

## Tape casting

There are many variations in materials and products, making a universal recipe impractical. This is a generic starting point for developing a tape casting recipe.

**Clay or powder Mixture** – 50 – 60% by weight, often 25 – 30% by volume

**Solvent** – solvent blends are also common to tune drying time, 30 – 40% by weight

Water	Ethanol	Methyl ethyl ketone
Methanol	Acetone	Methylene chloride
Propylene glycol		

**Defloculant/dispersant** – one or more of these 0.05 – 5%

Fatty acids	Oleic acid	Phosphate ester
Menhaden Fish oil		

**Plasticizers** – one or more of these 0.05 – 5%

PEG	Glycerol	Ethylene glycol
Propylene carbonate	Tetrahydrofurfuryl alcohol	Propylene glycol

**Aquazol binder** to add green strength and green density 0.5 – 5.0 % by weight  
Aquazol 50 and Aquazol 500 most commonly used

Dispersion mill using a ball mill or other technique to mill powder to appropriate size and coat primary particles with dispersant.

Add remaining components being sure they are properly wetted and mill to homogenization.

### Benefits

**Aquazol** adds green strength and green density leading to less breakage and waste.

**Aquazol** has a clean burnout at 380 C in air with low residual ash.

**Aquazol** is water soluble for ease in use in recycling scrap

**Aquazol** does not have an unzipping mechanism, leading to less breakage during debinding.