



CLAYMAN

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PRODUCT INFORMATION

1474 – AUSCRAFT ULTRA WHITE CASTING SLIP

	Original Recipe	
	Minimum	Maximum
1474 – Ultra Powder	25kg	25kg
Water	11.5litres	12.5litres
5214 = Sodium Silicate 100TW	100g (75ml)	100g (75ml)
5223 – Sodium Dispex	30g (23ml)	55g (42ml)

Litres of slip produced	19 to 20
Aim litre weight/grams per litre	1725
Biscuit	1060-1100°C (Orton Cone 04 to 03)
Glaze	1000-1060°C (Orton Cone 06 to 04)

Recommended Method

1. Add water to blunger or mixer.
2. Add minimum Sodium Silicate diluted 50/50 with warm water.
3. Mix and put aside minimum Sodium Dispex diluted 50/50 with warm water.
4. Agitate mixer as you add some of the clay, the slip will gradually thicken.
Add a small amount of Sodium Dispex to maintain fluidity.
Then add more clay.
Continue this process until all the clay is in the mixer and a smooth creamy consistency is obtained. The maximum amount of Sodium Dispex should not have been needed at this stage.
5. Check the litre weight.
If the litre weight is higher than recommended add water.
If the litre weight is lower than recommended add clay.



6. Mix for 1 hour (more for multi bag mixes) then check if more Sodium Dispex mixture is required for pouring fluidity.
7. Allow slip to mature for 24 hours.
8. Reblend
9. Sieve through an 80's mesh sieve before use.

For multi nag mixes proceed as above but leave Sodium Dispex until final adjustment.

Technical Information

Deflocculents

The amounts of Sodium Silicate or Sodium Dispex added to a casting slip are very critical and too much or too little may each result in the slip being too thick. If this happens, take a 1 litre sample of the slip and add one or two drops of Dispex.

If the slip becomes thinner after stirring this shows that more is required to achieve good fluidity. If the slip becomes thicker this shows that too much has been added already. Therefore more clay and water needs to be mixed into the slip in the same proportions as given in the recipe – no more Sodium Silicate or Dispex. The recipe can depend on the quality of the water supply, which may vary from one location to another and also may be affected by minor variations in the clay body's raw materials.

Maturing the slip

On standing overnight the slip may thicken slightly. This will easily reblend when mixing is resumed, even by hand. We recommend that a film of water, approximately 2mm deep, is placed on top of the slip after mixing. This will reduce water evaporation from the mix, especially in warmer weather.

Litre Weight Checks

The most important part of successfully mixing casting slips is getting the correct litre weight. For accurate and easy litre weight measurement we strongly recommend the use of Digital Scales, calibrated in 1g divisions.

Recycling Scrap

Great care is needed to avoid contamination, particularly from plaster moulds. Scrap should be kept in sealed containers in a plastic condition. Dry scrap will promote air inclusion in the slip. Recycle by adding a maximum of 20% of scrap. More than 20% can effect the quality of the slip. We recommend adding Barium Carbonate to the slip



to remove sulphates, which may cause peeling faults. The amount of Barium Carbonate to add should be 0.1% (25g per 25kg) of the total dry weight of clay and scrap.

Faults and Remedies

Everybody who casts suffers from time to time from some form of casting trouble. The table gives a brief description of each of the common troubles and the suggested remedies. This only gives the direction in which to move and it is up to the individual to determine how far they need to go. For example if you were suffering from flabbiness and you increased the Sodium Dispex addition to correct this then found that you began to get brittle ware with casting spot, you would know you had gone too far.

In all our casting slips we recommend a maximum Sodium Silicate – adjustment should only be made using Sodium Dispex. Before making any adjustments make sure the litre weight is with the stated limits for the body.

Fault	Description	Cause	Remedy Always check Litre weight first!
Bad draining	Slip failing to drain from narrow sections, uneven surface on slip side of a cast piece.	Fluidity too low or thixotropy too high (slip thickens too quickly)	Increase water addition (if litre weight is too high) or increase Sodium Dispex addition
Brittleness	Difficult to fettle or cut – giving jagged edges	Thixotropy too low (slip too fluid)	Decrease Sodium Dispex addition
Casting spots and scumming	Discolour patch appearing on the mould side of the article after firing, scum on surface of slip	Thixotropy too low (slip too fluid)	Decrease Sodium Dispex or decrease water addition
Cracking	Small cracks on edges or where handles join the body of the article	Thixotropy too low (slip to fluid)	Decrease Sodium Dispex addition
Flabbiness	Soft casts difficult to handle without distortion	Thixotropy too high (slip thickens too quickly)	Increase Sodium Dispex addition
Pin holing	Small holes just beneath the surface on the mould side of the article	Fluidity too low – air in slip	Increase water addition (if litre weight is too high) or increase Sodium Dispex addition
Slow casting	Casting time too long	Fluidity too high or thixotropy too low (slip to fluid)	Decrease water addition or decrease Sodium Dispex addition
Wreathing	Small uneven ridges on the slip side of the article	Thixotropy too low (slip too fluid)	Decrease Sodium Dispex addition

Thixotropy is the property of slips becoming thicker when they are at rest i.e. “thixotropy too high” means that the slip thickens up very quickly!