Standards & Education Committee

Helpful fact sheet:
Pottery Faults and Remedies

THE OTTAWA GUILD OF POTTERS
LA GUILDE DES POTIERS D'OTTAWA

FAULT	APPEARANCE	CAUSE	SUGGESTED REMEDIES
BLISTERS & CRATERS	Glaze has bubbles and/or craters of burst bubbles which have sharp edges.	1. Unwanted gassing of a glaze resulting in bubbles and craters. The bubbles are gases originating in the glaze or in the body beneath (bloating).	1. Many gases are liberated during firing; it may be necessary to replace the offending material.
		2. Blistering occurs where glaze hasn't had time to settle out.	2. Alter the firing cycle so glaze matures more slowly towards top temperature.
			3. Alter the viscosity of the molten glaze. A glaze which is fluid allows bubbles to escape quickly and heals over scars. A slightly thinner glaze may be necessary.
BLOW OUT	Craters in bisqued clay.	1. Presence of impurities in clay.	1. Avoid possible contamination of clay during making.
CRAWLING/ORANGE PEEL EFFECT	Bare, unglazed patches on surface of pottery accompanied by glaze sitting in small beads.	1. Excessive handling of bisque ware before glazing.	1. Minimize handling of bisque before glazing.
		2. Oil, grease, dust, etc. on bisque ware before glazing.	2. Keep bisque ware clean. Sponge before glazing.
		3. Cracking of glaze layer during drying and before firing.	3. Reduce glaze application thickness by dipping more quickly (if dipping) or thinning glaze.
ROUGH BOTTOMS	Rough surface on bottom of pot.	1. Using clay which contains a lot of grog.	1. Smooth bottoms of all pots with sandpaper, sanding stone or grinder.
		2. Chunks of kiln wash, kiln shelf or glaze on bottom of pot.	2. Remove tough chunks with a small grinder.

CRAZING	Fine cracks in glaze surface (but not through the clay body).	1. Mis-match of glaze and body thermal expansions.	1. Fire clay to higher temperature. Or soak longer at peak temperature.
		2. Glaze applied too thickly.	2. Reduce glaze thickness.
		3. Underfiring of body or glaze.	3. Reduce porosity of clay body by bisque firing to 1100 C, and always fire the glaze to the recommended temperature.
		4. Firing cooled too quickly.	4. Do not open the kiln door after a firing until the kiln has cooled to 100 C.
DUNTING (STRUCTURAL CRACKING)	Splitting of ceramic ware due to silica inversion. (When glaze has run into crack, dunting has occurred during heating cycle.	1. Too rapid heating and/or cooling of clay body especially around 575 C and 225 C (silica inversion temperatures).	1. Fire and cool the body more slowly through temperature ranges at which silica inversions take place.
	Crack with sharp edge, dunting has occurred during cooling cycle.)	2. Large variations in wall thickness of article giving rise to thermal variance.	2. Give careful consideration in design of shapes.
		3. Overfiring of clay body.	3. Reduce firing temperature of clay body.
GLAZE PEELING/SHIVERING	Glaze lifting away from body. (Occurs mainly on edges of pots such as cup rims and handles).	1. Glaze under excessive compression.	1. Reduce firing temperature and/or soaking period.
		2. Migration of soluble salts to surface of clay body in drying or firing giving rise to poor adhesion of glaze.	2. Sand off soluble salts before glazing.
		3. Excess cleaning (sponging) of clay to expose excess silica particles.	3. Reduce sponging in cleanup.
PINHOLED GLAZES	Pin holes in glaze after firing.	1. Gas release from body and/or glaze during firing due to:	
		a) Underfiring of clay body.	a) Fire body to recommended firing temperature.
		b) Air trapped in clay.	b) De-air clay before making pots.
		c) Over application and overfiring of underglaze colors.	c) Reduce application of underglaze colours.

		d) Underfiring of glaze.	d) Fire glaze to recommended firing temperature. Ensure kiln is heating evenly throughout.
		e) Overfiring of glaze giving rise to volatilization.	e) Reduce firing temperature of glaze.
CRACKS	An unwanted break on the piece.	1. Cracks in raw ware arise from faults in the making.	1. Good design, uniform consistency of clay, uniform thickness and uniform drying.
		2. In finished ware, observe where the crack started (the wider end is the starting point). If it started at the rim, the problem is probably at the raw stage; if in the base, it usually means it occurred in the firing.	2. Cracks that show themselves in the firing stage are often caused by faults in the making.
		3. Some cracks that occur in glazed ware are caused by the difference in expansion/contraction rates of body and glaze.	3. Make sure glaze is a good fit for clay being used.
		4. Whether a crack is hairline or wide is due to the amount of stress. See Hamer's The Potter's Dictionary of Materials and Techniques section on "cracks" for illustrations, causes and remedies for 18 different types of cracks.	4. Stress can occur during making (see no. 1) or firing. Slow down initial firing rate (take 4 - 6 hours to 300 C.)

Sources: Northcote Pottery Supplies www.northcotepotterv.com.au
The Potter's Dictionary of Materials and Techniques by Frank Hamer

Check out these links to help solve pottery problems:

1. http://digitalfire.us/4sight/troubleshooting/index.html
2. http://ceramicartsdaily.org/ceramic-glaze-recipes/glaze-chemisty-ceramic-glaze-recipes-2/how-to-correct-five-common-ceramic-glaze-defects/?floater=99
3. http://www.potters.org/