Create More, Make More!

Create hard surface dye sublimated Unisub and ChromaLuxe Products!

ChromaLuxe®
True to your vision®

unisub®
From Bare to Brilliant™

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Start To Sublimate Crafter's Handbook, 2019

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This handbook is based on our Technical Support Portal for users who sublimate ChromaLuxe and Unisub products.

Universal Woods is a global leading manufacturer of products coated for dye-sublimation printing, supplying high quality blank substrates for a variety of applications that require superb image quality and durability. All coatings and substrates are made in the USA with manufacturing and fabrication done in Louisville, KY. Our facility is ISO 9001:2015 certified as of 2019. With additional locations in Belgium, Dubai and Australia, Universal Woods serves its global customer base and provides products to more than 80 countries. ChromaLuxe and Unisub are the leading brands of Universal Woods.

For questions specific to sharing this content, please contact info@universalwoods.com.

The latest and most up to date information regarding sublimation times and temperatures can be found online at www.starttosublimate.com

Universal Woods

How Does Sublimation Work?

Sublimation is a digital print technology that allows the reproduction of full color images on a variety of substrates. Common sublimated products are coasters, mugs, photo panels, apparel and signage. Unisub and ChromaLuxe dye sublimation products are rigid, flat polymer coated items, specifically, Aluminum, Steel, Medium Density Fiberboard (MDF), Fiberglass Reinforced Plastic (FRP) and Tempered Hardboard (THB). These are called substrates.

The sublimation process explained:

Everything starts with a digital image - a family photo, an illustration or a graphic logo. This digital file will be printed using a dye sublimation printer loaded with dye sublimation transfer paper using dye sublimation inks. The combination of the printed transfer and the coated substrate are placed together into a heat press. Using temperatures up to 400°F/200°C and medium to high pressure, the magic can start. The heat allows the inks (dyes) to activate, migrating away from the printed transfer paper. The inks become a gas, and with the pressure of the heat press, they are transferred into the coated substrate. The substrate is coated so that with heat, "pores" within the coating open up and accept the inks. Upon cooling, the pores close and permanently retain the ink. The inks are then infused into the substrate's coating and cannot be scratched off. The final result is a beautiful, top quality print with vibrant colors that will last a lifetime.

Print finished artwork with sublimation paper and ink. Then, tape the print to the front of the substrate.

Place substrate face up and press at 400˚ for 1 minute.

No need for lamination, once sublimated, Unisub and ChromaLuxe items are ready to sell.

With sublimation on Unisub and ChromaLuxe products, you can produce gift items, home decor, name badges, jewelry, awards, photographic prints, and much more.

Sublimation has many advantages over other printing processes which makes it special and unique. The result is an exceptional quality product with the following advantages:

Superior Color Brilliance

When the colors of the printed image are infused into the coating, the amazing end result has a surface like glass. The coating is extremely hard and more scratch resistant than any other printing technology, making it ideal for items like bag tags, jewelry, name badges, etc.

Easily Cleanable, Water Resistant, and Light Weight

Images printed with sublimation technology can be cleaned with any non-abrasive cleaning fluid, even strong disinfectants, acids and alkaline products.

Our aluminum products are totally resistant to humidity and water, and will not rust. They are also lightweight, making them easy to mount.

Fade Resistant

All of our products have excellent print permanence. For interior use, they achieved ratings of 64+ years without significant fade.

Thousands of Products

With sublimation, there are literally thousands of products you can make in full color. From fabrics to hard surface items, products are readily available and come in a variety of shapes and sizes.

Sublimation Supply Checklist

Setting Up For Success

Here are some supplies you will need to get started sublimating.

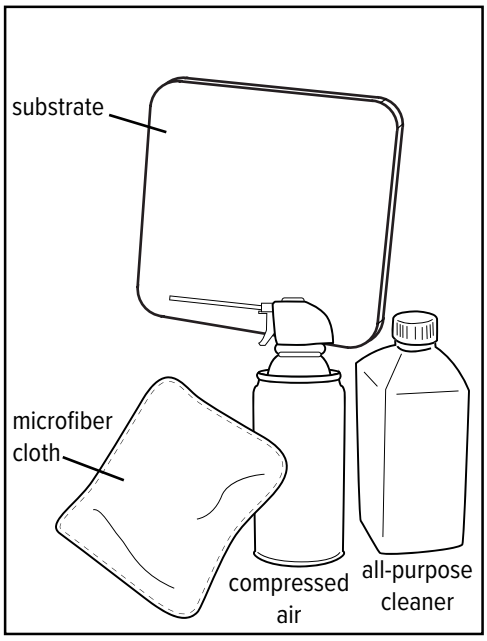
These supplies can be purchased from your distributor:

- o Dye Sublimation Printer
- o Dye Sublimation Ink
- o Sublimation Transfer Paper
- o Heat Press
- o Design Software
- o Blank Substrates
- o Scissors
- o Heat Tape
- o Cleaning Solution
- o Microfiber Cloth
- o Compressed Air
- o Blowout Paper (newsprint or butcher paper)
- o Heat Resistant Gloves
- o If using Sublimation Markers, you'll also need copy paper to transfer and tracing paper (optional) to mirror the art.

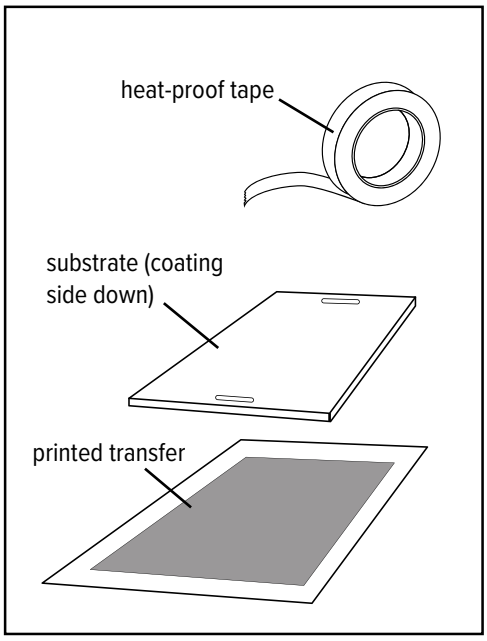
*Note: Teflon sheets or pads are not recommended for placing in the heat press over or under Unisub and ChromaLuxe products.

Sublimation Overview

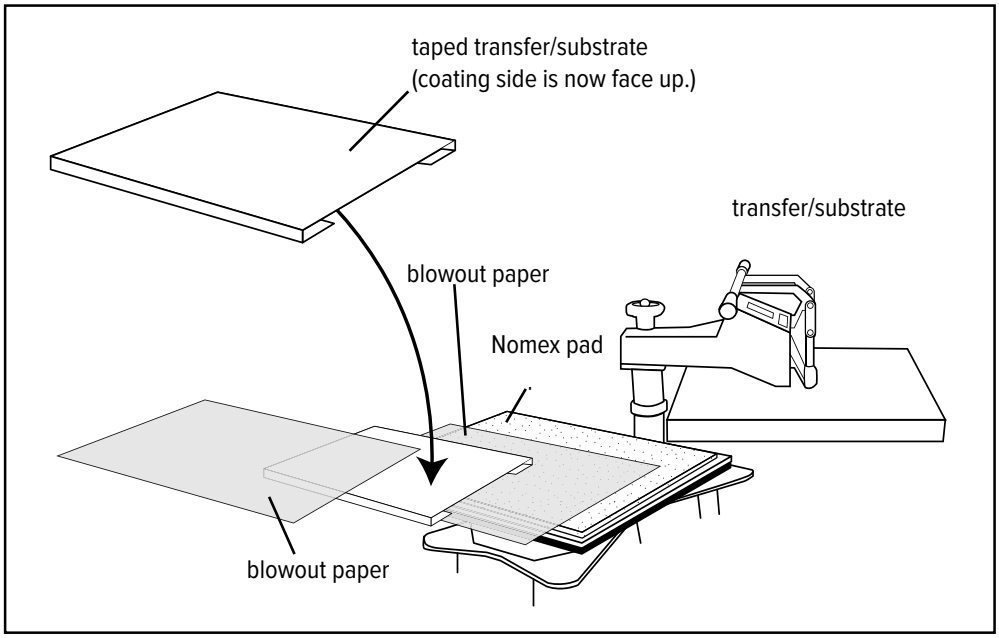
Setting Up For Success



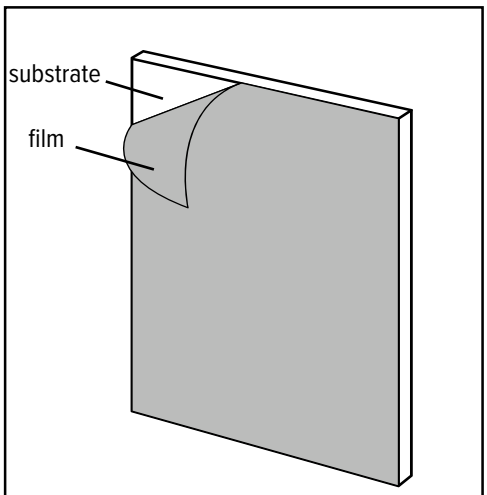
Step 1: Clean substrate using microfiber cloth, all-purpose cleaner, and/or compressed air.



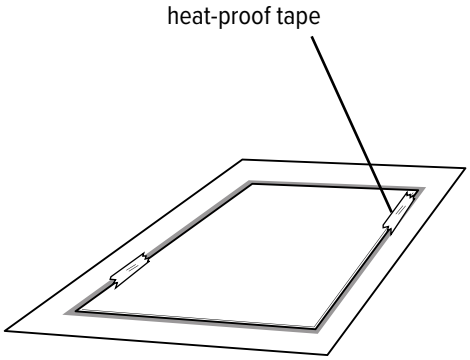
Step 2: Place substrate (coating side down) onto printed transfer sheet. Maintaining appropriate bleed for your substrate, use heat-proof tape to attach the substrate to the transfer sheet.



Step 3: Flip taped transfer/substrate (substrate coating will be face up at this point, but covered from view by the transfer paper) and place it in the heat press between the two layers of blowout paper.



Note: Peel film from substrate (if applicable).



For aluminum and other flat/thin substrates: Substrate is taped flat to transfer.

Pressing Information

Set press temperature to 400°F/200°C Degrees

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Ornaments, business card/holder, bookmarks, pet tags, ID tags, sticky note holders, name tags, bag tags, magnet, trophy disks, jewelry, lapel pin, cuff bracelets, garden stakes, mini license plate, license plate frames, clocks, metal panels under 5"	**Aluminum** 0.030" 0.045"	1-sided	0.75"-5"	1:00-1:05

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Exterior building signs, yard signs, license plates, metal panels to size 10"	**Aluminum** 0.030" 0.045"	1-sided	5"-10"	1:10-1:30

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Ornaments, key chains, ID tag, bag tags, pet tags, keepsake box insert	**Aluminum** 0.045"	2-sided	0.75"-5"	0:50-1:10

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Basketball goal, magnets, coasters, puzzles, placemats, wall clocks, ornaments	**Hardboard** 0.125"	1-sided	2"-9"	1:00-1:20

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Sticky note holder, keepsake tile box insert, small photo panels, streamline awards, tiles, picture frame, wall clocks	**Hardboard** 0.25"	1-sided	2"-6"	1:05-1:20

Time refers to minutes and seconds

Pressing Information

Set press temperature to 400°F/200°C Degrees

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Ornaments, bag tags, magnets, key chains	**Natural Wood MDF** 0.156"	1-sided	0.75" - 5"	0:45-1:00

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Plaques, key hanger, photo panels, coat hangers, offset clock, picture frames	**Natural Wood & White Wood MDF** 0.625"	1-sided	6" - 12"	1:30-1:45

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Interior wall décor, signs, photo panels	**Hardboard** 0.25"	1-sided	8"- 14"	1:15-1:25

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Serving trays	**Hardboard** 0.125"	1-sided	9"-14"	1:25-1:45

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Clipboards	**Hardboard** 0.125"	2-sided	12" - 24"	1:00-1:15

Time refers to minutes and seconds

Pressing Information

Set press temperature to 400°F/200°C Degrees

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Door hanger, name plate, bag tags, key chains	**FRP** 0.09"	2-sided	0.75" - 5"	1:15-1:35

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Name badges, button, oval door sign, magnets, desk clock	**FRP** 0.09"	1-sided	6" - 10"	1:00-1:15

PRODUCT CATEGORIES	SUBSTRATE/ THICKNESS	1 OR 2-SIDED	PRODUCT SIZE	PRESS TIME RANGE
Message and dry erase boards	**Steel** 0.023"	1-sided	8"- 14"	1:25-1:45

Digital Files and Color Profiling

If you create digital images to sublimate on a ChromaLuxe or Unisub item, be sure that your file settings are correct. You will need a correct ICC profile for your printer and substrate if you want accurate colors for your image when it's sublimated. In color management, an ICC profile is a set of data that characterizes a color input or output dveice, or a color space, according to standards from the International Color Consortium (ICC). Basically, this means that different items display different color spaces (such as your monitor versus your printer, your phone versus a camera, etc.). If you look at a color on your monitor, it's not going to be the same as the color you print and sublimate onto a blank, and therefore your color output will not match. To prevent this, you will need a color profile.

Below are suggested specifications for best file format practices:

- **Color Mode:** RGB (also use RGB to save your black/white images)
- **Color Settings:** AdobeRGB 1998/ProPhoto RGB (do not use sRGB). Certain printers also have color profiles built in, so ask your distributor for the correct sublimation profile if you do not have instructions on how to use your printer or other software for sublimation.
- **Resolution:** 300 dpi is the standard and ideal (200 dpi is the lowest).
- **Dimensions:** 100% of the final size you want to print plus a bleed around your image. If it is a specialty shaped item then consider using product templates from www.unisub.com.
- **Image Bleed:** add 0.25" (6mm) to an aluminum or hardboard panel. For example, the file for an 8"x10" panel (203.2 x 254mm) would then be 8.25"x10.25" (209.6 x 260.4mm). If using a smaller item (such as a key chain) you may decide the 0.25" bleed is too large but you will need to experiment with the size of the bleed. If pressing thicker items such as MDF photo panels, then add 0.5" bleed (13mm) to the file.
- **File Format:** JPG

Be sure to visit www.starttosublimate.com for more information regarding file formats, resolution, color profiling, and much more.

Proper color management will help ensure your customers are completely satisfied with their sublimated ChromaLuxe or Unisub product. Having the proper color profile for your products will help you stay true to images and colors when you reproduce graphics, art, photos and logos onto your products.

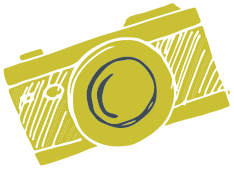
The following is recommended for full utilization of your material:

- **Build your color profile:** By creating your own unique environment, customers may tailor the look of their imagery to their liking. Different substrates can benefit from specific color profiles. Building a color profile differs from software to software.

- **Familiarize yourself with your equipment:** Taking the time to learn how to correctly use your printer, software, etc. will only make creating color profiles easier.

- **Invest in testing:** Taking the necessary time to thoroughly investigate ink limits, saturation, color output, etc. will reward customers with great looking product.

Please contact your distributor that you purchased your printer from as they can also assist you with optimal color profiles for your equipment and substrates.



General Sublimation Tips & Resources

Sublimation Tip Sheet

Heat Presses

Generally any heat press that goes up to 400° F / 200° C, is flat and has consistent, even pressure is best for sublimating hard surface products. Clamshell type presses will work for thin substrates like aluminum and hardboard, but thicker substrates like MDF will need consistent pressure across the surface for the image to sublimate evently. For hard surface products, we recommend swing away, non-clamshell presses for consistent pressure.

Sublimation Coated Products

Ideally you can sublimate products with a polyester coating made especially for sublimation dyes. Though sublimation is possible on some non-coated products, keep in mind that they may not be suitable for such high heat from the press and that the sublimated image may not last without a polyester based coating.

Graphic Software

Typically graphics programs such as Adobe Photoshop, Adobe Illustrator and CorelDRAW are used however you can also use Silhouette Studio, Creative Studio (included with Sawgrass Virtuoso printers) and much more.

Graphic and Font Resources

There are a number of places where graphics and fonts can be downloaded, either for purchase or free. Be sure to check any licensing requirements when reproducing art or using fonts as various copyright laws may apply.

Below is a list of places to find resources (please note that we are not associated with most of these resources):
Graphics & Designs: Unisub.com, Canva.com, Shutterstock.com, Pixabay.com, CreativeMarket.com
Fonts: FontSquirrel.com, Dafont.com, Sofontsy.com, pixelsurplus.com, 1001fonts.com

Pressing

Some hard surface products come with protective film on them to prevent dust and surface defects prior to sublimation. Make sure you peel the film off, and clean off the surface of the product before putting the transfer on it. Press items face up in the heat press using blowout paper or newsprint over the transfer.

Material Storage

Store inks and paper in a cool, dry place. Humidity plays a strong factor in the sublimation process, so eliminating as much of it as possible is preferred.

Inks & Your Printer

In order for sublimation to work, the inks must be dye sublimation inks. Keep in mind that the inks have an expiration date. You should also run clean cycles on your printer daily to prevent clogged print heads. Follow your printer instructions to optimize printing output.

General Sublimation Tips & Resources

Sublimation Tip Sheet

Printed Transfers

When you print out your transfer to apply to a hard surface product, it will be a mirror image (reversed) and the paper image will look very faded. This is because the inks have been absorbed into the dye sublimation paper and will activate with heat. The resulting pressed image will be vibrant with the heat transfer of the ink into the coating of the product.

Be sure to let your printed transfers dry fully before sublimating. We recommend 15 minutes of drying time for most transfers (30 minutes for larger tranfers). Though you can wait to use your transfer, ideally you would press it right after drying.

Color Matching and Your Monitor

Your monitor displays RGB colors (Red, Green and Blue). Your printer uses CYMK inks (Cyan, Magenta, Yellow and Black). Artwork for sublimation always uses RGB color palettes, so be sure and convert your art to RGB if it is not already in RBG mode. Do not convert your files into CMYK-mode, as the color gamut (the possible amount of colors you can print) in CMYK is considerably smaller than it is in RGB mode.

Also, DON'T TRUST YOUR MONITOR TO MATCH COLOR! Use printed Color Reference Charts you make as a visual reference to recolor vector images and text with specific RGB values from your graphic files.

Frequently Asked Questions

Sublimation Tip Sheet

Why do I have duplicate images and/or text?

We call this problem "ghosting." When a shift in the transfer paper takes place while the product is still very hot from the heat press it results in a duplicate or "ghost" image behind the original image. Here are the easiest ways to prevent duplicate images or text.

1. Make sure the transfer paper remains stationary when taping your product to the transfer paper. Let the product cool before removing the transfer paper once removed from the heat press so there is no risk of ghosting.

2. If you prefer to separate the transfer paper from the product as soon it is removed from the heat press, detach your transfer paper vertically from the product. You should pull the transfer off in one quick, fluid motion to keep the product "ghost" free.

Why does my print look wavy or blurry?

Usually, trapped moisture causes wavy, blurred prints. Any moisture held inside the product during the heat press process becomes steam that tries to escape and leaves the final print with a wavy or blurred appearance.

Avoid wavy prints by using poly fabric to prevent moisture; you can purchase poly fabric from your distributor. Start by using a Nomex pad, blowout paper, blank product (face up), printed transfer (face down and taped to product), blowout paper and poly fabric to top it off.

On some occasions, you may need to preheat the blank product to get rid of extra moisture. Try it two ways:

1. Leave the heat press open, and place your product in the heat press with a clean sheet of blowout paper without the transfer for one to two minutes. We recommend only preheating MDF and hardboard, because they hold more moisture than other substrates.

2. You may need to preheat the transfer paper. Leave the heat press open and place the unsublimated transfer paper under the heat platen for one to two minutes. Make sure that the hot plate doesn't come into direct contact with your transfer.

Frequently Asked Questions

Sublimation Tip Sheet

Why does my end resulting image have

A. faded colors?
B. white edges?
C. texture?
D. yellowing?

A. FADED COLORS: Lack of Sublimation or An Uneven Texture
- Cause: Not enough time in the heat press
- Solution: Increase time or temperature

Hint: Look for good color at edges but less in center; see if transfer still has ink on it

B. WHITE EDGES: Scraping
- Cause: Aluminum expanding in heat press
- Solution: Wrap transfer around edges and tape on back; higher pressure may help; try other sublimation papers

C. TEXTURE: Paper Texture
- Cause: Texture of sublimation paper influencing ink transfer
- Solution: Use lighter weight paper

D. YELLOWING: Over Sublimation
- Cause: Substrate left in heat press for too long
- Solution: Lower time or temperature

Hint: Look for desaturation and fuzziness around sharp edges, especially text

Why do I have colored dots on my product?

Often colored dots come from small strands of cloth or fabric from clothes or microfiber cleaning cloths that fall in between the surface and the transfer paper before pressing. Take extra care to wipe down and inspect your product immediately before pressing it to prevent colored dots.

Why do I see white dots on my product?

You'll find white dots when something blocks dyes from transferring to the surface. Usually, dust is the culprit. To prevent white dots, take these precautions:

1. Always keep a clean, dust-free workspace.
2. Don't peel the protective film on the product until you are ready to sublimate.
3. Wipe down your product and transfer paper with a soft, clean cloth right before sublimation.
4. Use compressed or canned air to blow any excess dust from the product and transfer paper.
5. After you have pressed your image into the coated product, look at the used transfer paper to easily identify and troubleshoot errors in sublimation. Any white dots or unsublimated dyes left on the product will be visible on the transfer paper.

Frequently Asked Questions

Sublimation Tip Sheet

How would you suggest inspecting my product?

Look at the used transfer paper to identify any issues, instead of just looking at the sublimated surface. *Here are some things transfer paper can reveal:*

Look for blotches of ink on the transfer paper. The ink should be evenly released from the used transfer paper. Typically you can find the issue quickly by comparing the transfer paper to the finished product.

Look for white dots or dust spots. If any spot on the transfer paper didn't sublimate completely, you will be able to see that spot on the transfer paper in the same location.

Look at the used transfer paper to determine the heat distribution from your press. If you notice that some parts of your paper look burnt, but others aren't yellowed at all, you may have uneven heat in your press that could be causing sublimation errors.

What can I do to prevent chipping around the edges?

When removing the protective film from your products, do not use any hard or sharp tools that could possibly damage the surface or edges and that you're removing the film without digging into the sublimatable surface.

If you experience chipping on small aluminum shapes, you can lightly sand the edge before sublimating to prevent chipping. We suggest sanding in a different location than where your heat press is located to prevent dust that may cause other sublimation issues.

Allow your panel to completely cool off before removing the transfer paper.

Handle hot aluminum panels with extra care, especially around the edges.

For information including answers to additional common questions, visit www.starttosublimate.com

It's free to register and includes optimal pressing times, temperatures, best practices and more.