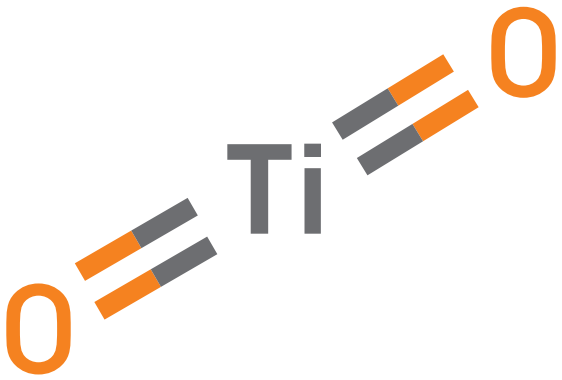
INNOVATIVE PROVIDER OF HIGH - QUALITY DOCTOR BLADES.

CREATING A CLEAN SLATE

ADDRESSING METERING CHALLENGES OF WHITE INKS

Daetwyler



WHY ARE WHITE INKS DIFFICULT TO WORK WITH?

All professional printers eventually come up against the metering challenges of white inks. Throughout the industry, white inks are notorious for being inconsistent and requiring frequent changing of doctor blades. The longer a doctor blade lasts, the more expensive it is in many cases. Weighing the cost of a doctor blade vs. the cost of press downtime is an issue printers and coaters deal with constantly. The issue with metering white inks is actually a little more complicated than just buying the right blade. Let's investigate.

ISSUE #1: Finding an end seal that lasts the same amount of time as the doctor blade.

Often, if an operator has to shut down to change an end seal, the doctor blade gets changed out due to safety and convenience reasons which can mean expensive blades are thrown away before they are worn out.

ISSUE #2: Finding the right metering doctor blade and containment blade combination for white decks.

In most cases, in order to keep things simple, the same metering or containment blades are used in the white decks that are used in spot or process decks. **NOTE:** Some scenarios are a little less taxing on doctor blades. Using higher line screen anilox rollers and double bumping (Using 2 or more decks to print white with) white decks can lessen the issue. But that means another set of plates or an additional sleeve and also inking up an additional unit.

ISSUE #3: Opacity vs. Volume.

Not all white inks are the same, but if your customer is demanding opacity, the amount of titanium dioxide in the inks is going to be at a high level. Actual particle size can vary but are generally larger than process or spot color pigments. The more solids you have in any solution, the more abrasive it can be. Add that the particles are a hard mineral, the issue can compound.

Due to opacity targets, the volume of ink laydown is significantly higher than other colors. A high volume-low line-screen or large volume channeled anilox is used to deliver ink.

Less cell walls on the low-line screen wears the doctor blade more.

Due to the size of the cells or channels, these types of rollers have less contact area with the doctor blade. The results in more force on the tip of the blade across the surface of the roller. This added force increases the wear to the doctor blade.

MULTIPLE ANSWERS FOR A FRUSTRATING PROBLEM

Printers have several options for dealing with typical white ink issues.

GATHER PROFESSIONAL SUPPORT:

First and foremost, ink, anilox, and doctor blade suppliers should all be consulted in a cooperative manner. When everyone knows the details of the scenario, a more comprehensive solution can be attained. Having end seal suppliers involved can also prove useful. Most people working in these industries are either printers themselves or have at least been involved in the print industry for some time - so they will most likely be able to relate to your specific challenges.

COMMON SENSE ANSWERS:

Having your press and chambers in optimum condition can provide big results. By taking care of the mechanical issue in order to optimize the setting of the chamber at the lowest amount of pressure possible, run times for both doctor blades and end seals can be significantly extended. By simply taking the extra 10-15 minutes to clean a deck and an extra 2 minutes to set it lightly and evenly, some issues may be completely resolved. It's definitely worth investigating before moving on to more involved solutions.

CAREFUL SET-UP AND MAINTENANCE:

Maintaining the proper viscosity and ink/vehicle/solvent ratio is another very important consideration when it comes to working with white inks. Often, when issues come up with white inks, even though other printing functions have been problem-free for some time, viscosity and solvent ratios are a primary reason behind the problem.

In most cases, radius tipped blades are used for any roller under 600 lines per inch (lpi). Switching to a radius tip blade from a lamella or bevel blade may help or eliminate many white ink challenges. Increasing the thickness of the blade may help as well. However, remember, the more steel you throw at the problem, the more it increases anilox wear - so proceed with caution.

Many printers elect to use a coated blade to address the wear, quality, and press downtime issue with metering white inks. These coatings are generally significantly harder than a standard doctor blade but not quite as hard as the ceramic anilox roller itself. Other ingredients in the coatings can help address coefficient of friction values (COF). These coated blades can greatly increase doctor blade wear but should also be installed in the chambers properly and care should be used setting them.

They are significantly higher in cost, though proper care when using them can increase the return on your investment. In some cases, plastic blades have been used with promising results. While this has not proven to work across the board for consistent metering, it may be worth looking into.

Aggressive blade wear from white ink.

REAL-WORLD SCENARIOS AND SOLUTIONS

It's often helpful to see how others have successfully resolved white ink metering challenges through a variety of methods. Unfortunately, the print industry rarely gets the opportunity to share such information between print companies. The following case studies from Daetwyler can be very insightful in helping you diagnose, analyze, and address your own white ink challenges.

SCENARIO 1:

A customer was trying some new blades and it became clear that blades were set blades with full force mechanical force - even right after installing new blades. The reasoning for this was that "the adjustments don't work" and "this is the way we've always done it." As true as that may have been, saving time was not necessarily producing the desired results on the film.

Together with a supervisor and some additional set-up time, the blades were set up more carefully with the aim of being as even as possible. Not only did the results show up on the film, but the setup lasted much longer before blades were worn out - a win-win scenario.

There were concerns about how to ensure the correct blade settings would be used each and every time. Would it be worth the extra downtime?

What are the disadvantages:

- Having to use a very expensive doctor blade to withstand stress
- Severe back doctoring
- Dirty print quality requiring many reprints
- Constantly full ink drip pans
- Messy press
- Frequent shutdowns to change blades and seals
- Scored and worn aniloxes
- Frustrated press crews that had given up trying to fix what seemed like unresolvable issues

While it may have taken as many as 30 minutes to check and re-check settings on blade changes, doing so would save hours upon hours of reprint time and cleaning time — not to mention the actual cost savings resulting in more economic ink usage and longer-lasting blades, seals, and aniloxes.

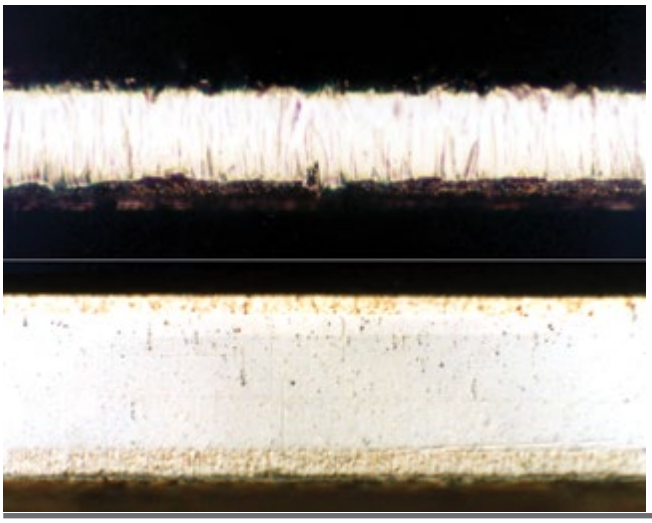
SCENARIO 2:

The department head at a large printer was explaining how they were able to use a standard blade on high coverage white decks with no issues. Their solution was to set the decks well below the OEM recommendation for chamber pressure. While the standard procedure became taking the extra time for cleaning, and to regularly level and tram the chambers, the results were clear in the consistent level of print quality. Additionally, operators did not have the authority to run extra pressure on the chambers just to "get by."

What were the benefits?

- No back doctoring
- Extremely long anilox life
- Virtually no end seal leakage at all
- Very clean press
- Long run times between doctor blade changes
- Happy boss

LET DAETWYLER HELP SOLVE YOUR WHITE INK PRINT CHALLENGES



Upper blade shows aggressive blade wear from white ink.
Lower blade shows a coating layer, which protects the blade from the TiO2 pigments.

With more than 40 years of superior expertise in the printing industry, Daetwyler Doctor Blades have earned a reputation as the gold standard in excellent print performance. The case studies featured in this report were taken from actual clients under real-world conditions.

Thanks to our knowledge and technical skill, we were able to help alleviate problems by installing doctor blades designed for white inks from Daetwyler: Longlife (radius tip), Starlife or, Optilife Plus. These kinds of results can be yours, too. By using Daetwyler's recommended specialized coated doctor blades designed for white inks, problems associated with white ink metering, doctor blade wear, and damage to anilox rollers can be significantly minimized or eliminated.

Press downtime due to re-installation of replacement parts is minimized, as are reprints, allowing you to produce more jobs in the same amount of time — all with the quality that keeps customers coming back.

Optilife Plus

Longlife

Starlife

Daetwyler

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