

Mug Sublimation Time and Temp Guideline [For Mug Press and Convection Ovens]

Are you frustrated with sublimating mug after mug only to achieve the perfect sublimation design? Your designs are either coming out faded or not embedded into the mug.

Now why is this happening? It's because you're not using the correct mug sublimation time and temp.

You should keep the mug exposed to heat for around 150-500 seconds in a mug press and 300-900 seconds in a convection oven. The temperature should be within 360-400°F depending on the manufacturer and substrate.

I've created a master chart describing the mug sublimation time and temperature for all substrates. Keep reading the article below to create a vibrant and durable sublimation print.

Mug Sublimation Time, Temperature, And Pressure Guide

Now, sublimation isn't just a traditional printing technique. Applying the correct temperature at the necessary pressure points for a required period of time allows the ink to transform into a gaseous state. Only then, the sublimation ink can be embedded into a substrate.

So, for mug sublimation, it's crucial to maintain the time, temperature, and pressure appropriately. In case you fail to do so, the mug will either receive a faded or cracked sublimation design.

Keep reading the following segments to learn more about it below.

Mug Press Times

Mug press times indicate how long you should keep a sublimation substrate under the heat press to transfer the sublimation ink on the substrate.

If you're sublimating a Ceramic mug, you should keep the mug in the mug press for 150-210 seconds. On the other hand, Cricut mug sublimation time and temp are around 360 seconds and 392°F.

Note that you can't use a mug press for glass sublimation mugs. In this case, you'll have to use a convection oven which we'll discuss later.

Now, if you keep the mug in the heat press for longer than the necessary time, the design will come out faded or cracked. Conversely, too little mug press time will not transfer the ink to the substrate properly.

Mug Temperatures

Similar to mug press time, the temperature of the heat also impacts the quality of the mug press sublimation. Typically, mug press temperature and time range from 350-400°F for 150-210 seconds. This is especially applicable to Ceramic mugs.

If you're using glass as a substrate, you should keep the temperature between 400°F to 425°F for a durable result. However, note that the sublimation time and temp for 100% polyester are between 385°F-400°F and 45-60 seconds at medium pressure.

Maintaining the mug press temperature is crucial because low temperatures can produce light and faded colors. On the other hand, if you apply more heat than the required amount, the ink will get overcooked and damage the substrate.

Pressures

Finally, without applying the correct pressure in the mug press, the sublimation design will not evenly transfer to the substrate. Usually, mug presses require light to medium pressure.

You should apply light pressure of 35 psi for glass mugs and medium pressure of 40 psi for Ceramic mugs.

Remember that if you apply more pressure than the required amount, the sublimation ink will start bleeding. It can also damage the substrate.

All Types of Mug Sublimation Press Time, Temperatures, and Pressure Master Chart

So, as you're now aware of the importance of mug press time, temperature, and pressure, here's a master chart I crafted for your ease.

Whether you're using Ceramic, glass, or any other substrate, this chart will help you to apply the correct temperature, and pressure for the required amount of time.

Mug Type/Surfaces	Press Time (Second)	Temperature (°F / °C)	Pressure (PSI)	Comment
Ceramic Mug	150-210 seconds	360 - 400 / 182 - 204	40 PSI	You must cool down the ceramic mug after removing the transfer paper. Avoid using cold water instead of warm water in the cooling process.
Cricut Mug	350-360 seconds	392 - 400 / 200 - 204	40 PSI	Make sure to preheat the mug press for 5 minutes before sublimating the Cricut Mug.
Glass	180 - 240	360 - 400 /	40 PSI	Excessive pressure can break

	seconds	182 - 204		the glass. Wear protective gear and follow the manufacturer's guidelines.
Frosted Glassware	240-300 seconds	360 - 390 / 182 - 199	35 PSI	This material is prone to shrinkage within time and temperature application.
Stainless Steel Drinkware	45 seconds	375 / 191	40 PSI	It can also shrink in oven time and temperature.
Metal/Aluminum (Unisub)	60-80 seconds	400 / 204	40 PSI	You must remove the plastic coating before sublimation. Keep the product face upwards.
Metal/Aluminum (Others)	60 seconds	400 / 204	40 PSI	The time varies from manufacturer to manufactures. So, you must check the instruction manual.
Single Wall Metal	150-210 seconds	375-400 / 191 - 204	35 - 40 PSI	Excessive pressure will result in deforming the product's shape. So, you must be careful with the temperature and pressure.
Double wall (insulated) Metal	150-210 seconds	375-400 / 191 - 204	35 - 40 PSI	You must use thermal tape for sublimating a double wall (insulated) metal.
Enamel Mug	240-270 seconds	360 / 182	32-38 PSI	The mug press should reach the ideal temperature before heat press. Don't put more pressure than the required amount or else, the mug will get cracked.
Polymer-Coated Mug	80-90 seconds	400 / 204	32-38 PSI	Air dry after sublimation. Don't use water right after sublimating the mug.
Plastic Tumbler	280 seconds	338 / 170	35 - 40 PSI	Be careful about raising temperatures as plastic can melt.
Color-Changing Mug	160 seconds	360 / 180	32-35 PSI	
Ceramic Shot Glass	190 seconds	385 / 196	40-80 PSI	You should use Windex or rubbing alcohol periodically to make the adhesion more strong around the glass.
Bone China Mug	180 seconds	356 / 180	32-35 PSI	Make sure the mug has

				straight edges.
Stoneware Mug	150-210 seconds	355 - 400 / 180 - 204	35-50 PSI	Keep the transfer paper tightly wrapped on the stoneware mug before sublimation.
Porcelain Mug	150-210 seconds	355 - 400 / 180 - 204	35 - 40 PSI	You can clean porcelain mugs in the dishwasher.

So, by maintaining the mug press time, temperature, and pressure for each substrate discussed above, you'll be able to sublimate perfectly every time.

How To Print Sublimation Mugs?

To print sublimation mugs, you must follow the 7 steps given below.

- First, you have to select a design appropriate for sublimation mugs.
- Then, print out the design through a sublimation printer.
- After that, trim the sides of the design so that the design fits your mug perfectly.
- Then, adjust the mug presses temperature and time depending on the substrate.
- Put the mug inside the mug press and apply the required amount of pressure.
- After the sublimation is done, remove the mug from the press.
- Finally, cool down the mug with warm water.

Remember that you must set the temperature and time of the mug press before placing the mug inside. As soon as the mug press hits the timer, you'll know the mug press is ready to sublimate.

How Long To Sublimate A Mug

It takes around 10 minutes to sublimate a mug entirely. In these 10 minutes, you should keep 1-2 minutes for preheating the heat press or convection oven, 5-6 minutes for the sublimation process, and finally 1-2 minutes for cooling.

However, the time can vary depending on the substrate material. Stainless steel and metal substrates take less time to sublimate compared to ceramic or glass substrates. It's because steel and metal have a high conductivity rate. So, the sublimation process is faster in this case.

Again, glass and ceramic sublimation mugs are delicate materials. You need to be careful while sublimating these mugs as they are more prone to breakage.

Time And Temp For Sublimation Mugs In Convection Oven

Now, if you want to sublimate mugs in a convection oven, you have to be careful about the time and temperature.

Sublimation mug press and convection oven have different press times and temperatures which you should maintain accurately. If you use the mug press time for the convection oven, you will not receive a good result.

Convection Oven Time

Sublimating in a convection oven takes more time than sublimating in a mug press. Usually, the range of sublimation period for a convection oven is between 60 and 900 seconds.

On average, it takes around 300 seconds or 5 minutes to complete a sublimation process in a convection oven.

The time actually depends on the substrate you're using. Steels, Aluminum, and Metal substrates take less time than Ceramic and Glass mugs.

Convection Oven Temperatures

Now, speaking of the convection oven temperatures, it takes around 360 to 400 degrees Fahrenheit to complete a full sublimation cycle.

Glass and ceramic sublimation mugs require less temperature than metal and stainless steel substrates. It's because glass and ceramics can easily break at high temperatures.

However, you should be careful while increasing the temperature for metal substrates. Metal deforms when the temperature is more than its capacity. In this case, you should wear protective gloves to avoid any unwanted accidents.

Mug Type/Surfaces	Press Time (Second)	Temperature (°F / °C)	Pressure (PSI)	Comment
Ceramic Mug	720-900 seconds	380 - 400 / 193 - 204	40 PSI	Start a countdown timer as soon as the convection oven is ready to sublimate. This will help you to avoid high temperatures.
Cricut Mug	900 seconds	420 / 216	40 PSI	Follow the precautions the same as Ceramic Mug sublimation.
Pint Glass	480 - 900 seconds	360 - 390 / 182 - 199	40 PSI	The convection oven is the most reliable option for glass substrate. However, be careful in cooling the sublimated item, or else it will break.
Stainless Steel Drinkware	900 seconds	400 / 204	40 PSI	Use heat-resistant gloves for removing the mug from the oven.

Metal/Aluminum (Unisub)	60-80 seconds	400 / 204	40 PSI	Make sure to use blow-out paper for better results.
Metal/Aluminum (Others)	60 seconds	400 / 204	40 PSI	The time can vary depending on the manufacturer's brands.
Single Wall Metal	300-360 seconds	375-400 / 191 - 204	35 - 40 PSI	Don't apply more pressure than the required amount.
Double wall (insulated) Metal	360-420 seconds	375-400 / 191 - 204	35 - 40 PSI	Using thermal tape for sublimating will ease the process.
Enamel Mug	240-270 seconds	390-400 / 199-204	35 - 40 PSI	
Polymer-Coated Mug	720-840 seconds	380-400 / 193 - 204	32-35 PSI	
Travel Mug (with Silicone Lid)	600-1080 seconds	400-425 / 204-218	N/A	
Ceramic Shot Glass	720-840 seconds	380-400 / 193 - 204	35 - 40 PSI	Be careful as each step can be tricky to sublimate.
Bone China Mug	120 seconds	360 / 180	32-35 PSI	Cool down the mug for several minutes before taking off the peel.
Stoneware Mug	180-420 seconds	400 / 204	35 - 40 PSI	Ensure proper baking time or else the design will come out faded.
Porcelain Mug	300-420 seconds	400 / 204	35 - 40 PSI	Use heat tapes to secure the transfer paper on the porcelain mugs.

FAQs

Can I Use The Same Sublimation Time And Temperature For All Types Of Mugs?

No, you can't use the same sublimation time and temperature for all types of mugs. The time and temperature should be different depending on the substrate.

How Do I Determine The Correct Sublimation Time And Temperature For Different Sublimation Ink Or Mug Brands?

You can determine the correct sublimation time and temperature for different sublimation ink or mug brands by checking the user manual. If you follow the manufacturer's instructions properly, you'll be able to avoid mistakes.

What Happens If I Use Incorrect Sublimation Time And Temperature Settings For Mug Printing?

If you use incorrect sublimation time and temperature settings for mug printing, the quality of sublimation will be impacted. In case the time and temperature are more than required, the mug will get damaged.

Again, if the heat press isn't hot enough or you don't keep the mug for enough time, the design will come out faded. In some cases, the sublimation ink will not transfer at all.

Can I Reuse Sublimation Time And Temperature Settings For Multiple Print Runs On The Same Type Of Mug?

Yes, you can reuse the sublimation time and temperature settings for multiple runs on the same type of mug. But you must figure out the appropriate time and temperature for the material of the mug. Otherwise, the sublimation will not sustain for multiple prints.

Final Words

So, I hope you have no confusion about **mug sublimation time and temp** anymore. Though I've provided a master chart for both mug press and convection oven sublimation, you should always check the manufacturer's guidelines too.

It's because each brand requires different times, temperatures, and pressure. But if there's no proper guideline for your mug, you can use the master chart I've provided in this article.