



## ***Printing Green***

By Richard Snyder (Technical Sales, Great Western Ink)

October 01, 2003

Many print buyers today are asking their printers if they use soy inks. These buyers are under the impression that by using soy ink they are being environmentally responsible. The truth is that even though soy inks are a part of environmental printing, or, “Printing Green,” they are not the whole answer.

Responsible printers have been working on removing hazardous chemicals in their pressrooms for years. Inks and solutions used in the printing process today have eliminated the use of lead, chromium, and silver and are working hard to reduce the harmful VOC (volatile organic content). They are also under close scrutiny to monitor and reduce their waste streams. All of these are as important as whether or not they are using soy inks.

So why is printing with soy ink so well known?

The popularity of Soy oil-based inks actually began several years ago as a replacement for petrochemical oils. Soybeans are plentiful and are a popular crop among farmers making it widely available.

The use of soy oil-based inks has gained in popularity recently to address the environmental issues and reduce our dependence on foreign petrochemical-based oil for inks. Other vegetable oils used in making ink include cottonseed, vernonia, sunflower, tung, linseed, and canola.

Printing inks today fall under several classes that include:

- Sheet-fed ink (dried by oxidation or polymerization)
- Newspaper inks (absorption, oxidation)
- Heat-set inks (dried by the action of heat)

The American Soybean Association (ASA) was very effective in the late 1980's at promoting the use of soy oils in printing inks. They established minimum percentages of soy oil content in order for the SoySeal to be displayed on an ink can or a printed piece.

The minimum levels are:

- 30% for colored news inks
- 40% for black news inks
- 20% for business forms inks
- 20% for sheet-fed inks
- 7% for heat-set inks

Heat-set ink manufacturers are substituting the soy oil today in place of linseed oil as the modifier for the heat-set varnish. It is ironic that the ink producers are replacing one vegetable oil for another. The advantage is that the ink manufacturer and printer can now claim the ink is "soy based" and be able to use the ASA SoySeal.

Sheet-fed inks have used linseed oil as the base oil in ink for many years. Linseed oil was used because it imparts good flow characteristics to an ink and converts into a solid over a long period of time (drying). To accelerate this drying process additives are added, such as cobalt or manganese octoate. Over time, to improve drying and other physical properties, petroleum oils became the standard in many non-heatset inks replacing vegetable oils.

News inks are the easiest ink to incorporate soybean oil due to the method of drying (absorption) and the physical nature of the inks (low viscosity, etc.). Soy inks have gained popularity with newspaper printers due to the EPA considerations on petroleum-based inks.

Press-related problems with soy oil inks have been related mostly to drying. Soy inks dry (due to the soy oil) at a slower rate. With print buyers demanding closer deadlines, these inks are not an option for many quick turnaround printers. Soybean and other vegetable oil are actually more expensive than petrochemical oils. Again, print buyers are demanding the lowest price possible. The lowest price may not be the environmental choice.

These problems, however, are being rapidly overcome. Ink manufacturers today are experimenting with many new vehicles and other non-petroleum products to give their next generation of inks faster and harder drying properties. These inks may not contain enough soy oil to qualify for the ASA SoySeal logo, but they are low VOC, high vegetable oil (cottonseed, vernonia, sunflower, tung, linseed, and canola) renewable resource inks.

Print buyers today should not just be concerned with the use of soy oil (unless you have a vested interest in growing soy beans). They should ask if their printer is doing their part in reducing VOCs, monitoring their waste streams, using vegetable based ink etc. or, in other words, are they "Printing Green."