



Hazelrock
♡ HOUSE

LEARN HOW TO MAKE

Fused Glass

A BEGINNERS GUIDE

WWW.HAZELROCKHOUSE.COM

Welcome

We'll soon have you making your own fused glass!

Your Teacher is
Emma FitzGerald



I began glassmaking in 2014 when my other hobby (making soap) turned into a job. I was fascinated by the colours and textures achievable in glasswork so I have been experimenting for a good few years. I look to nature for inspiration along with my love of all things mid-century and retro. I particularly enjoy creating texture with frit.

I have a background in science, achieving a BSc (Hons) in Genetics and a Masters Degree in Medical Laboratory Science from Queens University, Belfast. I was also awarded a Postgraduate Certificate in Science Education from University College, Worcester.

I founded Purple Herb Soap in 2010 which I closed in 2015. I now enjoy teaching Soapmaking and Fused Glassmaking to curious and resourceful individuals at the Hazelrock House Studio in Stirling, Scotland

I'm now here to help you to begin your journey into Fused Glass. Don't worry, I've got your back.

www.hazelrockhouse.com

Firing Schedules.

Once you have cut and arranged your glass, you will need to fire it in the kiln. There are two types of firing schedule that can be used to fire glass. Tack Fuse or Full Fuse.

Full Fuse is when the glass is taken up to a high temperature so that all the glass turns completely to liquid. This results in a flat piece with no detail or texture on the surface.

Tack Fuse temperatures are lower than that of a full fuse. The glass does not completely melt, it rounds at the edges and the layers stick together. There is detail left on the surface of the glass.

Which firing schedules you choose depends on the look that you are trying to achieve in your finished piece, so you will need to consider this carefully before you start.

Tack Fuse Schedule

	Rate Degrees/hour	Temp Set Point	Hold
Seg 1	222C/hr (400F)	677C (1250F)	30min
Seg 2	333C/hr (600F)	760C (1400F)	10min
Seg 3	999C/hr (999F)	482C (900F)	60min
Seg 4	83C/hr (150F)	371C (700F)	End

Full Fuse Schedule

	Rate Degrees/hour	Temp Set Point	Hold
Seg 1	222C/hr (400F)	677C (1250F)	30min
Seg 2	333C/hr (600F)	804C (1480F)	10min
Seg 3	999C/hr (999F)	482C (900F)	60min
Seg 4	83C/hr (150F)	371C (700F)	End

Each kiln schedule is made up of segments. Each segment is made up of 3 parts.

- Temperature rise in degrees per hr
- The temperature you want to reach
- How long you want to stay there

A complete schedule is made up of several segments in a row. Each has a specific purpose. They usually come in the following order

- Heat to Bubble Squeeze
- Heat to Process Temperature
- Cool to Annealing Hold
- Cool to Room Temperature

For beginners I would recommend sticking to the programs that are designed for your glass. Bullseye glass will be a little different in the temperature ranges than other manufacturers. It is best to use these until you understand the complexities of the chemical and physical structure of glass and how you can design your own kiln schedules. These schedules will be more than adequate for beginners projects.

An important part of the kiln schedule to point out is the annealing temperature. Holding your glass piece at the correct annealing temperature helps to organise the molecules in the glass so they are more orderly. This helps the glass to become stronger and resist breaking as easily.

You'll need different firing schedules for different types of glass. You need to consider how many layers of glass you are fusing together. You might be slumping the piece of glass over a mould to change the shape but you want to retain the texture in the piece.

The basic schedules described above serve as a starting point for most beginning fusers. In time you will tweak and alter these schedules as you begin to know your own kiln and how it performs. You will experiment with different fusing techniques and you'll figure out how to change the schedules to perform best for you. You'll need to keep good records if you are testing and tweaking your kiln schedule.

Slumping And Draping

Slumping and Draping are the process by which we can make a 3D shape out of our glass. eg we can make it into a curved piece or into a bowl shape. This requires us to put the glass piece back into the kiln for another firing. Full or tack fusing should be done in a separate stage before you try to slump or drape your piece.

Slumping is when we use the inside of the mould to give the shape eg a bowl. Draping is when we use the outside of the mould to make a shape. Sometimes they are both referred to as Slumping.

The temperatures needed to slump a piece of glass are much lower than we need to tack or full fuse. We don't actually want the glass to change thickness or any detail to be lost. We just want to manipulate the overall shape. Below is the Bullseye schedule for a basic slump.

	Rate Degrees/hour	Temp Set Point	Hold
Seg 1	222C/hr (300F)	640C (1184F)	10min
Seg 2	333C/hr (999F)	482C (900F)	60min
Seg 3	56C/hr (100F)	371C (700F)	End

Slumping will vary too. A deeper bowl will require a different schedule than a shallow tray will. Similarly a three layered piece will require a different slump than for a single layer with frit in some places.

As you become more accomplished at working with glass, you will be able to design your own firing schedules. Until then the Bullseye recommended schedule should do nicely.

Next Steps

More information about firing schedules is available from Bullseye in their Technotes 4 publication. This is not a document for absolute beginners but if you like a bit of science and want to know more about the technical and molecular aspects of glass fusing, this is the one for you. You can find it [here](#)

If you would like to learn more about making fused glass, you can follow Hazelrock House on Facebook, Instagram, YouTube and Pinterest.

<https://www.facebook.com/hazelrockhouse/>

<https://www.instagram.com/hazelrockhouse/>

<https://www.youtube.com/channel/UCteKQq-fTcsWK2rr2h5Q17A>

<https://www.pinterest.ie/hazelrockhouse/>

I will be continuing to post helpful information on the blog. If you have subscribed to be a 'Housemate' I'll give you a shout when new posts and projects happen and a lot more besides.

If you are having trouble with anything that you have read about in this guide I would be happy to answer your questions. Just email me at

hazelrockhouse@gmail.com or post your question on the Facebook page.

I would encourage you to keep being curious about fused glass making. There is so much information out there but some is not reliable so please just ask if you need help.

Good luck with your fused glass journey. I hope I can serve you in your quest for knowledge!