). Example-bread will have a shelf life of several days. Dry cereal or frozen food may be on the shelf or store for a month or longer.

Colors-Bleed Resistance:

Since red, or colors containing considerable amounts of red pigment (oranges, deep blues, reflex blue, etc.) are most likely to bleed, try to limit coverage of these to spot colors, if possible. Try to limit red with process work also, although this may be more difficult to do. As indicated, reds are most likely to bleed. Yellows may also, but usually only under more extreme conditions. Black, blue and some browns usually have excellent resistance to bleed.

Bleed Vs. Product Resistance:

Bleed is generally described as the pigment itself being attacked or solubilized by the product or the moisture or grease in the product. With product resistance, some component of the product attacks the entire ink film itself and usually redissolves it (similar to the way paint remover dissolves paint). Generally, the easiest way to differentiate between color bleed and product resistance is whether only one or two colors smear or "run" or if they all do. If only the red (or yellow) smears and others do not, it is usually color bleed. If all colors smear, it indicates the ink system itself (varnishes, etc.) have poor resistance to the product. Both of the above may be reduced or eliminated by using

our overprint varnish or aqueous coating. However, the only sure way to determine this is by product testing under actual end-use conditions.

Product Testing:

This is most important. Except for dry, non-abrasive products, we recommend this in all cases. All of the actual colors to be used on the job should be tested with the product under actual insertion and storage conditions. Lab testing is helpful in providing preliminary data but actual conditions cannot always be duplicated exactly.

The easiest way to product test is to utilize proofs (both with and without barrier varnish or coating) leaving an unprinted border around each. Insert them with the product under conditions identical to the way it would be done on the actual job, and store the product as it normally would be for its anticipated shelf life, if it is short (a week or less).

If the product shelf life or storage is long, it can usually be checked after 2-3 weeks, since color bleed or poor resistance to the product usually occurs rather quickly, if no bleed or smearing is observed within 2-3 weeks, it is probably unlikely it will occur if stored for longer periods.

Odor and Taste:

Because many foods can pick up stray odors which can affect their taste, it is important that the inks be thoroughly dried and some "winding" time be allowed before insertion. "Fanning" during this period is recommended. Although certain printing processes, and the inks used for them generally provide much less residual odor than others, it is still important to consider how and if ink and/or paper odors affect the product.

This is particularly true of certain foods such as those containing butter, chocolate, margarine or cocoa. It is not usually as much of a problem with dry cereals, pet foods, meats or poultry products.

The following list provides a general guide to the relative residual odor intensity of the various printing processes and the ink systems, from highest odor level to lowest.

1. Sheetfed L.P./Offset (oil-based)
2. Non-Heat Web L.P./Offset
3. Silk Screen*
4. Heatset Web Offset
5. Glycol Based L.P./Dry Offset
6. Flexo/Gravure (Solvent or water)*

*These can rank higher or lower depending on the resin/solvent systems used and the completeness of drying (residual solvent). Although analytical tests can be used to detect residual solvents, odor and taste effects are very subjective and are generally tested using taste and odor panels.

Generally, odor and taste effects can be tested at the time bleed and product resistance is tested. However, because of differences in printing, drying and processing conditions, it is best to test that from an actual production run, and most large food companies will do both.

Miscellaneous:

Provide any other unusual characteristics of the food or insert that may appear relevant.