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BLANKET AND  
ROLLER WASH  
GUIDE



## INTRODUCTION

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The purpose of this guide is to provide the printer with the basic characteristics and concepts involved in the use of **ANCHOR®** blanket and roller washes and to offer some solutions to common problems encountered with press washing. In addition to the basics, cleaning procedures and troubleshooting are also discussed.

Pressroom products are continually evolving to keep pace with changes in environmental, health, and safety regulations; and in plates, ink, and paper. Selecting the best blanket wash product to meet all of your requirements can be complicated. It is helpful to know some features and benefits of these products in order to assist you in selecting the right product for your application.

We hope this guide will provide some helpful information in this task.

If you have any questions or comments, please feel free to call or contact us.

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## BLANKET AND ROLLER WASH CHARACTERISTICS

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The extensive line of ANCHOR blanket and roller wash products was developed in an effort to provide washes that fit a variety of needs. Products have been developed to comply with the issues of safety, flammability, environmental regulations, equipment compatibility, price, drying speed, cleaning power and customer preferences. We will first describe these characteristics of blanket and roller washes and discuss what the differences mean to you.

Often choosing the best blanket and roller wash is more complicated than you might think. With the emphasis on health, safety and environmental regulations, some concessions of desirable cleaning characteristics may be necessary in order to comply with regulations or safety standards. It may not be possible to have all of the characteristics you would like, so decisions must be made on which characteristics are the most important.

This booklet contains a characteristics chart of ANCHOR blanket and roller washes which can be used to assist you in selecting a product that meets your needs.

### **DRYING TIME (EVAPORATION RATE)**

Drying time is often an important characteristic from the pressman's point of view. The speed of drying required depends on several factors—the size of the press, the length of turnaround time required by the press operation, and the personal preference and perception of the pressman.

The small press quick printer may not have time to wait a minute for a blanket to dry and may not wish to spend the extra effort to wipe blankets dry, although this extra effort is a good practice. The larger sheetfed and web press printer may also sometimes prefer a faster drying wash. Most printers would agree that faster is better. Unfortunately, there is some significant downside to this characteristic, and most printers using fast washes will likely need to sacrifice some drying time in the future.

## BLANKET AND ROLLER WASH CHARACTERISTICS

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Whenever possible, we believe it is desirable to use a wash from the medium or slow-drying category. There are several advantages to not having lightning-fast drying. The preferred procedure for cleaning a blanket is to apply the solvent with enough action to get ink out of the pores of the rubber and then wipe it clean with a dry rag. The solvent should not dry so fast as to be gone before you can wipe off the suspended ink.

The slower-drying solvent has more time to clean, where the faster-drying solvent must work on the first pass of the rag. Consequently, a more thorough cleaning may be achieved with a slower-drying solvent. This is equally true for washing rollers. ANCHOR's products, A-60® Odorless, A-740 and Power Plus 500, are popular medium-drying blanket and roller washes. Fast-drying cleaners run into problems with issues of flammability, VOC and vapor pressure. The fast-drying solvent blends typically have flash points below 100° F which classifies them as flammable liquids that require special handling and storage.

Environmental regulations limit or prohibit the use of products with a VOC composite vapor pressure greater than 10 mm Hg. Fast-drying washes may fall into this category. The reason for the vapor pressure guideline is for VOC reduction. The faster a product evaporates, the more solvent goes into the air and consequently the VOC emission is higher. When used as directed, and quantities used are below permitted levels, these products are acceptable and practical for use by the press operator. Popular fast-drying washes include ANCHOR's Quick Wash, Express, and Turbo Wash.

### **SOLVENT STRENGTH**

Press washes come in a range of strengths depending on the solvents used in the blend. Stronger solvents dissolve and disperse ink resins and pigments faster and perform a better deep-cleaning action. The trade-off is that the stronger solvents also have a greater effect on the rubber in removing plasticizers and causing the rubber to swell.

## BLANKET AND ROLLER WASH CHARACTERISTICS

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As a result, routine use of extra-strong solvents may shorten the life of blankets and rollers. Another trade-off of stronger products is that they typically also have a stronger odor. On the other hand, using only very mild solvents will not harm rubber directly but may not remove all the ink from the pores of the rubber, which will cause the surface to become hard and glazed.

The recommended procedure is to use a mild or medium-strength product for routine repeated wash-ups and periodically use a stronger press wash or glaze remover and rubber conditioner. This will do a thorough cleaning job and provide optimum maintenance of blankets and rollers. Glaze removers and conditioners will be discussed more thoroughly in a later chapter.

Most blanket and roller manufacturers routinely test blanket and roller wash solvents for compatibility with their products. We suggest referring to this information from your blanket and roller manufacturers along with your ANCHOR representative to ensure you select a compatible product.

### **ODOR/FRAGRANCE**

Odor is the most subjective characteristic of all; everyone reacts differently to odors and fragrances. The perceived odor of a product may vary due to conditions and use. Higher temperatures and humidity, and inadequate ventilation, may result in odors being more noticeable. Odor is especially important in small shops with limited ventilation.

ANCHOR uses only the highest quality, lowest odor raw materials available along with a variety of fragrances and odor masks to improve the odor characteristics of our blanket and roller washes. However, certain solvents have a characteristic odor that can be irritating or perceived as unpleasant by some people. As a general rule, milder products in terms of solvent strength have a milder solvent odor.

## BLANKET AND ROLLER WASH CHARACTERISTICS

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### **FLAMMABILITY**

The property that identifies the flammability of a particular blanket and roller wash is the flash point. The flash point is the temperature at which a liquid will give off enough flammable vapors to ignite. The lower the flash point temperature, the more "flammable" the product.

Blanket and roller wash products are classified as either flammable, combustible or nonflammable. Nonflammable washes will usually contain a certain percentage of a flash point suppressant, which prevents the mixture from having a flash point below 200°F. The flash point suppressant solvent is methylene chloride which has an OSHA standard which requires monitoring, if used. For many printers, using these products is not a viable option.

Other non-flammable, fast-drying solvents exist, but they are either hazardous and unfriendly, or are very expensive. Often, the printer wants a fast-drying, nonflammable product without a flash point suppressant. To the best of our knowledge, no such practical product exists. The printer will have to sacrifice one of the restrictions, most likely to slower drying.

## ENVIRONMENTAL BLANKET AND ROLLER WASHES

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Many states have legislated restrictions on the amount of solvents used in the printing industry. Products that comply with the more stringent, emerging environmental regulations are the wave of the future.

What exactly is meant by an environmental blanket and roller wash? There are many new products which claim to be environmentally-safe, biodegradable, and/or nontoxic. The regulations vary from state-to-state and even within states as to what products are considered environmentally-safe. Printers located in "ozone non-attainment areas" will have strict limitation on volatile organic compounds (VOCs). VOCs interact with sunlight to form ozone in the lower atmosphere, a health hazard which contributes to smog formation. Reducing VOC emissions has become an ongoing challenge for printers in these areas.

Selecting a low VOC wash is often a difficult struggle for most printers for several reasons. There are a variety of low VOC products on the market today. The characteristics, composition and performance vary widely, and they usually do not work as well as your tried and true 100% VOC solvent. Following is a discussion of VOC and low VOC washes.

### **VOLATILE ORGANIC COMPOUNDS**

All solvents, which evaporate, that are used in blanket and roller wash—except for certain solvents tested to have negligible atmospheric photochemical reactivity—are considered VOC. High concentrations of VOC in our air contribute to poor air quality and the formation of smog. Therefore, the most regulated areas are large industrial and populated areas where automobile and solvent emissions are high.

## ENVIRONMENTAL BLANKET AND ROLLER WASHES

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### **VOLATILE ORGANIC COMPOUNDS (continued)**

A common hydrocarbon solvent-blend press wash has a density of about 6 to 7 pounds per gallon; it would be stated as having a VOC of 6.4 lbs./gal. With the possible exception of a small percentage of nonvolatile surfactants, water-miscible agents, the product is entirely VOC. ANCHOR does make a variety of reduced VOC washes to meet printers' varying needs.

Why not just make the lowest VOC product to meet all regulations? In many cases, changing to a low VOC product will mean a sacrifice of some sort for the printer. There are several ways to achieve low VOC for a blanket and roller wash. However, depending on the type of materials used, products may be slower drying and oily, very fast-drying and hazardous, damaging to rubber compounds, or more expensive while requiring some change in procedures.

The ways to achieve low VOC are 1.) replace VOC solvents with exempt solvents; 2.) replace VOC solvents with non-volatile material; or 3.) replace solvents with water. Exempt solvents, such as acetone and methylene chloride, have been attractive to the printer because they are strong, fast-drying solvents that have required little change in their usage. However, there are health and safety and rubber compatibility concerns with these solvents.

Acetone is very flammable and harmful to rubber compounds if used above a relatively low concentration in a wash product. Methylene chloride is regulated by an OSHA standard for reasons of health effects and is also very aggressive to rubber compounds. There are other exempt solvents that also have these types of concerns or are very expensive. ANCHOR has a line of specialty products utilizing these materials, but they are not usually recommended to be used for the sole purpose of reducing VOC.

Another alternative is to use a product that has a portion of the volatile solvent replaced with a non-volatile fluid. These products have found good acceptance for web press cleaning.

## ENVIRONMENTAL BLANKET AND ROLLER WASHES

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These products are typically oily in nature and require some changes to adapt to their usage, such as using less solvent in the rag, avoiding spills on the floor, and wiping up any spills to avoid a slip hazard. ANCHOR's hand wash products in this category include Envirowash® 160, Envirowash® 5/0, Envirowash® 350HF, and Vision 32. These products range in VOC from 20-70%.

For some printers, especially the sheet-fed printer, the oily characteristic of the non-volatile materials may not be desirable since under some circumstances, it can mean increased waste, and longer wash up time. The alternative of using a product formulated with water to reduce VOC may be a good choice. These products can be more friendly since they are made to clean well, and they do evaporate. Product performance of these products will vary due to the VOC of the product, the actual formulation, and the way the product is made.

The ANCHOR "Good News" line of blanket and roller washes offers a range of low VOC and have been engineered to specifically perform in press cleaning applications. We recommend the Good News Wash 350 Plus, a 3.5 lb./gal.VOC wash, or the Good News Wash 500, a 5 lb./gal.VOC.

## TWO-STEP ROLLER WASHES

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The use of a multi-step wash procedure is recommended for thorough cleaning of rollers. The two-step process should be used when making difficult color changes, and periodically, to deep clean rollers to remove contaminants such as gum, paper coatings, and surfactants.

Two-step products consist of a "step one" product which contains solvent, water, emulsifiers, and suspending aides. They are usually of a high viscosity to aid in staying in the roller train longer and are more effective at "pulling" ink out of the rollers. The "step one" product removes ink from the rollers and suspends it in the cleaning emulsion. "Step two" is a solvent blend that then rinses the "step one" with the suspended ink from the rollers. For best results, it is recommended that the "step two" be used to rinse the "step one." Using your regular one-step roller wash may not adequately rinse the "step one" and may leave behind contaminating residue. We recommend ANCHOR's Kleen Wash I and Kleen Wash II for your two-step wash needs.

Some products incorporate a paste type material as part of the multi-step procedure. ANCHOR's Enviropaste is an excellent deep cleaner and rubber conditioner which contains no solvents or abrasives. Enviropaste is used by first cleaning the rollers with your regular one-step wash. The Enviropaste is applied sparingly with an ink knife and allowed to run in; then it is rinsed with your one-step wash.

## AUTOMATIC BLANKET AND ROLLER WASHES

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Almost all new presses now come with an option of automatic blanket and roller cleaning (ABC) systems and many presses have added after-market systems. These systems save the pressman time and money and do a good job of cleaning. ABCs are made by many of the press manufacturers and by several auxiliary equipment manufacturers. All of them have a cleaning fluid qualification process to ensure that the solvent used on their system is compatible with the equipment and also cleans well.

The ABC manufacturer will provide you with a list of qualified solvents that have been tested and shown to meet their requirements. ANCHOR has worked closely with all of the ABC manufacturers to provide top quality cleaning fluids for their systems. The qualified products include both conventional, UV, and low VOC solvents. Many of the qualified solvents are also excellent for hand washing, so that one product may be used for both. Contact your ANCHOR representative or our technical staff for the qualified solvent for your system.

## WATER-MISCIBLE WASHES

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Solvents which are not water-miscible can be made water-miscible by using emulsifying surfactants. Essentially, a surfactant's primary function is to hold the solvent and water together allowing them to stay mixed for a period of time. The stability of the emulsion may vary with different products depending on the type and amount of surfactant and the types of solvents used.

These products are very useful for the medium to large sheetfed or web printer since dual action cleaning can be achieved in one step. The solvent cuts the ink while the water removes paper, gum and other water soluble materials from the blanket and rollers. The emulsion also helps suspend the ink to aid in carrying them away.

What about surfactants contaminating rollers? There are many different surfactants used in blanket and roller washes. Some surfactants are compatible with ink, while some are not. If allowed to build up, surfactants may cause problems, such as roller stripping and foaming in the dampening system.

Some ANCHOR water-miscible press washes are more stable than others. Products such as A-60® Odorless, A-240 Wash, A-740 Wash, Power Plus 500, and Kendu form stable emulsions for hours. These products can be mixed with 20-50% water in a solvent dispenser bottle and applied directly to rollers or with a rag to blankets.

Other products form less stable emulsions due to their particular solvent composition, but are still effective at doing the job. Commonly, a printer may use a water-miscible wash straight on rollers or mixed with water on blankets. Alternatives for blankets is to apply the solvent with a water-dampened rag or use a separate water wipe step.

## ULTRAVIOLET CURABLE INK WASHES

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In recent years, there has been an increase in the use of UV curable ink. UV ink is attractive to the customer because of the quality, durability, and high gloss. It is also environmentally-friendly because it is very low in VOC. Because of the resins used in the UV ink, special solvents are required to clean them. Also, the rubber compounds used in rollers and blankets on a UV press are different and are susceptible to damage from hydrocarbons used in conventional blanket and roller washes.

Most UV presses today come equipped with EPDM rollers. You should use a non-hydrocarbon based wash such as ANCHOR's Beemr or Phazer on these presses. Some presses use both conventional and UV ink on bunna-nitrile rubber rollers. For this situation you may use the Beemr or ANCHOR's UV 76.

Several ink manufacturers have introduced the "cocure" inks which cure either by oxidation or UV crosslinking. The solvent blends required for these inks are similar to UV washes. ANCHOR has introduced Ultra V-2000 which is formulated to work with the "cocure" inks.

## GLAZE REMOVERS AND RUBBER REJUVENATORS

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The terms "glaze remover" or cleaner and "rubber rejuvenator" or conditioner have been used for products that contain strong solvents. The purpose of a glaze remover is to dissolve and remove embedded ink resin that makes blankets and rollers hard and slick. The periodic use of a glaze remover is recommended to keep the rubber soft and receptive to ink, and allow smooth and even transfer of the ink. It also helps to extend the life of the blanket and rollers. In this sense, a glaze remover is essentially the same type of product as a rubber rejuvenator. ANCHOR's products in this category include Ultra Glaze and Glaze-Off.

Other products termed "rubber rejuvenators" or "rubber conditioners" contain no strong solvents and are not designed for removing ink resin, but are to be used as a treatment for the rubber itself. This similarity in classification and difference in application can be confusing.

A conditioner product, such as ANCHOR's Velvee®, is applied to the blanket or roller after it has been thoroughly cleaned with a glaze remover or with a premium blanket and roller wash such as Wash R-228® Odorless. It is then rinsed from the rollers with the blanket and roller wash. Velvee® has proven to be a valuable treatment for improving the life and performance of blankets and rollers. Including these types of products as part of your regular maintenance program, will make your job easier, better, and less problematic.

## METERING ROLLER CLEANERS

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Most modern presses today come with some form of continuous dampening system where the ink forms are integrated with the dampening system. It is inevitable that a certain amount of ink feeds back into the dampening rollers which results in a contaminated buildup on the metering roller. To ensure optimum performance, this buildup should be cleaned off regularly. To avoid contamination of the dampening system, a fast-drying solvent with no surfactants is recommended.

Regular blanket and roller wash solvents will dry slower and may leave a residue that could be water repellent. Use of a water-miscible roller wash is not recommended and can cause ink water problems. ANCHOR has a variety of metering roller cleaner products available ranging in solvent strength, and environmental and safety requirements. Ask your ANCHOR representative about Metering Roller Cleaner ALT and Metering Roller Cleaner NC.

## DETERMINING YOUR NEEDS

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Below is a list of the key issues you should address in order to select the blanket and roller wash that meets your needs. Determine which characteristics of the wash are more important and which are less important. Be specific; i.e., safety, water miscibility, drying strength, odor, cost, etc. Be prepared to make some trade-offs when identifying your wants and needs.

How do you currently use the blanket and roller wash? Is it mixed with water or used straight?

Do you use a two-step process for rollers?

Do you have automatic blanket and roller wash systems requiring a qualified solvent?

Determine the requirements for each press. Do some presses have special problems or requirements? Do you need one wash for all presses or possibly different washes for different presses?

Determine what you like and dislike about your current blanket and roller wash.

Is there a regular maintenance program? Is a glaze remover and rubber conditioner used?

What problems do you regularly encounter? Do you encounter paper piling, roller stripping, plate blinding, scumming, water fountain contamination, or dampener feedback? There may be other issues important to your situation.

If you have any questions or need assistance with selecting a product, you can always contact your ANCHOR representative or our technical department at 800-354-2300.

Following is a glossary of terms, blanket and roller wash characteristics chart, and a troubleshooting chart for commonly encountered problems. Please use the charts to assist you in selecting a product for your needs.

## BLANKET WASH CHARACTERISTICS CHART

Listed in Approximate Order of Drying Speed Fastest to Slowest	Product Number	Dry Speed	Water Miscible	Odor/ Fragrance	Strength	Flammability	Flash Point	Vapor Pressure	Photo Reactive Cal. Rule 102	HMIS	
							°F/TCC	VOG			mmHg@20°C
Turbo Wash	7165	Fast		Mild/Citrus	1	F	10	5.91	37.51	No	1-3-0-B
Kwik Kleen ALT	7665	Fast		Mild/Vanilla	3	F	65	6.30	5.00	No	1-3-0-B
Quick Wash	7059	Fast		Mild/Vanilla	1	F	50	6.25	24.00	No	1-3-0-B
Express	7285	Fast		Fragrant/Mint	2	F	78	6.23	4.94	No	1-3-0-B
A-220 ALT	7662	Fast		Medium/Mint	3	F	65	6.70	8.20	Yes	2-3-0-B
A-70 NWM	7373	Medium		Medium/Sweet	2	C	107	6.73	2.94	Yes	1-2-0-B
EZ-460	7511	Medium	√	Mild/Sweet	2	C	107	6.40	2.65	Yes	1-2-0-B
A-60® Odorless	7119	Medium	√+	Medium/Vanilla	2	C	105	6.68	2.79	Yes	1-2-0-B
A-240 Wash	7274	Medium	√+	Medium/Citrus	2	C	105	6.64	2.50	Yes	1-2-0-B
A-740 Wash	7624	Medium	√+	Medium/Citrus	2	C	107	6.67	2.10	Yes	1-2-0-B
Wash R-228® Odorless	7117	Medium	√	Fragrant/Pine	2	C	105	6.60	2.81	Yes	1-2-0-B
Power Plus 500	7325	Medium	√	Medium/Sweet	3	C	108	6.71	2.95	Yes	1-2-0-B
Kendu®	7004	Medium	√+	Medium/None	3	C	106	6.95	2.34	Yes	1-2-0-B
Exempt Wash SL	7452	Medium	√+	Mild/Citrus	2	C	107	6.38	2.68	No	1-2-0-B
Litho Solvent	7005	Medium		Mild/Vanilla	1	C	103	6.37	3.30	No	1-2-0-B
Sierra Wash	7136	Slow	√+	Mild/Citrus	1	C	107	6.35	2.42	Yes	1-2-0-B
Web-Press Wash	7016	Slow	√	Mild/Vanilla	1	C	107	6.48	2.66	Yes	1-2-0-B
Auto Solv	7137	Slow		Mild/Vanilla	1	C	142	6.60	0.77	No	1-2-0-B
A-310	7800	Slow	√	Mild/None	1	C	142	6.35	0.50	No	1-2-0-B
<b>Specialty Washes</b>											
Ultra Glaze-ALT	7661	Very Fast		X-Strong/Sweet	1	F	10	5.40	25.00	No	2-3-0-B
Metering Roller Cleaner	7260	Very Fast		Strong/Mint	1	NF	None	4.93	48.00	No	2-1-0-B
Metering Roller Cleaner ALT	7666	Very Fast		Strong/Sweet	1	F	10	5.25	31.00	No	2-3-0-B
Glaze-Off	7058	Medium		X-Strong/Cherry	1	C	109	7.20	3.19	No	2-2-0-B
Kleen Wash 1	7596	Slow	√	Medium/None	2	C	105	4.90	2.50	No	2-2-0-B
Kleen Wash II	7641	Slow		Medium/Vanilla	2	C	107	6.73	2.94	Yes	2-2-0-B
Oxy-Web Auto Wash	7290	Very Slow		Strong/Vanilla	2	C	145	7.00	1.55	Yes	2-2-0-B

Strength: 1=Mild; 2=Medium; 3=Strong; 4=X-Strong

C=Combustible; NF=Nonflammable; F=Flammable

## BLANKET WASH CHARACTERISTICS CHART

## TROUBLESHOOTING CHART

### PLATE BLINDING

<u>CAUSE</u>	<u>SOLUTION</u>
Surfactant from water-miscible wash.	Change to non-water-miscible wash or different water-miscible wash.
Calcium buildup.	Clean rollers with calcium cleaner, vinegar, roller paste cleaner/conditioner.
Chemical attack.	Test solvent and fountain solution compatibility.
Improper processing.	Service processor; replace chemistry.

### ROLLER STRIPPING

<u>CAUSE</u>	<u>SOLUTION</u>
Surfactant buildup from water-miscible wash.	Change to non-water-miscible wash or different water-miscible wash.
Glazed rollers.	Clean with deglazing solvent, paste cleaner/conditioner.
Calcium buildups from water, paper, and ink pigments.	Clean rollers with calcium cleaner, vinegar, or roller paste cleaner/conditioner.

## TROUBLESHOOTING CHART

### ROLLER/BLANKET SWELLING

<u>CAUSE</u>	<u>SOLUTION</u>
Solvent too strong or not compatible.	Change to milder solvent or modify wash procedure.
Solvent lingers on rollers/blanket for extended time.	Ensure rollers/blankets are dry. Avoid excessive use of wash.

