



# Resicel E/50

## Chemical Description

Aqueous dispersion of acrylic polymer

## Main Use

RESICEL E/50 is a liquid binder specially developed for ceramic bodies with a low content of plastics clayey substances.

## Typical Values

**Appearance at 20 °C:** Milky liquid

**Dry content (%):** 44 ± 46

**pH 25°C:** 2 -3

**Brookfield RVT viscosity 25 °C, 50 rpm :** max 200 cPs

## Product Properties

RESICEL E/50 is based on an acrylic copolymer able to produce strong and medium-hardness films, which can be modified by common plasticizers, but are unaffected by the moisture variations. The size distribution of the emulsion is studied to guarantee the highest binding action. As RESICEL E/50 has non-ionic characteristic, the product does not give any thickening effect at alkaline pH.

The possibility of flocculation is reported about some slips based on talc.

Compared with traditional binding agents, RESICEL E/50 offers several advantages:

- RESICEL E/50 is a low viscosity and easily dispersible liquid which does not require previous dissolution in water;
- RESICEL E/50 has a very little flocculating action, therefore its addition does not cause thickening of the slip. So become possible to work with less water, at higher density;
- RESICEL E/50 does not cause air bubbles and keeps slip density high and stable;
- RESICEL E/50 is not hygroscopic. As moisture variations have a strong influence on the glass transition temperature (Tg) of the binder, plasticity is affected by moisture too. Considering that the Tg of the binder influences the free-flowing of the spray dried granulate, the after pressing spring-back and the green density, it is easy to understand how the consistency of Tg is important to guarantee the geometrical stability and the mechanical properties of the pressed parts. As RESICEL E/50 is not hygroscopic, the pressing process is less influenced by moisture variations.

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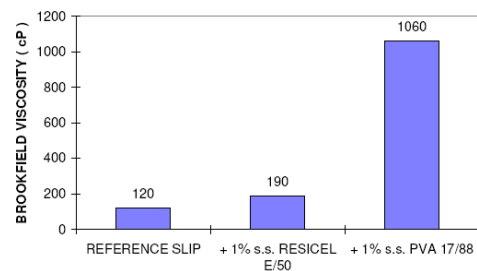
It must be kept into consideration that the slips containing RESICEL E/50 are not compatible with traditional binders based on PVA: in fact the mixing of the two products causes an immediate and strong flocculation of the slip.

RESICEL E/50 is perfectly compatible with the usual dispersants (acrylates, phosphates) and with the normal plasticizing agents.

RESICEL E/50 is easily dispersible and it is usually added in slow stirring storage tanks.

The addition RESICEL E/50 may affect viscosity and thixotropy: these changes have usually no practical disadvantages.

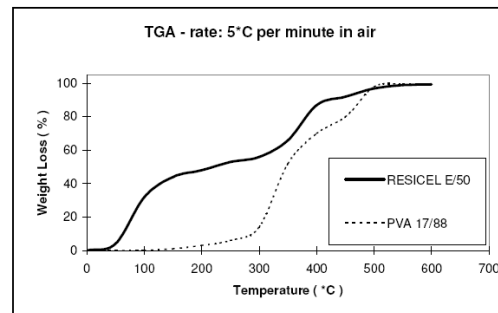
EFFECT OF BINDERS ON SLIP VISCOSITY  
Earthenware - 1.586 kg/l



Nevertheless if viscosity and/or thixotropy become too high, the addition of a slight amount of deflocculant (we suggest polyacrilates - i.e. Reotan family from Lamberti) is usually able to come back to suitable parameters

The thermal degradation of RESICEL E/50 begins at 250°C and becomes very quick starting from 300°C.

De-polymerisation does not need oxygen and it is insensitive to the burn-out atmosphere.





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### Applications

RESICEL E/50 is a strong binder particularly indicated for spray-dried bodies in pressing processes. It is however fit for other shaping processes (extrusion, casting) and for bodies having very different plasticity features: fire clay and porcelain for table-ware, vitreous china and fine fire clays for sanitaryware, refractories and technical ceramics with a high alumina content, glasses.

Standard dosages: from 0.5% up to 2% computed on the solid content of the slip.

### Storage and Handling

In order to maintain the performance of the product, store at room temperature and protect from frost.

The shelf life is at least twelve months if this condition is observed.

### Packaging

125 kg polyethylene drums and 1.000 kg. tanks

### Material Safety

Consult the Safety Data Sheet

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