

Introduction Yolanda Nieuwboer

To introduce myself: I am a goldsmith, enameller, teacher and metal clay artist. In 1991 I got my degree in Goldsmithing after an apprenticeship with world know artist Wendy Ramshaw (OBE) in London, UK. With this knowledge and skill I worked for a production company for 8 years, learning speed, precision and stone setting from the best. But my designer's skills stayed untouched, so in 1997 I started my own company: 2 jewelry lines were developed: the Sun Collection and the Mother-2-Be Collection.

In 2002 I went to London (UK) to get my 'Precious Metal Clay' Certification with Bonnie Cantor from Silver Alchemy. (Due her unfortunate passing this company no longer exists) I was hooked, this material gave me so much freedom as an artist, but I knew I had to work hard; being a goldsmith with traditional skills I had to widen my designer skills.

After a year I decided to start telling others by presenting my skills in workshops. As a surprise, teaching came naturally and in 2003 I got the opportunity to become a teacher in Goldsmithing. Learning more and more about PMC, I reached back to one of my favourite classes in school: enameling. PMC working and enameling became my top priority when it came to designing. I took classes at Ellen Goldman (Den Haag-The Netherlands), Prof. Akiko Miura from Japan (Himmerod-Germany), Phil Barnes (Yoxford-UK) and with Merry Lee Rae (Watsonville, CA-USA) and Christine van der Ree (Amsterdam-The Netherlands).

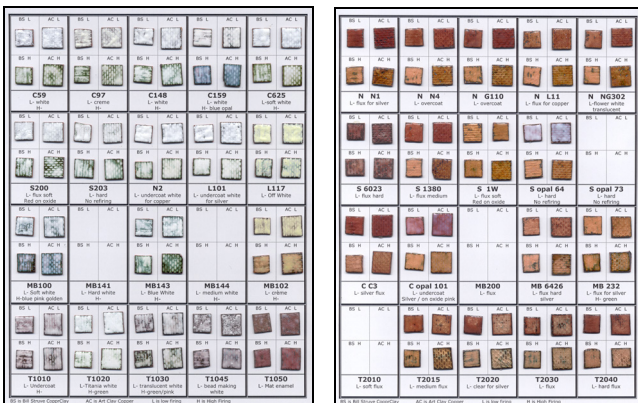
In 2006 I became a member of the board of the Dutch Enameling Association (VNE).

Between 1997 and 2010 I participated in many exhibitions in the Netherlands, Italy and Germany.



Experimental Enameling on Copperclay

With all this knowledge, skill and devotion I started working on experiments with copperclay and enamel. This is not new of course, but my innovative experiments show that you can create lovely greens, blues, pinks, oranges, yellows and red colors on fired COPPRclay just by using transparent flux enamel and white enamels. Instead of preventing oxidation, I use this chemical reaction to create those wonderful colors and surprising new looks. The advantage of COPPRclay over copper sheet is the ease to make lines and textures. These give the coloring a more playful accent. Using the possibility of COPPRclay to create texture, shaping the surface with more dept and using the porosity, the colors will be much more vivid. Instead of trying to prevent oxidation, I use the chemical reaction to create new colors, lines, textures and playful, surprising new looks.



White enamels and transparent fluxes from different brands will have different reactions.

So the idea is:

EXPERIMENT, PLAY AND DARE.

Trial and error, don't give up and have fun with just two or three enamels. The possibilities are endless and the results always surprising.

Yolanda Nieuwboer – Almere, The Netherlands
www.goldenartdesign.com
info@goldenartdesign.com / yolanda.nieuwboer@gmail.com

Yolanda Nieuwboer



Firing different brands of (Quick Fire) Copperclay

So far there are no straight forward firing procedures for base metal. A lot of artists are testing and publishing their findings. I read them all, and found my own way through them. Bill Struve gave me 'understanding' of the material, Hadar Jacobson gave a lot of practical ways of firing in her blog and Pam East published her research on her website and in magazines. Thanks to all.

This way of firing works for me:

- Use a steel pan with a slotted lid and coconut based carbon. For big things and many items I use the Rio Grande firing pan. For small things I reshaped a drinking bowl for cats. The size was good, but it needs to be higher, so more carbon can be put on top of the items. As a cover I use some steel sheets and leave a small part open.

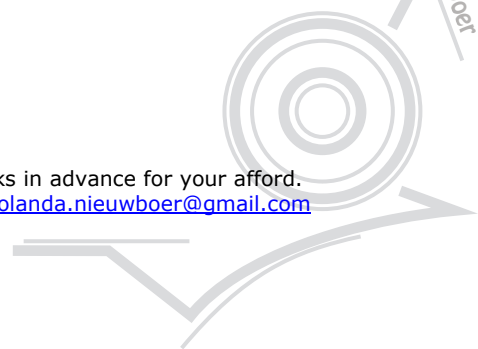


- Pre-fire the copper items. Some artists pre-fire up to 293°C (560F) for 15 minutes; 385°C (720°F) for 60 minutes. These schedules are made for bronzeclay, but it works for copper as well. My personal preference is to get the binder out before firing in coconut based carbon. Schedule:
 - FIRE FULL SPEED TO 400°C (752F) FOR 30 MINUTES.**Different brands have different binders with different compositions. As far as I know – and read – binders burn out from 371°C to 427°C (700F-800F)
- After slow cooling, fire them in coconut based carbon, with at least 1" of carbon on top and use a slotted steel cover. The firing times are different for each brand and it also needs to be considered what type of steel container you are using.
 - The big steel pan needs a long time to get hot, so fire at least 2 hours.
 - For a small pan 1 hour should be enough.
 - Temperatures for copper are in the range of 800°C - 980°C (1470F-1800F). See Hadar Jacobsons blog: "Understanding Metal Clay and the Firing Process"
 - Try to get to a shrinkage of 8 – 11% for the quick fire coppers like Art Clay Copper or Hadar's Copper. For CopprClay 20% is good enough.
- My schedule for big pans: Full Speed - 940 °C (1720F) for at least 2½ hours and at least 45 minutes for a small steel container.**

Please experiment with this way of firing. Let me know if this works or not. Thanks in advance for your afford.
Yolanda Nieuwboer – www.goldenartdesign.com – info@goldenartdesign.com or yolanda.nieuwboer@gmail.com

COPYRIGHT GOLDEN ART DESIGN

Yolanda Nieuwboer



Comparison firing with different brands of (Quick Fire) Copperclay

	HadarJ Quick fire Copper	Art Clay Copper	BStruve CopprClay	HadarJ Quick fire Copper	Art Clay Copper
Clay or powder	Powder	Clay	Clay	Powder	clay
Workability	Very smooth and soft	Stiff	Smooth	Very smooth and soft	Stiff
Thickness	Blue slat or 1mm	Blue slat or 1mm	Blue slat or 1mm	Blue slat or 1mm	Blue slat or 1mm
Filing	Very sandy, quick filing	Hard, slow filing	Firm filing	Very sandy, quick	Hard, slow filing
Size after filing	19.9x19.5x1.1mm	19.7x19.5x1mm	19.1x18.8x1.2mm	18.9x19x1.2mm	19.6x19.6x1mm
Picture before pre-firing					
Prefiring:	Speed Full – 400°C or 750F – 30 min			Speed Full – 400°C or 750F – 30 min	
Size after pre-firing	20.1x19.7x1.2mm	19.6x19.4x1.1mm	19.1x18.8x1.2mm	19.1x19.2x1.3mm	19.5x19.5x1mm
					
Pre-conclusion	Expanded 1%	Shrinkage 0.5%	No shrinkage	Expanded 1%	Shrinkage 0.5%
Firing in carbon:	Small container, slotted lid: speed Full - 940°C or 1720F – 120 min			Small container, slotted lid: speed Full - 940°C or 1720F – 45 min	
Size after firing	18.4x18x1mm	17.4x17.3x0.8mm	15.4x14.9x0.9mm	17.7x17.7x1.1mm	17.5x17.6x0.9mm
Picture after firing					
Shrinkage	92 x 91 x 83 %	88 x 89 x 73 %	81 x 79 x 75 %	93 x 92 x 85 %	90 x 90 x 90 %
Average shrinkage size	8 – 9%	11 – 12%	20 – 21%	7 – 8 %	10 %
Porosity?	No	No	Tiny bit	No	No
After sanding - polish	Good, just a few irregularities, smooth	Pitted, not as smooth. Structure seems open.	Good, just a few irregularities, smooth	Good, just a few irregularities, smooth	Pitted, not as smooth. Structure seems open.
Picture after finish					
Conclusion	Smooth and soft texture Drying time is quick For carving too sandy Very good metal surface	Stiff, hard strong texture Drying time is quick Sticks the least Pitted metal surface	Soft when conditioned Slow drying time Good carving Medium metal surface	Smooth and soft texture Drying time is quick For carving too sandy Very good metal surface	Stiff, hard strong texture Drying time is quick Does not stick much Pitted metal surface

Copyright GOLDEN ART DESIGN
Yolanda Neubauer

Research, Testing and Results

The research started almost 2 years ago, testing first on copper sheet. In books the method of working with just flux enamels and white enamels is sometimes described as "controlled high firing" or as a variation on "liquid enamel technique".

The work method is to put a layer of enamel on the copper, and leave some spots or lines open. After firing the firescaled areas can be recoated with liquid or powdered clear enamel. The result in those areas is a reddish tone.

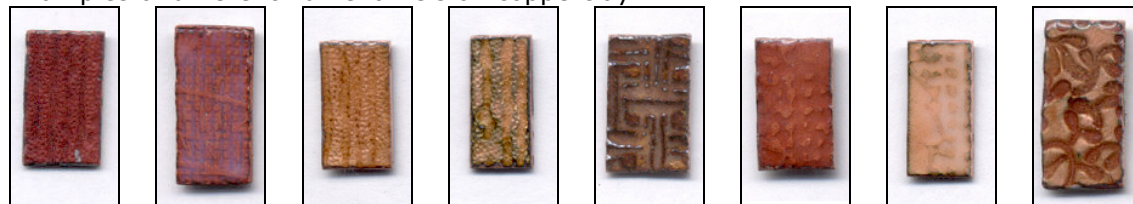
This can be done on copper sheet or on textures copper sheet for more effects.

Copperclay seems perfect for this method: it is easy to make a texture and it can be made in all kind of shapes. The research contained testing **35** different flux enamels from **5** different enamel suppliers, lead bearing and lead free enamels. Out of those **17** enamels were picked who looked most promising and each of those were tested on copperclay in at least **8** different ways.

Out of those tests **10** combinations were made to see how they react on each other.

The testing resulted in more than 400 documented pictures and descriptions.

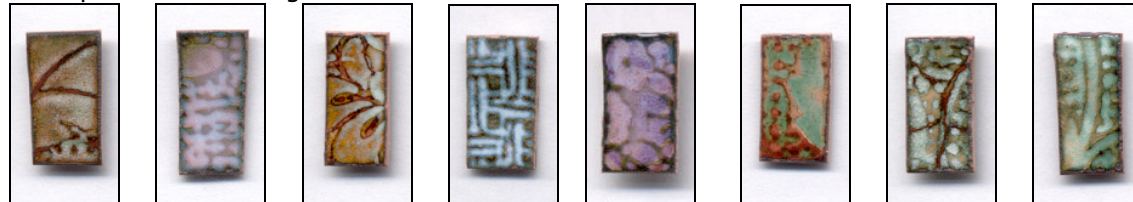
Examples of different flux enamels on copperclay:



Examples of different white enamels on copperclay:



Examples of combining the enamels from different branches:



The differences are:

- Enamels from Milton Bridge, Soyer, Schauer, Ninomiya and Thompson.
- Thick and thin layers, sifted and wet packing
- Long and short firing
- Low and hot firing
- And all combinations between the 4 above.

Experimental Enameling on Copperclay is fun, exciting, easy, a great learning process and the outcome always surprising.

Yolanda Nieuwboer – The Netherlands

www.goldenartdesign.com

info@goldenartdesign.com or yolanda.nieuwboer@gmail.com

Copyright GOLDEN ART DESIGN

Yolanda Nieuwboer

