# Vegetable-Based Printshop Ink

*A P&D employee uses vegetable-based ink to complete a print job.*

## Purchasing Green

Printing & Distribution Services (P&D) began experimenting with black vegetable-based inks in early 2005 and transitioned to vegetable-based black ink exclusively by the end of 2006.

Vegetable-based ink is made with vegetable oil, such as soybean or corn oils, as a substitute for petroleum. Based on their positive experience with black ink, P&D introduced vegetable-based color inks in January 2007. P&D now purchases only vegetable-based inks, joining 90 percent of daily newspapers with circulations of more than 1,500 and 25 percent of commercial printers. P&D's inks are currently supplied locally by Great Western Ink and contain a minimum of 20 percent soy and/or other vegetable-based inks.

## Benefits

Traditional petroleum-based inks contain heavy metals like barium, copper, and zinc that can contaminate soil and groundwater. Petroleum-based inks also emit volatile organic compounds (VOCs) into the air. VOCs are irritants for workers and contribute to the formation of smog, which aggravates respiratory conditions such as emphysema, bronchitis, and asthma.

Vegetable-based inks emit significantly fewer VOCs and, unlike petroleum, are derived from renewable resources. Additionally, vegetable-based ink is easier to remove from paper than regular ink. This not only facilitates recycling, but also results in higher quality recycled paper and less hazardous waste.

## Cost

Switching to vegetable-based inks required no new purchases or conversion of equipment. P&D also found vegetable-based inks comparable with petroleum-based inks in terms of price. Therefore, the change was cost neutral.

## Performance

P&D performed test runs to ensure the vegetable-based inks were compatible with equipment and provided consistent quality. The tests demonstrated that the vegetable-based inks performed as well as traditional petroleum-based inks.

Because they are thinner than petroleum-based inks, vegetable-based inks produce brighter colors, which can result in the use of less ink to generate the same amount of images. Some printers report that it is easier to run high-quality jobs on old equipment and switch from a dark-colored ink to a light-colored ink with vegetable-based inks. Vegetable-based inks may also pick up and transfer ink quicker, resulting in shorter start-ups and less paper waste.

## At a glance –

### *Who –*

- **Printing & Distribution Services**

### *Product –*

- **Vegetable-based black & color inks**

### *Cost –*

- **Cost neutral**

### *Benefits –*

- **Uses renewable resources**
- **Creates safer work environment**
- **Contributes to improved local air quality**
- **Makes paper recycling easier**

*"We've found that the soy-based inks perform as well as any petroleum-based inks we've tried. Using the soy-based inks is better for us and the environment."*

Jeff Boughton,
Print Shop Day Shift Lead,
Printing & Distribution Services

## Lessons Learned

P&D tried several inks before finding one that met their needs. Just like petroleum-based inks, there are many different vegetable-based inks and it's important to test a number of products to identify the formula that works best with existing equipment and processes.

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### About Printing & Distribution Services

*Printing & Distribution Services (P&D) manages all reproduction, mail, distribution, and copy services for City of Portland bureaus. Additionally, P&D serves other government organizations located in the Portland area. Major customers include Metro, Multnomah County, the State of Oregon, the Portland Development Commission, the Housing Authority of Portland, and local neighborhood associations. During FY2012-2013, P&D processed nearly 40 million sheets of paper for its in-house print jobs.*

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