

Low surface energy is a challenge for coatability especially for

- a. **Plastics**
- b. Paper and board
- c. Glass
- d. Metals and alloys

The most typical (traditional) order in making coating formulation is

- a. Make pigment dispersions and mix pigments, Add additives, Add dispersion binders (latexes), Add soluble binders, Do the final adjustments (pH, dry solids)
- b. Make pigment dispersions and mix pigments, Add dispersion binders (latexes), Add soluble binders, Add additives, Do the final adjustments (pH, dry solids)**
- c. Make pigment dispersions and mix pigments, Add soluble binders, Add additives, Add dispersion binders (latexes), Do the final adjustments (pH, dry solids)
- d. Add soluble binders, Add additives, Make pigment dispersions and mix pigments, Add dispersion binders (latexes), Do the final adjustments (pH, dry solids)

Coating colors' rheological behaviour is typically

- a. Bingham plastic
- b. shear thinning**
- c. Newtonian
- d. shear thickening

The magnitude of shear rate (1/s) under metering blade is

- a. 10 000
- b. 1 000 000**
- c. 1 000
- d. 100 000

What does Water retention mean?

- a. Ability of coating colour to hold its liquid phase when coming in contact with base paper**
- b. Retention polymers are dosed in wet end of papermaking process and they remain there
- c. Additional water used in pigment dispersing
- d. Water retains in base paper and board

Base paper is responsible for up to X % of the properties of final coated paper, X=

- a. 20 %
- b. 80 %**
- c. 40 %
- d. 60 %

When pigment particle size decreases then...

- a. Gloss decreases
- b. Binder demand decreases
- c. Ink absorption decreases
- d. Smoothness increases**

When pigment particle platyness increases then...

- a. Binder demand increases**
- b. Gloss decreases
- c. Density of the coating layer decreases
- d. Smoothness decreases

In film coating (meter size press) the most important base paper property is

- a. roughness
- b. compressibility
- c. openness**
- d. surface chemistry

In blade coating the most important base paper property is

- a. un-calendered gloss
- b. openness
- c. compressed roughness**
- d. surface chemistry

Particle size distribution of pigment is usually expressed as

- a. mass-% larger than 2 um
- b. volumetric-% finer than 2 um
- c. mass-% finer than 1 mm
- d. mass-% finer than 2 um**

Smallest shape factors are found from

- a. kaolin
- b. ground calcium carbonate**
- c. precipitated calcium carbonate
- d. talc

When looking the highest refraction index among pigments, you find it from

- a. precipitated calcium carbonate
- b. kaolin
- c. titanium dioxide**
- d. plastic pigments

With an increase in binder dose

- a. Ink absorption (porosity) increases
- b. Brightness decreases**
- c. Strength of the coating layer decreases
- d. Opacity increases

With an increase in binder latex particle size

- a. Binding strength decreases**
- b. Demand of stabilizing surface active agent increases
- c. Glass transition temperature increases
- d. Viscosity of coating colour decreases

With curtain coating it is possible to

- a. Coat both sides simultaneously
- b. Create void filling-type of coating profiles
- c. Meter coat weight with an air jet
- d. Apply several layers of coating formulations simultaneously**

Blade coating has a following challenge

- a. coated surface quality (smoothness)
- b. sensitivity to base paper faults**
- c. sensitivity to different coating colours
- d. narrow coat weight control area

When using constant tip angle metering blade system, coat weight decreases when

- a. decreasing blade load and decreasing tip angle
- b. increasing blade load and increasing tip angle**
- c. increasing blade load and decreasing tip angle
- d. decreasing blade load and increasing tip angle

The longest calender nips are found in

- a. Soft nip calenders
- b. Shoe calenders
- c. Metal belt calenders**
- d. Hard nip calenders

Calendering has the following effects on the properties of coated paper

- a. Smoothness decreases
- b. Stiffness increases
- c. Brightness decreases**
- d. Density decreases