

## Soy-Based Inks



### **Soybean Usage Potential**

Market expansion opportunities are seen for soybean oils in the various types of printing methods, particularly lithography and flexography and, to a lesser, extent in gravure. When it comes to newsprint, soybean oil dominates both colored and black inks. Rising petroleum prices and environmental concerns are drawing attention to soybean oil and its derivatives. Major ink companies are closely following any research projects that pertain to altering soybean oils, particularly anything that increases the drying ability or ultraviolet (UV) reactivity of soybean oil or its derivatives. It is widely believed that over 100 million pounds of soybean oil are used within the newsprint industry. Small amounts of soy/acrylate chemistry are also used in radiation cured inks to improve pigment dispersion and wettability properties.



### **Projected Time of Entry**

Modified soy oils have already entered the market. Additional penetration in lithography applications is foreseen in 2008 as faster-curing resins, now in the research stage, enter the market in ink formulations and coatings. High-energy, soy-containing ink using UV, electron beam and ultrasonic cure could enter the market in 2008, while water-soluble materials could replace certain acrylics somewhat later.



### **Current Research Status**

Research projects are in progress to improve the properties of soybean oil for use in inks. A project by Lehigh University and Northampton Community College to make a UV-curable, soy-containing lithographic ink continues with new products expected in 2008. Pigmented ink wood stains are also a part of this exciting project.

### **Ability to Achieve Broad Market Acceptance**

United Soybean Board (USB)-sponsored research concerning ultraviolet- and electron-beam-cured inks is making progress in the field of energy cured systems. Industrial partners have approached USB-funded researchers to provide guidance for advanced development and commercialization. Modified soy oil continues to show promise in both pigmented and unpigmented UV curable lithographic inks.



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### Issues Affecting Commercial Success

Key issues remain in the development of rapid cure resins based on soy that can provide reduced volatile-organic-compound emissions (possibly water-based) and competitive cost advantages compared with petroleum-based products. Benefits are improved pigment dispersal, lower odors, use of a renewable resource and the possible advantages of modified soy oil as a unique printing ink intermediate.

USB is made up of 68 farmer-directors who oversee the investments of the soybean checkoff on behalf of all U.S. soybean farmers. Checkoff funds are invested in the areas of animal utilization, human utilization, industrial utilization, industry relations, market access and supply. As stipulated in the Soybean Promotion, Research and Consumer Information Act, USDA's Agricultural Marketing Service has oversight responsibilities for USB and the soybean checkoff.

