

A Cooperative Project
between the
U.S. Environmental
Protection Agency
and the
Printing Trade
Associations
Nationwide

design FOR THE ENVIRONMENT

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LITHOGRAPHY PROJECT BULLETIN 1

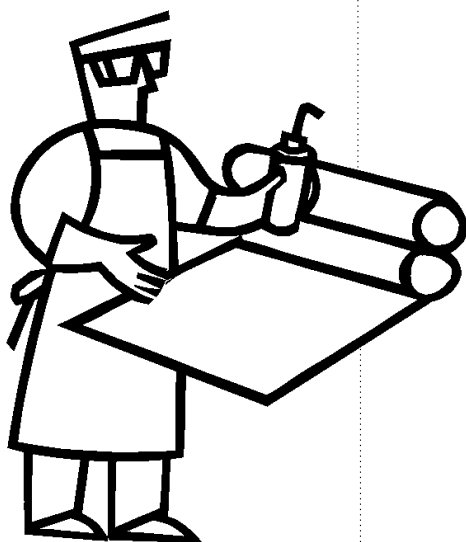


BULLETIN HIGHLIGHTS

- Will Substitutes Increase My Cost?
- What Makes Substitutes Different?
- Common Questions About Substitute Blanket Washes and Their Answers

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- Why Substitute Blanket Washes?
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Substitute Blanket Washes: Making Them Work

Why Consider Substitute Blanket Washes?

One of the largest sources of air pollution in lithographic print shops is the blanket washes used to clean the blankets on the press. Many of these products contain volatile organic compounds, or VOCs, which help them work well and dry quickly. However, they pass into the air in the press room, the lungs of people working there, and the outside air. Dirty wipes soaked with blanket washes can also cause air pollution in the shop and health and environmental problems at the industrial laundries that pick them up. Because of these chemicals, both printers and laundries may have trouble complying with environmental regulations.

New substitute blanket washes are available that are safer for workers and for the environment, and can result in lower costs for printers. When press operators learn how to use these new washes, the substitutes can work as well as the standard blanket washes. To get good results, though, press operators must often change the way they use blanket washes. This bulletin aims to help you, the press operators, shop managers and environmental compliance managers, make these new products work for you.

What Makes Substitute Blanket Washes Different From Regular Blanket Washes?

Compared to older high-VOC washes, a substitute blanket wash that you should look for would contain less VOCs and no HAPs. The substitute wash will probably evaporate less quickly which means that it will be less likely to reach people and the environment through the air. Traditional blanket washes are often made primarily with VOCs. In comparison, the substitute blanket washes may be made from vegetable oils and/or their fatty acid esters, terpenes, less volatile petroleum components, or mixtures of one or more of these.



Why Should I Be Concerned About VOCs?

VOCs can be unhealthy to breathe over long periods of time. They can also harm the environment by helping form smog, which damages crops and forests. Smog also affects human health by injuring the lungs. In addition, some blanket washes contain chemicals called Hazardous Air Pollutants (HAPs). They are known to cause, or are suspected of causing, harm to human health or the environment.

By using substitute blanket washes containing less VOCs, you can significantly reduce the impacts that your printing operations have on employee health and the environment. You may also be able to reduce your regulatory requirements. **To find out the VOC content and other components of your current blanket wash, ask your supplier or check the product Material Safety Data Sheets (MSDS). Suppliers can recommend substitutes containing less VOCs.**

Will Substitute Blanket Washes Increase My Costs?

Many substitute washes in fact do cost more per gallon, making them seem more expensive to use. However, when press operators are trained in how to use these substitute products, they often use much less wash than was needed with a regular blanket wash. An example of this is SUBSPRINT, a European program which seeks to eliminate the use of organic solvents in the printing industry. Two of the SUBSPRINT-Project partner companies showed that with training, blanket wash consumption can be cut by as much as 80% when compared to older methods using high VOC products. Some of the techniques developed through their project are described in this bulletin. Such reductions in blanket wash consumption can result in both real cost savings and a healthier work environment for printers.

Another potential cost benefit of switching to a substitute blanket wash is that it may lower the costs of complying with environmental requirements. By reducing the amount of blanket wash you use, your shop's total VOC emissions, or the amounts of regulated chemicals in your blanket wash formulation, you could lower your shop's air emissions to levels below the threshold amounts that require permitting or reporting.

New Techniques For New Products

When you first use a substitute blanket wash, you may find that it looks, smells, and handles quite differently from your traditional wash. Do not let these differences stop you. With slight changes in the way you use your wash, you will find that the substitute can perform as well as your standard product. Printers should ask their suppliers what substitute blanket washes they offer and how to use them properly. Some of the more common questions raised by volunteer printers during the Design for the Environment



What can I do about the oily film left behind?

Substitute blanket washes can leave an oily film on the blanket. Some believe that this film has little or no effect on the printed image, and disappears after three or four sheets are passed through the press.

Answer:

- Experiment to see if the film is actually causing a problem.
- Use a firmly wrung water-soaked wipe instead of a dry wipe to remove the oil film from the blanket surface.

What can I do about the longer drying time?

By their nature, substitute blanket washes are low in VOCs and do not evaporate (or dry) very quickly. This is what keeps the wash from entering the air around the press and the outside environment.

Answer:

- Dry the blanket with a clean dry wipe. Although this extra step requires more time and effort to clean the blanket, the money saved from less blanket wash evaporating, and the environmental and health benefits, will probably outweigh this disadvantage.

How do I get the substitute wash to work as well as my traditional wash?

A particular substitute blanket wash, when used the same way as standard washes, may seem less effective. However, a substitute blanket wash *can* perform as well as your standard product if you change the way you use it.

Answer:

- Shop around and try different substitute products until you find the one that works best.
- Let the blanket wash set on the blanket for a short time after being applied.
- On two-color and multi-color presses, apply the blanket wash to all the blankets and then go back to wipe it off of each blanket in the same order.
- Wipe the blanket with a firmly wrung water-soaked wipe before you start cleaning. This will remove some of the excess ink as well as any paper lint.

How can I make the thicker substitute wash easier to use?

Some of the substitute blanket washes are thicker and more oily than traditional washes, and may not absorb as quickly into shop wipes.

Answer:

- Give the wash enough time to soak into the wipe.
- Keep a supply of shop wipes and substitute wash mixed together in a covered container. Then use the wash-soaked wipes, squeezing or wringing as much wash as possible back into the container. This method may actually help you reduce the amount of wash you use.

Do the washes also work on ink rollers?

Many of the volunteer printers said they prefer to use the same wash on their blankets as they do on their rollers, ink trays, impression cylinders, and printing plates. Many, but not all, substitute washes can be used throughout offset presses.

Answer:

- Check with the product supplier to be sure that the product can be used as a roller wash and is compatible with the other components of your press.
- Using substitute washes effectively on other parts of your press may require changes in your technique, as in blanket washing.
- Ask the supplier for information on the techniques best suited to each product.

What should I do if my substitute blanket wash has a strong or unusual odor?

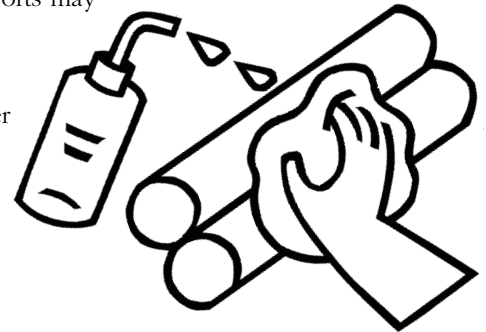
Some of the substitute washes, especially the terpene-based washes made from citrus products, may have a different or strong smell. However, many press operators who have switched to a substitute product say that they prefer the smell of the substitute to the strong solvent smell of a traditional wash. Regardless of the wash you use, there are several steps that can be taken to reduce odor problems you may encounter.

Answer:

- Increase the ventilation (around the press or the source of the odor).
- Use as little blanket wash as possible and avoid spills.
- Cover blanket wash and used wipe containers.
- If odor continues to be a problem, try different substitute products to find one that works best for you.

Don't Give Up Too Soon

Every printer changing to substitute blanket washes needs to get **experience** with the new cleaning techniques. Printers should follow the supplier's instructions and consult with other printers using the same products. Ultimately, though, you will need to **determine for yourself what works best**. At first, the differences may seem awkward and time-consuming. But many printers have shown that substitute blanket washes perform as well as standard washes after the initial adjustment. As you are getting used to the new products, keep in mind that your efforts may reduce your blanket wash consumption, create a safer, healthier work place, help improve the environment, and reduce your costs.

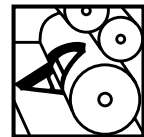


About the Design for the Environment Lithography Project

The goal of the Design for the Environment (DfE) Lithography Project is to provide lithographers with information that can help them design an operation which is more environmentally sound, safer for workers, and more cost effective.

Concentrating on the process of blanket washes, the partners of the DfE Lithography Project, in a voluntary cooperative effort, evaluated 37 different blanket wash products. Information was gathered on the performance, cost, and health and environmental risk trade-offs of the different types of substitute blanket wash. For more details on the evaluations, please refer to the "Evaluating Blanket Washes: A Guide For Printers."

In addition to the Lithography Project, similar DfE projects are currently underway with both the screen printing and flexography industries.



To obtain additional copies of this or other bulletins and case studies, or for more information about EPA's Design for the Environment Program contact:

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