

# Misc. Clay Bodies

tent of quartz provide the required thermal shock resistance for fast-fire cycles. When incorporated in a wall tile body formulation, the primary function is as a filler, and the secondary is as a flux. It has a characteristically columnar nature which provides a higher green and fired strength. A relative decrease in total shrinkage as well as the increase in firing range is a characteristic of a body containing wollastonite. It is also free from high temperature, gas-producing constituents which might lead to glaze defects.\*

Sainamthip and Reed's experiments utilized various mixtures of two grades of wollastonite (fine and coarse), kaolin and nepheline syenite, prepared as a powder, then pressed to form a round disk and fast fired to as high as 3632°F (almost Cone 42). They concluded that the following body:

### Fast-Firing Tile Body (Wide-range firing)

Wollastonite (coarse) .....	65%
Nepheline Syenite (400 mesh) .....	5
Kaolin .....	30
	100%

\*showed good flexural strength, low shrinkage, good resistance to moisture expansion, and water absorption in the desired range.\* But don't bother trying this one on the potter's wheel. Plasticity is not one of its strong points; it's a body strictly for pressing.

### Furnace Body

(Cone 4-9, oxidation or reduction)

Fredericksburg Fireclay* .....	34%
Kentucky Ball Clay (OM 4) .....	33
Edgar Plastic Kaolin .....	33
	100%
Add: Kyanite .....	20%
Grog (40 mesh) .....	10%

\*Fredericksburg Fireclay is an iron-speckled clay from Fredericksburg, Ohio.

### Crucible Clay Body (Cone 10)

Bentonite .....	5 parts
Fireclay .....	50
Sillimanite (high alumina) ..	50
	105 parts

Ball Clay  
Fireclay

David Middlebrook's C/04 White

### RM Pyro Clay (Cone 7-10)

G-200 Feldspar .....	15 parts
6 Tile Clay .....	35
Kaopaque .....	15
SGP Ball Clay .....	20
XX Sagger Clay .....	10
Flint .....	10
Pyrophyllite .....	5
Molochite (120 mesh) .....	10
Molochite (30 mesh) .....	5
Vee Gum T .....	1
	126 parts

Add some vinegar for plasticity.

### 3. ALL-PURPOSE STONEWARE

35	stoneware clay
35	fireclay
15	ball clay
7.5	potash feldspar
7.5	flint

### REFRACTORY FORMULA

MULLITE - 100 MESH

KINGSLEY KAOLIN

C & C BALL

SIERRA LITE TALC

LINCOLN 60

White Clay Body II (Cone 6)  
Talc ..... 10.5%  
Nepheline Syenite ..... 21.0  
Grolleg Kaolin ..... 38.0  
100.0%  
5.2%

### SOLDNER LOWFIRE SALT BODY

Lincoln Fireclay.....	40
OM 4 Ball Clay.....	20
30 mesh Silica Sand.....	10
70 mesh Silica Sand.....	10
Talc.....	20

Crucible Clay Body (Cone 8-12)  
Talc ..... 18%  
Spodumene ..... 10  
Edgar Plastic Kaolin ..... 55  
Grog ..... 17  
100%  
The following whitemare casting body (a standard that out the ceramic hobby field) is one of the easiest clay recip mix and fire:

Low-Clay Translucent Body (Cone 6)		Glueage Body I (Cone 3)	
Kaolin	36	Flint	14
Flint	25	Soda Feldspar	12
Soda Feldspar	26	Ferro Frit 3124	44
Talc	8	Iron Oxide	5
Ferro Frit 3124	3	Red Clay	22
Bone Ash	2	Dextrin	3

Catchpole Engobe (Cone 3)	
Soda Feldspar	50
Ball Clay	32
Gerstley Borate	06
Zirconium opacifier	10
Titanium Dioxide	2
Add:	
Cobalt Oxide	2

Low-clay Cone 3 translucent bodies:

XMay Body 2.8 (Cone 3)		XMay Body 7.0 (Cone 3)	
firing temperature: 1168°			
Potash Feldspar	30	Potash Feldspar	48
Talc	30	Boron Frit	2
Stoneware Clay	40	Talc	14
		Ball Clay	6
absorption:	0%	Stoneware Clay	30
slumping:	none	absorption:	0%
surface:	mat	slumping:	little
color:	ivory	surface:	satin
plasticity:	very plastic	color:	silver gray

Note: "XMay 2.8" is certainly not a super melt but it is very dense and strong. Considering that the materials are quite ordinary (there is not even any frit here) this is a very strong melt. The color has a reserved, pleasant grayed cast.

Note: "XMay 7" is a light gray body with fine working qualities. It has a varied particle size, which encourages those fine working qualities. It is slightly bouncy and rubbery.

XMay Body 7.6 (Cone 3)	
Flint	8
Potash Feldspar	26
Boron Frit	2
Talc	26
Ball Clay	30
Barnard Clay	8
absorption:	0%
surface:	satin
workability:	very good

Note: This is a really rich gunmetal gray body.

White Clay Body (Cone 6, oxidation or reduction)	
Talc	10%
Nepheline Syenite	15
Ball Clay	15
Grolleg Kaolin	50
Flint	10
	100%

Otis Oxidation Body (Cone 4)	
A.P. Green Fireclay	45.0 parts
Cedar Heights Redart Clay	20.0
C&C Ball Clay	20.0
Custer Feldspar	5.0
	90.0 parts

Add: Fine Grog ..... 12.0 parts  
Burnt Umber ..... 1.5 parts

Porosity for this body is approximately 2.3 and shrinkage is 12% or less (according to the amount of grog used).

Base glazes in the Cone 4 range are offered here for experimentation. Some of these are classics that have been passed on from potter to potter:

**Red Stoneware Casting Slip (Cone 4)**

Custer Feldspar	50 lb
Cedar Heights Redart	45
Edgar Plastic Kaolin	10
Kentucky Ball Clay (OM 4)	45
Flint (fine mesh)	25
Pyrophyllite	25
	200 lb

He measures 10 gallons water into the blunger, along with 28 grams barium carbonate and 26-28 ounces deflocculants (Darvan 7). After starting

**Revised Red Stoneware Casting Slip 1 (Cone 4)**

Custer Feldspar	25.0 lb
Cedar Heights Redart	25.0
Edgar Plastic Kaolin	12.5
Kentucky Ball Clay (OM 4)	12.5
Flint	12.5
Pyrophyllite	12.5
	100.0 lb

To this I would add 28 grams barium carbonate and 250-300 grams Darvan 811.

As noted above, the fine-particle-sized materials in the original recipe tend to promote problems in deflocculation and casting rate. I would either increase the Edgar Plastic Kaolin (as above), or use it in conjunction with 6 Tile Clay and Velvacast, or just 6 Tile Clay and Velvacast as follows:

**Revised Red Stoneware Casting Slip 2 (Cone 4)**

Custer Feldspar	25.0 lb
6 Tile Clay	12.0
Cedar Heights Redart	20.0
Kentucky Ball Clay (OM 4)	12.5
Velvacast	5.5
Flint	12.5
Pyrophyllite	12.5
	100.0 lb

Jonathan Kaplan

**Clay Body (Cone 3)**

Soda Feldspar	15%
Cedar Heights Goldart	40
Fireclay	18
Kaolin	12
Grog	15
	100%

Zam Stoneware Body (Cone 6, reduction)	
Custer Feldspar	10 parts
Ball Clay	15
Cedar Heights Goldart Clay	45
Cedar Heights Redart Clay	5
Fireclay	20
Flint	5
Medium Grog	8
	108 parts

Fired to its maturing temperature, this tan body has a total shrinkage of 11%, and 0.32% absorption. For a series of glazes, try the following bases:

**Richard Zakin's Low Clay Porcelain Warp Resistant #1 Cone 6 Oxidation**

Ground Silica (Flint)	28%
Soda Feldspar	28%
Grolleg	26%
EPK	10%
Talc	8%

## FSH ΔS FLOOR TILE BODIES

EPK	32	
NS	59	
SILICA	9	
	<u>100%</u>	FIRE TO ΔS IN 48 HRS.

M-23	16	
EPK	22	
NS	50	
SILICA	12	
	<u>100%</u>	FIRE TO ΔS IN 12 HRS.

FLOOR TILES SHOULD HAVE <3% WATER ABS.

## BWS CLAY MIX

M-23	20	GOOD FOR DRY PRESSING, FINE PARTICLES FOR GREEN STRENGTH
M-33	40	
M-44	40	