

## FLOPRINT TM

Thickener for reactive dyes





### Reactive printing

### FLOPRINT allows higher printing speeds.

The reaction takes place in the presence of alkali and under the influence of heat. There are two basic methods of processing reactive dyes, "All-in" and "Two stage" method. The supply of sodium alginate is sometimes limited, paste preparation is long and colour yield is poor. These have encoraged us to develop **FLOPRINT**, both in emulsion and powder form for reactive printing, to satisfy our user's needs.

#### Performance

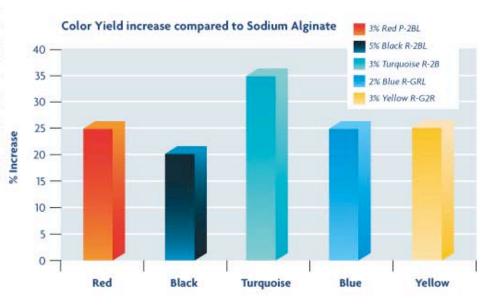
- Because of its rheology FLOPRINT can be printed over a wide viscosity range whilst still maintaining good definition, coverage and color yield compared with sodium alginate.
- FLOPRINT can be printed with less blade pressure or smaller magnet bar than would be used with alginate
  paste of the same viscosity.
- Reducing the blade pressure or bar size offers additional advantage of less crushing of the print paste allowing FLOPRINT to give finer definition due to less paste spread. Coupled with FLOPRINT superior penetration this also allows printing 3 4 times higher speeds than normally be possible with alginate on rotary machines.



# Reactive printing

### Color yield

• Compared to various alginate qualities, FLOPRINT gives consistently superior color yield and coverage. Compared to a good quality of alginate, FLOPRINT shows 20-25% improved color yield on most shades and up to 40% with turquoise.

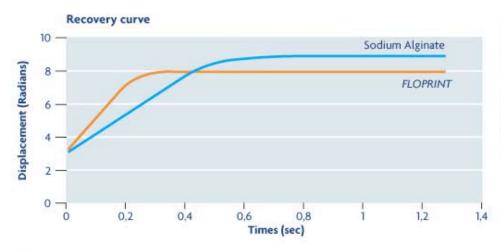


### Rheology

- There are significant differences between the rheology of natural and synthetic thickeners. Two particular measurements are used, the viscosity/shear rate curve and the recovery or creep curve.
- The graph below shows the apparent viscosity as a function of shear rate. Typical results for alginate and FLOPRINT are shown below:

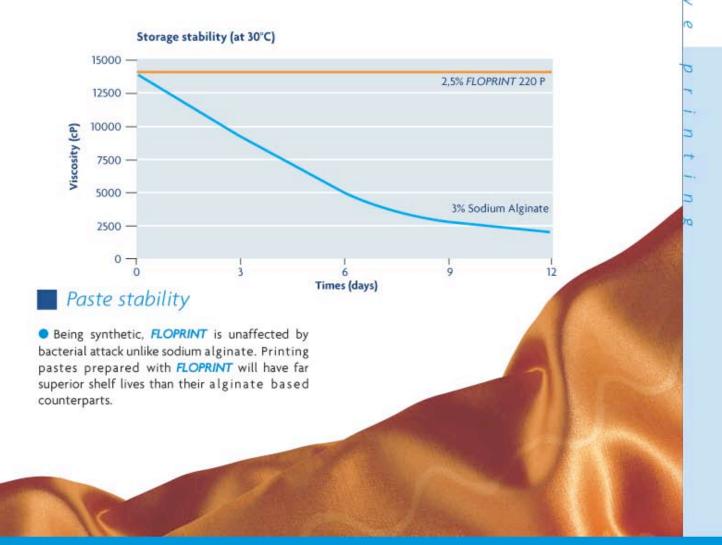
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- The apparent viscosity under low shear conditions gives an indication of what happens when the printing pressure is removed, and higher values indicate better definition. At the end of the scale, apparent viscosity under high shear gives indication of behavior while the paste is subjected to shear by the rod or squeegee. The lower value for FLOPRINT shows that the system can be run at higher printing speeds and also that lower blade pressures/bar sizes must be used if paste transfer is to be matched under a given set of conditions.
- The synthetic system behavior under high shear describes that it may be printed at significantly higher apparent viscosities than a natural thickener. This gives the possibility of improved definition on difficult substrates.



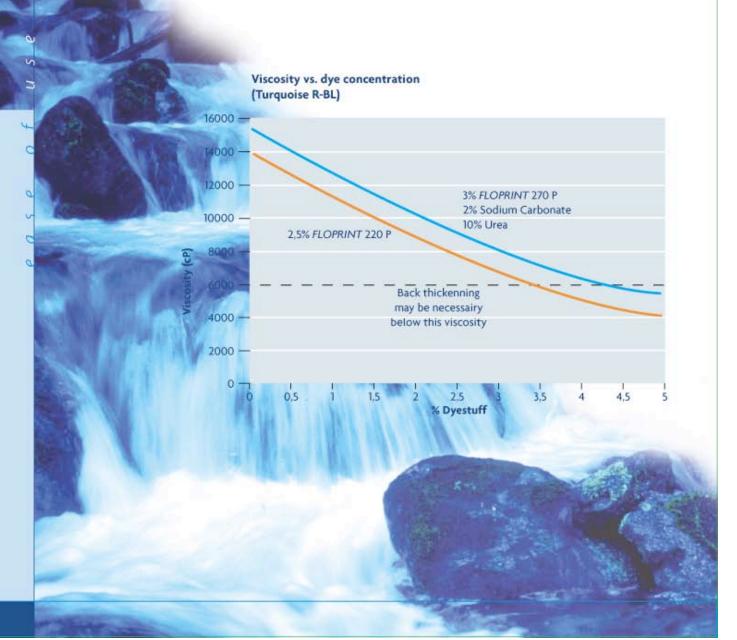
 The second indicator of printing behavior is the 'recovery' or 'creep' curve, in which a single stress is applied to the paste, and the displacement is measured as a function of time.

• The diagram above shows clearly that the recovery is almost complete after 0.25 seconds with FLOPRINT, whereas the time taken with sodium alginate is almost double. This indicates that the definition afforded by synthetic thickener will be at least as good as natural thickener.



# Ease of use

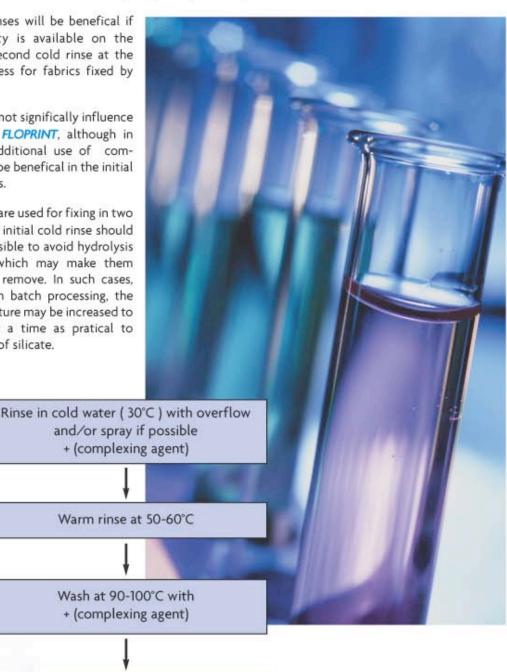
- FLOPRINT is compatible with all classes of dyes and natural thickeners, except cationic dyes and thickeners.
- FLOPRINT (powder), as non-dusting free-flowing powder, can be directly poured into water whilst stirring. Stirring is continued for approximately 45 minutes. FLOPRINT gives first class results in terms of color yield, definition and levelness, and can replace low, medium and high viscosity alginates.
- FLOPRINT (inverse emulsion) polymers are extremely easy to use and disperse therefore highly suitable for
  use on automatic make up equipment. Paste prepared with FLOPRINT (emulsion) can be ready to use with as
  short as 10 minute stirring, thus they are also ideal for use as a back-thickener.
- Back-thickening is largely unnecessary but FLOPRINT can be mixed with alginate to help to
  overcome the electrolyte sensitivity when high concentration of some dyestuffs is used.
  In order to maintain printing advantages such as color yield and levelness we suggest using
  FLOPRINT in emulsion as back-thickening agent.



# Washing off

- In order to ensure the optimum fastness properties and a soft handle, an efficient washing process is essential. The first step is through cold water rinse, during which removal of alkali, electrolyte and some of the thickener will occur. Surface dye, which will all be hydrolysed, will also be removed. High temperature washing, close to boiling is then used to remove hydrolysed dye and any residual thickener within the fiber.
- Further cold rinses will be benefical if sufficient capacity is available on the range, as will a second cold rinse at the start of the process for fabrics fixed by thermofixation.
- Hard water will not significally influence the wash out of FLOPRINT, although in such cases the additional use of complexing agent will be benefical in the initial cold and hot rinses.
- Where silicates are used for fixing in two phase printing the initial cold rinse should be as short as possible to avoid hydrolysis of the silicates which may make them more difficult to remove. In such cases, and particularly in batch processing, the first rinse temperature may be increased to 30°C for as short a time as pratical to remove solubility of silicate.

Hot rinse at 60-80°C



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