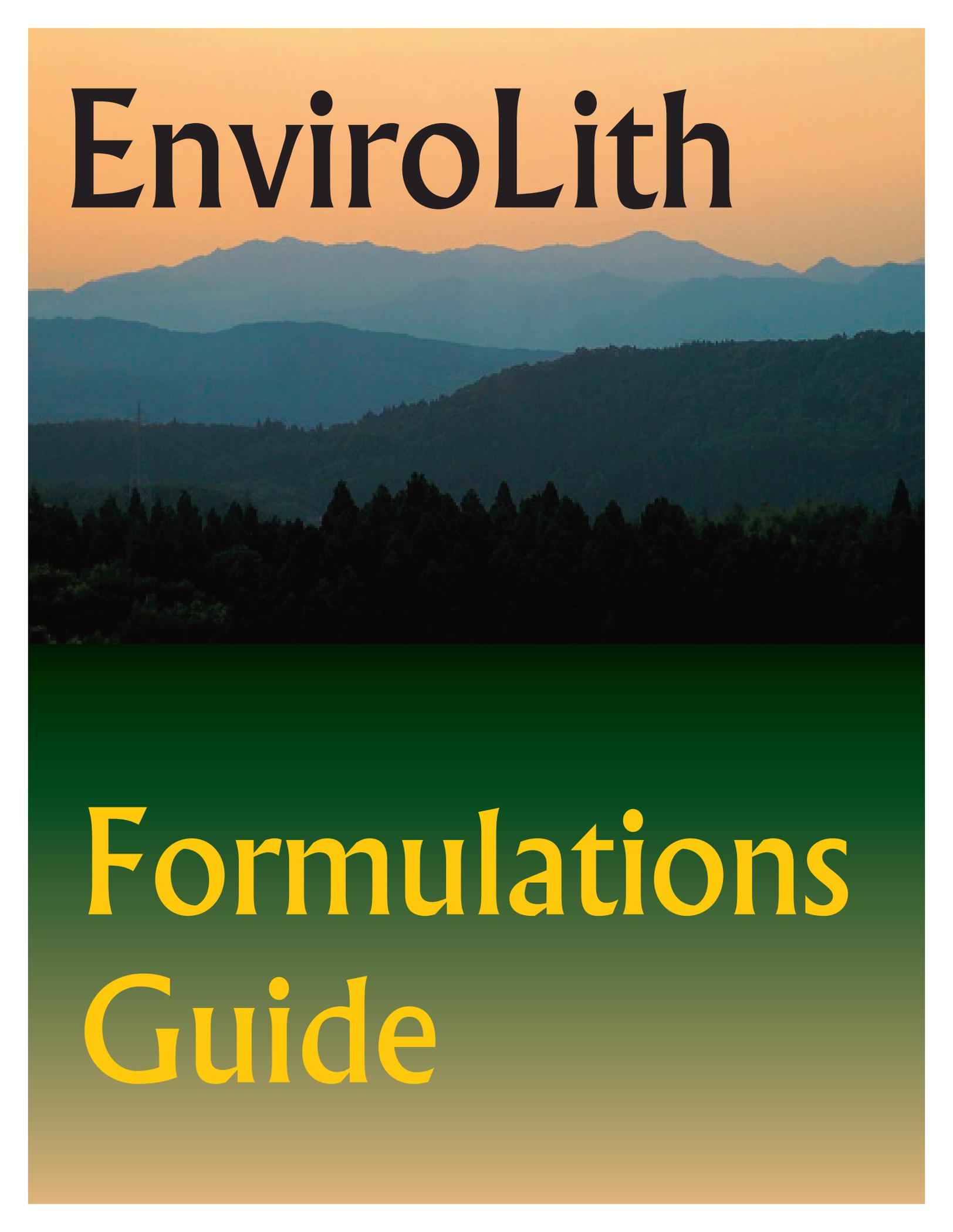


EnviroLith

The background of the cover is a scenic landscape. The top half shows a sunset sky in shades of orange and yellow. Below the sky are several layers of mountains, with the closest ones in dark blue and the farthest ones in a lighter, hazy blue. In the foreground, there is a dense forest of dark green trees. The bottom half of the cover is a solid green gradient that transitions from a darker green at the top to a lighter, yellowish-green at the bottom.

Formulations Guide

What is EnviroLith?

EnviroLith represents an innovative concept in resource-efficient inkmaking. Traditionally, most inks were made from hard-to-handle flushes or from the dusty “dry-grinding” process. Both methods involved inventorying a wide variety of pigments, flushes, varnishes, oils, driers, and waxes to make each individual press-ready formula. But EnviroLith changes all of that.

EnviroLith-based inks are made from the easy-to-use EnviroLith ink concentrate that’s diluted with one of a small series of extender vehicles and ink modifiers. When you use EnviroLith you’ll enjoy these advantages:

EnviroLith ink concentrate replaces several types of flushes with one concentrate system. In these challenging times, being able to do more with less is an excellent survival strategy. The ten EnviroLith color concentrates do the work of as many as 30 different flushes. But the good news about EnviroLith doesn’t stop there. By diluting the EnviroLith concentrates with a low-cost extender vehicle, you can multiply the range of applications to almost the entire gamut of offset paste inks (radiation-curable and bake-on inks excepted). With the EnviroLith system, you can *triple* the effectiveness of every dollar you spend on inventory!

EnviroLith *instantly* makes all of your inks near zero-VOC and bio-based. The world is demanding “greener” products. By using EnviroLith, you’ll be ready to show that you can deliver on the promise of a greener, cleaner product line - from newsinks on up through high-performance sheetfed inks for sophisticated packaging applications. Even heatset inks made with EnviroLith have phenomenally low VOC content. Give your heatset client a smaller carbon footprint instantly!

You can make a wide range of offset inks with EnviroLith, which includes:

- Sheetfed Litho Inks
- Heatset Web Offset Inks
- Business Forms Inks (Laser & non-Laser)
- Web Offset Coldset News Inks
- Small Offset Duplicator Inks

How can so many inks be made from just one concentrate? The answer lies in the technological “magic” of the EnviroLith system and also in its relatively high level of pigmentation. EnviroLith ink concentrates are made to match the shades of the PANTONE®* system base colors. The resins used in EnviroLith’s universal vehicle are the most modern, high-tech types available today, guaranteeing high speed setting with or without heat assist.

EnviroLith has super-low VOC’s, ranging from 0.5 to 1.6 per-

cent, depending on the color. EnviroLith also contains a high percentage of vegetable oils, which helps keep EnviroLith’s bio/renewables percentage high.

How do you know that the EnviroLith system actually works?

You can have complete confidence in the EnviroLith system of ink concentrates and extender vehicles because Kerley has painstakingly and carefully crafted a system that closely duplicates all of the major technical and performance specifications of Kerley’s decades-old product lines such as “Speedex” Sheetfed offset, “Maxi Set” small offset, “ThermaSoy” heatset, “Soytex” business forms cold web and “Soytab” Coldset web news inks. By following the simple starting formulas in this guide, it will be possible to make nearly-perfect duplicates of these established standards from our product line.

Making inks with EnviroLith...

The five basic types of paste ink: heatset, quickset, small offset, business forms and newsink, can be made using EnviroLith ink concentrate system. The basic formulas are astoundingly simple: mix a certain percent of EnviroLith with a balance of extender vehicle and possibly a small amount of ink modifier and tack adjuster. That’s all there is to making ink with the EnviroLith system!

Making “spot” colors with EnviroLith...

Specially matched colors, called “spot” colors, are very easy to make with EnviroLith System! To make a spot color, simply weigh out the proportion of EnviroLith base colors that the color selector book calls for, then add the recommended amount of extender vehicle and additives to finish the formula. That’s all you need to do! The starter recipes are in this guide!

About the extender vehicles...

The EnviroLith system is composed of two parts: first, the colorants (the EnviroLith concentrates) and then, the diluents (the extender vehicles). By mixing these two components, one obtains the finished product. To change the performance characteristics of the finished product, one only changes the concentration of colorant in the batch and then chooses the appropriate extender vehicle for the intended purpose and press type. It’s very simple.

Of course, we at Kerley Ink want to encourage you to use extender vehicles made here at Kerley Ink. However, the EnviroLith ink concentrates are sufficiently well-formulated to tolerate a wide variety of diluents without any negative effects. You can experiment successfully with other extender vehicles from other manufacturers and you will probably have good results overall. In essence, EnviroLith is an “open system”.

*Pantone Inc.’s check-standard trademark for color.

The manufacturing equipment you'll need to use EnviroLith



The EnviroLith system was designed to be easily mixed on lower-horsepower equipment, and does *not* require the use of 3-roll mills or filtering equipment. All necessary dispersing, milling and filtering is done *before* it leaves our factory! What kind of

mixing equipment is necessary to successfully use EnviroLith? That depends on how large a batch you need to make. For batches under 30 lbs, we recommend taking a trip to the restaurant supply store and finding a good, heavy-duty commercial kitchen mixer like the one shown here. With a range of easy-to-clean stainless steel bowls and a "hook" style mixing blade, you'll be ready to make a wide vari-



Commercial Mixer

ety of small batches quickly and efficiently. For batches larger than 30 lbs, we recommend a more specialized low-speed, high-torque mixer, like the one shown in the adjacent photo. Note that this mixer has a "bow tie" style mixing blade, and not the sawtooth blade typically found on high-speed dispersers. The bow tie blade is preferable to the high speed mixing blade due to the bow tie hav-

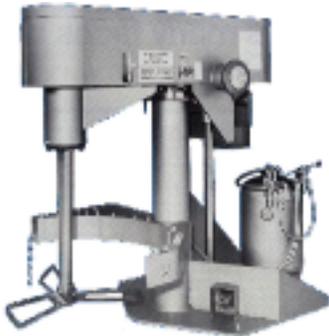


Photo courtesy of Schold Machine Corp.

ing a much lower shaft speed and more torque, which breaks up cold ink and vehicles much more efficiently and gently than a high speed mixing blade can.

Using EnviroLith, step-by-step

The simple beauty of the EnviroLith system lies in its ease of use.

Step 1. Choose a color from the color selector. Example: make a 30 lb. batch of Heatset 185 Red.



Step 2. Since EnviroLith-based heatset inks have 65% EnviroLith concentrate in

them, multiply 65% by 30 lbs to find out how much EnviroLith to "pre-mix" before adding heatset extender vehicle. This means you need to weigh a total of 19.5 lbs. of EnviroLith concentrates in the ratio of 14.6 lbs. of Warm Red to 4.9 lbs. of Rubine Red, which is the ratio in the color selector of 75-to-25 percent. If you are using a mixer with really low horsepower, you



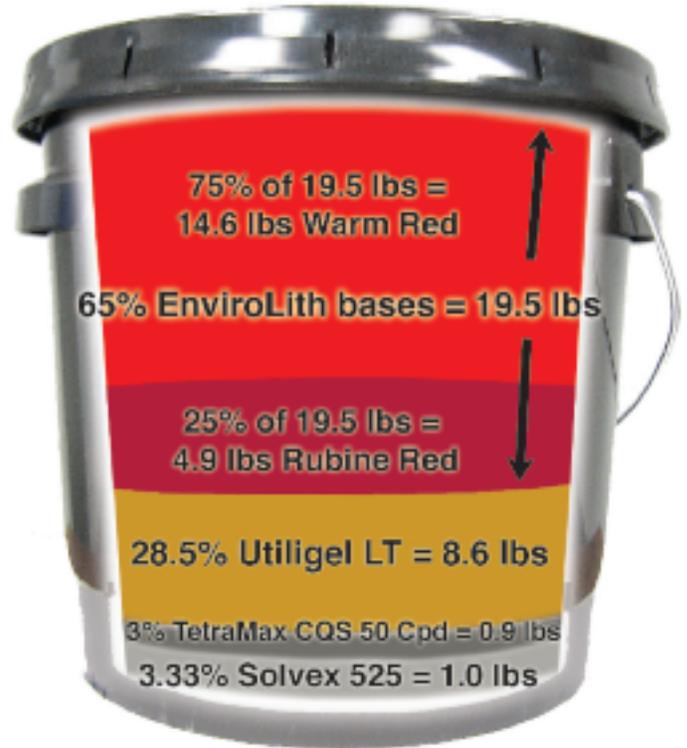
Floor Scale

can start to pre-mix the batch at this stage before adding the appropriate extender vehicle. This keeps the load on your mixer as light as possible and pre heats the batch before any extenders are added in the next step.

Step 3. At this step, your "pre-blend" is ready to be diluted with more of the appropriate heatset extender vehicle to arrive at the desired 30 lbs of heatset 185 red. Since 65% of the 30 lb. batch is made of the EnviroLith ink concentrate, the remaining 35% of the batch can be extender, compound, and if necessary, tack adjuster. This calculates to be 10.5 lbs. of extenders & compound that we need to complete the batch.

Step 4. Add 8.6 lbs. of Utiligel LT, which is 28.5% of the 30 lb. batch. Then weigh in 0.9 lbs. of TetraMax QS 50 PTFE Compound, which is 3% of the batch, and finally, 1 lb. of Solvex 525 heatset solvent, which is 3.33% of the batch. Mix all items but the solvent, which goes into the batch last. Tack should then be approximately 9.5 points at 1200 RPM. The 30 lbs of EnviroLith low-VOC heatset 185 red is now ready to go to press!

What's in 30 lbs. of heatset 185 red?



To review, there are 3 things you need to know to make a batch of any conventional paste ink using the EnviroLith system:

- 1) The size of the batch.
- 2) The color.
- 3) The application. (sheetfed, heatset, coldset news, forms, etc.)

Controlling the product

Luckily, much of the job of controlling tack and viscosity has already been done by Kerley Ink. All of the EnviroLith ink concentrates are manufactured to very precise standards of tack and viscosity, meaning that all you really need to do is follow the instructions in these pages and you'll have a good degree of success. The formulas in this booklet will yield press-ready fin-

ished inks that have precise tack and viscosity parameters, which we have found to be quite successful.

However, there will be occasions when you'll need to change tack, viscosity, flow, strength, etc. in order to satisfy a client's demand or to solve a press-related problem. For control of tack, we recommend the use of an Inkometer.



Electronic Inkometer

There are several models available on the worldwide market today. The adjacent photo shows the most common type used in the USA. With an inkometer, a small sample of ink is placed on counter-rotating rollers, and the amount of attraction, or "tack", between the two rollers is measured over a period of several seconds to several minutes. The resulting graph of force versus time is called a "tack curve", and is used to predict the stability of the paste ink on the printing press. For control of viscosity, the most universal and simple instrument available is the Laray™ Viscometer, which uses a falling rod to measure the viscosity of a small sample. One is pictured here showing one of several different cylindrical weights which are stacked on top of the falling rod in order to see how long it takes for each rod-and-weight combination to drop through a 10 centimeter gap. After several measurements with various weights, a viscosity is then calculated. No paste ink laboratory is complete without these two essential instruments. That being said, the price of these lab instruments runs to tens of thousands of dollars.



Laray Viscometer

A much more affordable "lab bench" can be built using less expensive items. The first such item is a "flow plate", as pictured on the right. A flow plate is a sheet of metal with several equally-sized holes drilled or punched along one end of the plate at regular intervals. Ink samples are loaded into the holes, and the plate is then tilted into a near vertical position. The force of gravity will pull the various ink samples out of their holes. The first sample to reach a line drawn across the bottom of the flow plate marks the total time of the test run. Inks tested on a flow plate are usually compared to a standard which is also run as part of the test. Thus, a new batch can be compared to a standard of the same formula.

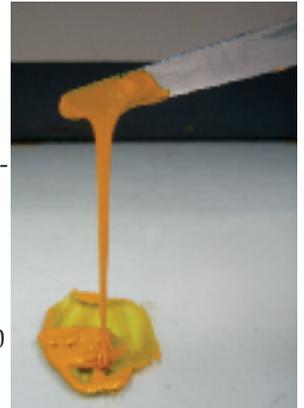


Flow Plate

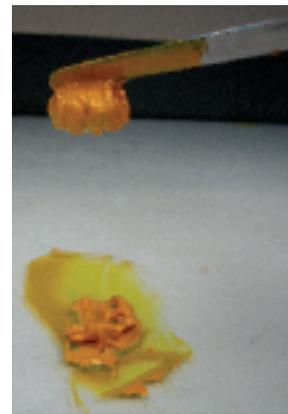
Another affordable piece of lab equipment is the venerable ink knife. In the hands of a well-trained ink technician, an ink knife

can give a wealth of information about the characteristics of a given formula. Both viscosity, which is the absolute amount of force required to move the knife blade through a body of ink, and flow length, which is how easily an ink starts and continues to move under mild force such as the force of gravity, can be evaluated accurately by a skilled ink lab technician.

The accepted technique for using an ink knife is to agitate an undisturbed ink sample for 5 to 30 seconds, periodically "pulling up" on the ink with the knife to see if the ink develops any flow. If, after just a few seconds, the ink develops flow, then the ink is said to be "long". However, if after a full 20 seconds of mild to moderate agitation



Long flow length.



Short flow length.

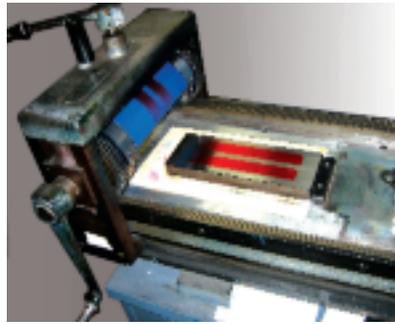
the ink does not develop long flow, then the ink is said to be "short". The illustrations to the left and right graphically show how two seemingly identical inks can have very different flow properties. Most ironically, highly viscous inks such as high-tack sheetfed inks often have very long flow when lightly agitated, yet newspaper inks with very low tack and low viscosity can have extremely short flow properties. A very good analogy is the "molasses vs. catsup" comparison. If one tilts over a bottle of molasses, it will flow very slowly, but it will eventually flow out of the open mouth of the jar. If one tilts over a bottle of name-brand catsup, there will likely be no flow whatever, even though the viscosity of catsup is nowhere near as high as the viscosity of molasses!

The "tap-out" is another quick and simple test that can be performed by an experienced lab technician. Tap-outs are done to determine the tack of a new batch of ink when no inkometer is available for testing with. To perform a tap-out, a small sample (the size of a pea) of both the new batch and a known standard are smeared out into progressively thinner and thinner identical patches of ink film on a lab tabletop, preferably made of glass. When the two *identical* ink patches are of a thin enough film, two fingertips from the same hand are gently pressed into the ink patches simultaneously. A *very gentle* lifting motion is applied to both fingers simultaneously, and the amount of force needed to separate each fingertip from each ink patch is noted by the technician. A determination is then made if the new ink batch is lower than, the same as, or higher in tack than the known standard. An adjustment can then be made to the tack.



Tap-out for tack.

Still another useful piece of equipment that is not tremendously expensive, but is nonetheless an essential part of the basic paste ink laboratory is the proofing press. A proofing press is a simple device that prints a measured, uniform film of ink on a swatch of substrate, such as paper or plastic film. The “standard” of the American ink industry is the “Little Joe” proof press. It is a simple, low-cost, manually operated offset press that is easy to learn and operate. The photo on the left shows a Little Joe proof press ready to make a print. The trolley on the far left side holds a blanket cylinder that



Little Joe Proof Press prepped.

is hand-cranked across the top of a plate, which has two strips of red ink pre-applied to it. The trolley continues to be cranked across the proof press, where the ink which is transferred from the plate to the blue blanket is then re-deposited on to a sample strip of paper or plastic film, as shown in the photo on the right.

Printed strips can then be checked with a spectrophotometer/densitometer for color strength and purity. By employing



Computerized Spectro/Densitometer used to check color swatch purity

If color a measurement device is not available, then the printed strip can be visually compared against a color selector strip to ensure that the new batch color is on-standard. See the photo on the right for a visual demonstration of the manual comparison technique.

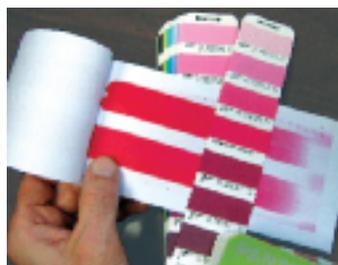
Control over the final product is of greatest importance to all users of the EnviroLith system. That is why it was necessary to lay the foundation for control techniques of EnviroLith-based ink formulas before the actual ink recipes are to be discussed on the following pages of this guide. Please remember that many of the extender vehicles, compounds, and additives are discussed in detail in our Ink Components Catalog.

is hand-cranked across the top of a plate, which has two strips of red ink pre-applied to it. The trolley continues to be cranked across the proof press, where the ink which is transferred from the plate to the blue blanket is then re-deposited on to a sample strip of paper or plastic film, as shown in the photo on the right.



Printing a new swatch

a computer-enabled spectrophotometer and a properly calibrated set of base mixing colors such as EnviroLith, one can measure the color of a printed sample with the device and then obtain a recipe of base colors from which to duplicate the original sample color.



How to adjust finished ink tack

What to use to lower ink tack...

Use Solvex 525 or equivalent for sheetfed litho inks. 52-type ink oil is the generic name for this type of product. **ARLO (alkali refined linseed oil)** is also suitable and helps sheetfed inks cure to a harder film with the addition of cobalt catalysts like **LithoDri CO6**.

Use Solvex 465 or equivalent for heatset inks. 47-type ink oil is the generic name for this type of product. More tack stability for uncoated papers and high-tack inks can be achieved by using Solvex 525, but at the expense of drying speed.

Use Soy oil for newsinks and non-laser business forms inks. **Tamalene 100** oil from Kerley is a low-VOC, petroleum-based alternative to soy oil and it is sometimes less expensive to use.

Use ARLO for laser forms inks. **Tung Oil** can also be used, but it is *very* fast-drying, will make inks skin over, and does not reduce tack as quickly as ARLO. Tung oil is also more expensive. **MSOY** is a super low-VOC methyl ester of Soy Oil. It's completely bio-based and made of renewable resources, like soybeans and corn. It's also a very powerful solvent for use on any kind of paste ink, so limit it to 5% of the formula.

How much to use to lower ink tack...

High tack inks need very little solvent/oil to reduce tack. Typically, an ink with a tack of 16 points will need only 2% solvent to reduce tack by 2-3 points. Inks with a tack of only 5-6 points need significantly more solvent/oil to reduce tack. Typically, news inks may need 3-5% oil to reduce tack by only one point. Oils (**Tamalene**, **ARLO**, **Tung**) tend to be about 33% to 75% less effective at reducing tack than solvent (**Solvex**, **MSOY**). You may need as much as 4-5% oil to do the work that only 2% solvent would do. Remember that oils usually do not increase VOC's (Volatile Organic Content) in an ink, but they do retard drying speed. **MSOY** is the only low-VOC solvent.

What is a reasonable ink tack?

Very low tack inks such as newspaper inks have a tack of 5 points at 1200 RPM inkometer speed, whereas high tack inks for small sheetfed offset presses can reach a maximum level of 20 points. Here is a list of suggested paste ink tacks:

Coldset Web Newspaper Inks	5-6 points
Coldset Web Business Forms Inks	7-12 points
Heatset Web Offset Inks (newsprint & uncoated papers)	6-9 points
Heatset Web Offset Inks (light & heavy coated papers)	8-13 points
Sheetfed Offset Litho Inks (newsprint & uncoated papers)	7-10 points
Sheetfed Offset Litho Inks (light & heavy coated papers)	9-15 points
Sheetfed Offset Litho Inks (plastic film substrates)	14-17 points
Small Offset Litho Inks	16-18 points

Note: “Tack sequence” refers to the order in which inks are placed into printing units. Normally, that is Black-Cyan-Magenta-Yellow. This means that the yellow ink has the lowest tack, and black the highest tack. The tack spread between colors is usually 1 point maximum.

Adjusting the viscosity of EnviroLith-based inks

What to use to lower ink viscosity...

Lowering the viscosity can be a very simple proposition. If all you want to do is to reduce the viscosity of a paste ink without regard to tack, then simply use the instructions to lower the tack of a formula as was previously discussed in this guide.

If you want to increase the flow of an ink but not reduce the tack so significantly, then we have some extender vehicles that can help you accomplish that goal:

Z-KYD & Z-KYD LSO are two linseed oil-based alkyd vehicles that can be plugged into an EnviroLith-based formula in place of thicker extender vehicles. These two items can be used in concentrations up to 5% of total formula weight. They will increase the 'transfer' of ink from press roller-to-roller, but excessive use can result in misting and increase water pickup. Both will increase the positive cure of ink films when used in combination with **LithoDri CO 6** cobalt catalyst.

Crystagloss Vehicles are Kerley line of free-flowing, gellant-free vehicles that can also be "plugged in" in place of more viscous extender vehicles. They can be used as the sole extender in EnviroLith-based finished ink formulas, and do not reduce tack.

Crystagloss FF - use for heatset, fast quickset formulas

Crystagloss LO VIS - use for newsinks, forms, and quickset.

Crystagloss QS - Use for quickset, cures hard & glossy.

Crystagloss QS Metallic - for metallic inks, has a high tack.

What to use to raise ink viscosity...

Gel Plex is a 100% solids, soy oil-based compound developed for use as a thickening agent for all paste inks. Gel Plex uses surface-treated montmorillonite clay as its active ingredient. The recommended dosage of Gel Plex for best results is between 2% and 6%, depending on the amount of ink thickening needed and the amount of resinous material in the ink to be modified. More than 6% Gel Plex may reduce gloss levels noticeably in high gloss inks.

Gel Plex eliminates the need to store messy powdered thickening agents and will do the same job. Best results are obtained with quickset and heatset inks as well as high resin content business forms inks and newsinks.



Gel Plex Thickener Compound

Although Gel Plex is a "stir-in" compound, the maximum thickening potential of Gel Plex is obtained with high shear. The more mixing energy that is used to incorporate Gel Plex, the more quickly thickening is accomplished. Best results are obtained with a mixing temperature of 110 °F (43°C). Gel Plex increases viscosity 20-25% at loads of 3-4% in your formula. Gel Plex helps waterless litho inks by keeping viscosity high at higher temperatures. Adding 0.2 -0.5% tap water *after* thorough

incorporation of Gel Plex into the batch to be thickened boosts Gel Plex's gelling action through polar activation.

Gel Plex is an excellent ink/ water balance agent. Inks that are scumming and stripping can be helped with the addition of Gel Plex. Inks that are overemulsified by fountain solution can be helped by Gel Plex, too. Inks with excess misting will benefit from Gel Plex.

Recommended ink formulas using EnviroLith ink concentrates

How to make sheetfed litho inks...

The formula for sheetfed litho ink listed below will make very fast setting inks similar to our "Speedex" line of stay-open litho inks. The formula is patterned after our "Speedex 4 PRS" series of fast-setting, stay-open sheetfed quickset inks. Wax Compounds are optional and are shaded yellow to indicate so.

EnviroLith Ink Concentrate	75 parts
Speedex Extender	20 Parts
TetraMax QS 50 PTFE Wax Compound	1 Part
PolyMax CQS 50 PE Wax Compound	3 Parts
Total	100 Parts

tack: Approx. 15-16 points @ 1200 RPM (Thwing-Albert Model 101)

viscosity: 270-330 poises (depending on color)

Notes:

For better curing, add 1.0-1.5% **LithoDri CO 6** plus 0.5-1.0% **LithoDri MN6** driers for printing on non-porous substrates such as polyolefin films. Do not use too much drier, or the film will overcure and become brittle. For even faster initial setting and thicker viscosity, substitute **QSG NS vehicle** for Speedex Extender. Reduce tack with Solvex 525 or MSOY (low VOC, bio-based solvent).

How to make sheetfed small offset inks...

The formula for sheetfed small offset duplicator ink listed below will make rubber-base substitute ink similar to our "Maxi Set" line.

EnviroLith Ink Concentrate	70 parts
Maxi Set Extender	26 Parts
TetraMax QS 50 PTFE Wax Compound	3 Parts
Total	100 Parts

tack: Approx. 16 points @ 1200 RPM (Thwing-Albert Model 101)

viscosity: 270-290 poises (depending on color)

Notes:

Optionally, 2-3% of Gel Plex compound can be added to increase viscosity to over 300 poises. This is a recommended step if the client is in a high-temperature zone. Gel Plex will help prevent unintended plate toning and the breakdown of ink into the integrated dampening system. The use of Driers is not necessary with this formulation.

How to make low-VOC heatset web offset inks...

The formula for heatset web offset ink listed below will make very fast drying inks similar to our "Thermasoy" line of low-VOC inks. The formula below is patterned after our "Thermasoy 4 LO VOC" series of fast-drying, web offset heatset inks. Wax Compounds are normally required to make a successful heatset ink. We recommend at least 1.5% PTFE by dry weight when using EnviroLith concentrates, which is the same as 3% tetraMax QS 50 compound.

EnviroLith Ink Concentrate	65 parts
Utiligel LT Heatset Vehicle	28 Parts
TetraMax QS 50 PTFE Wax Compound	4 Parts
Solvex 525 solvent	3 Parts
Total	100 Parts

tack: Approx. 9 points @ 1200 RPM (Thwing-Albert Model 101)

viscosity: 100-130 poises (depending on color)

Notes:

If the substrate to be printed on is absorbent uncoated stock such as newsprint or #5 groundwood, then the use of PTFE Wax Compound may not be necessary. Otherwise, PTFE compound in the dosage above *must be used* in order to ensure adequate scuff resistance of the product. Many uncoated papers actually have some type of holdout-enhancing ingredients in them, which necessitates the use of PTFE compound.

How to make laser-compatible business forms inks...

The formula for forms ink listed below will make no-rub laser forms inks. The formula is patterned after our "Soytex 3 LZR" series laser-compatible forms inks. As always, we strongly recommend that all inks to be used in a laser printer be allowed at least 72 hours dry time with adequate windage (exposure to moving air), and *not* be shrink-wrapped after impression.

EnviroLith Ink Concentrate	60 parts
Soytex Extender LZR	36 Parts
ARLO (alkali refined linseed oil)	4 Parts
Total	100 Parts

tack: Approx. 11 points @ 1200 RPM (Thwing-Albert Model 101)

viscosity: 125-155 poises (depending on color)

Notes:

The formula above is a "stay-open" type that will not skin on-press overnight (under most normal temperature/humidity conditions). However, there may be a need to increase curing

speed - such as when the client wants to send the forms through a laser printer within 24 hours after impression. It is possible to increase setting speed by substituting Tung Oil for ARLO and some of the Soytex 3 LZR extender vehicle. A further increase in curing speed can be obtained by using 1-2% LithoDri Cobalt and Manganese drier catalysts. However, any stay-open benefit will be lost, as inks containing LithoDri will form a skin much more quickly: usually in less than a day. It is also vitally important that papers used for laser forms have adequate ink absorption: "high holdout" papers such as some matte coated, vellum-finish, and offset stocks will not allow ink to penetrate the surface and be absorbed, which will result in marking and offsetting through a laser printer. As an alternate, **Formsmaster Extender ECON LZR** can be substituted for Soytex Extender LZR. Depending on the market price of soy oil versus mineral oil, there may be a cost savings advantage. Check pricing with us before purchasing.

How to make conventional business forms inks...

The formula for forms ink listed below will make no-rub conventional forms inks. In addition to business forms, these inks are used by narrow- or mini-web no heat commercial printers for a variety of purposes that extend beyond the printing of business forms (ie: shoppers, free-standing inserts, card mailers, etc.) The formula is patterned after our "Soytex 3 PLS" series conventional forms inks.

EnviroLith Ink Concentrate	60 parts
Soytex Extender FFG	37 Parts
SBO (soy bean oil)	3 Parts
Total	100 Parts

tack: Approx. 11 points @ 1200 RPM (Thwing-Albert Model 101)

viscosity: 125-155 poises (depending on color)

Notes:

As an alternate, **Formsmaster Extender** can be substituted for Soytex Extender FFG. Depending on the market price of soy oil versus mineral oil, there may be a cost savings advantage. Check pricing with us before purchasing.

How to make coldset news inks...

The formula for forms ink listed below will make no-rub coldset news inks. The formula is patterned after our "Soytab 2 PMX Plus" series news inks.

EnviroLith Ink Concentrate	55 parts
Soytab Extender	34 Parts
SBO (soy bean oil)	11 Parts
Total	100 Parts

tack: Approx. 6 points @ 1200 RPM (Thwing-Albert Model 101)

viscosity: 50-60 poises (depending on color)

Notes:

The formula shown above is a general-purpose formula for use

on open fountain new web presses, which comprise the majority of newspaper presses used in the world today. Consequently, it is considered moderately thixotropic, meaning that the ink has short flow when unagitated, and will develop longer flow after agitation. Thixotropic inks work well in open fountain presses because they do not easily drip through the inking keys of an ink fountain. Soytab Extender FFG and Soytab Extender LO VIS can be substituted if inks with more flow are needed, as when a formula is to be used on an injector-fed press. As an alternate, **Web News Extenders** can be substituted for Soytab Extenders. Depending on the market price of soy oil versus mineral oil, there may be a cost savings advantage. Check pricing with us before purchasing.

Helpful “ink tools” you can use with EnviroLith

What to use to lower water pickup...

Although all EnviroLith ink concentrates are carefully formulated to yield a very good ink/water balance, there may be a special circumstance which dictates that the water pickup of an EnviroLith-based ink may have to be even further reduced. How will you know when you need to reduce water pickup? If a printed job “washes out” for no apparent reason, for one. Jobs with low ink consumption sometimes cause an ink to “loiter” on press rollers, which exposes the ink to fountain solution for an extended period of time, for another. Here are two products from Kerley that can help with that challenge:

BCO (Blown Castor Oil) A naturally-sourced derivative of the Castor bean, BCO is heat-treated oil that is very effective in reducing the water pickup of most offset paste inks. The usual dosage is 0.5-1.5% by weight. BCO is *not* recommended for use in inks that contain a significant amount of Lithol Rubine pigment (ie; Rubine Red, Process Red). BCO has zero VOC's, and is 100% bio-based.

LithoTrol water fighting additive - a synthetically-based surfactant dispersed in a universal paste ink base. The usual dosage is 0.5-1.5% by weight. LithoTrol can be used in all pigment systems. VOC content is 27%, and contains 16% bio-based materials.

A word about “strong solvents”...

Occasionally, you may need to use a strong solvent. This may become necessary, especially with rubine red and warm red inks that have been in storage for months. The metal-containing pigments in these colors form “soaps” with the resins in the vehicle, and the ink becomes thickly gelled with the passage of enough time. Below are three strong solvents that can be used in small percentages (1-3%) to help break up the gumminess of inks that have been stored for too long:

DPNB - glycol ether, suitable for heatset web offset. 100% VOC, 0% bio-based

TXIB - 2,2,4-trimethyl-1,3-pentanediol diisobutyrate. Suitable for sheetfed offset & tack-stabilized heatset. 100% VOC. 0% bio-based.

MSOY - Methyl Ester of Soy oil fatty acids. Good for sheetfed and all cold web inks such as newsink and forms inks. Almost VOC-free, 100% bio-based.

Safe handling procedures ***Auto-oxidizing vegetable oils...***

There is a hidden danger in using some vegetable oils because of their ability to auto-oxidize. Heat is given off by a vegetable oil as it forms a “skin”, which is part of the normal oxidation-drying process which occurs after impression. This is a good thing when ink has been printed on a sheet of paper, but a bad thing when the same chemical reaction occurs in a pile of dirty rags.

The heat in a pile of dirty rags has no place to go, and subsequently this heat accelerates the oxidation reaction. It becomes a chain reaction that, over the course of a weekend, can turn a pile of seemingly harmless rags into a red-hot, glowing mass which can flash into a fire.

If you plan to use fast-oxidizing vegetable oils such as Tung Oil or Alkali Refined Linseed Oil (ARLO) in your EnviroLith formulas, please make sure to study and master safe storage and disposal methods for oily rags.



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