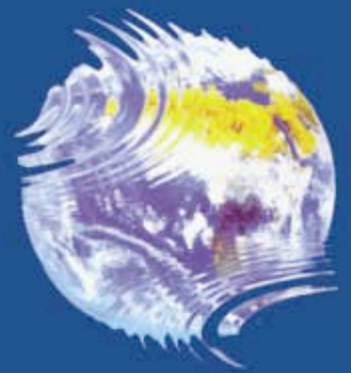




**FLOPRINT™**

*Thickener  
for reactive dyes*



**SNF TEXTILE™**

# Textile division

Investments over the past few years have been aimed at turning us into a leading global supplier. This strategy is now being pursued even more energetically to meet the challenges of tomorrow.

Today, after 20 years of sustained investment, with more than 140,000 end-users **SNF** is a world leader in the field of acrylic thickeners for textile industry, and is currently diversifying in to other buoyant markets.

**SNF works in close contact with companies of the textile industry to develop new polymers that meet the requirements of this sector.**

Our ultimate concern is always to satisfy the customer. To provide products that cater to the specific requirements of the **TEXTILE INDUSTRY**, we perform laboratory tests to simulate the production environment.

After **FLOPRINT** for pigment printing, based on **SNF's** know-how and technologies, using the latest polymerization techniques the **FLOPRINT** range now offers:

- **Synthetic thickeners for printing with reactive dyes.**
- **Acrylic based thickeners in powder form.**
- **Acrylic based thickeners in emulsion form.**

# 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 encouraged us to develop **FLOPRINT**, both in emulsion and powder form for reactive printing, to satisfy our user's needs.

## ■ Performance

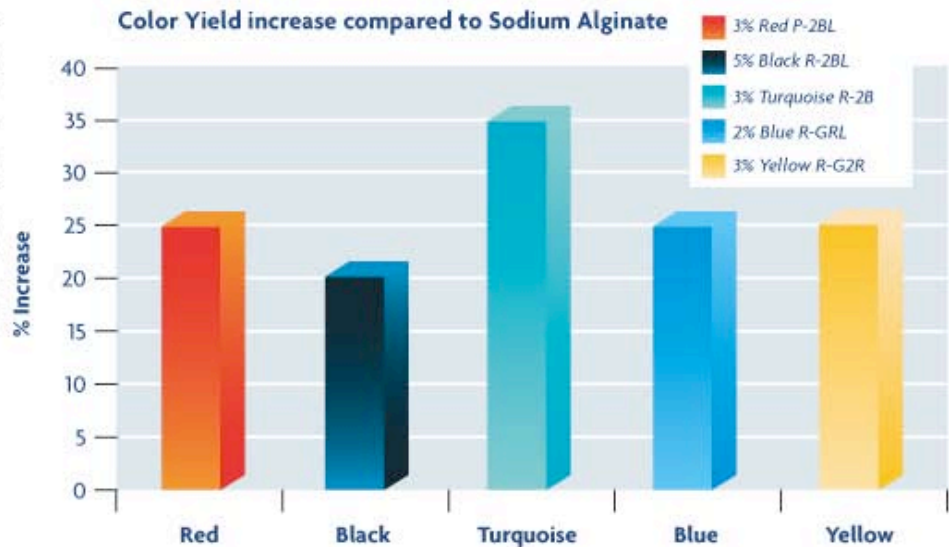
- Because of its rheology **FLOPRINT can be printed over a wide viscosity range** whilst still maintaining good definition, coverage and color yield compared with sodium alginate.
- **FLOPRINT** can be printed with less blade pressure or smaller magnet bar than would be used with alginate paste of the 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

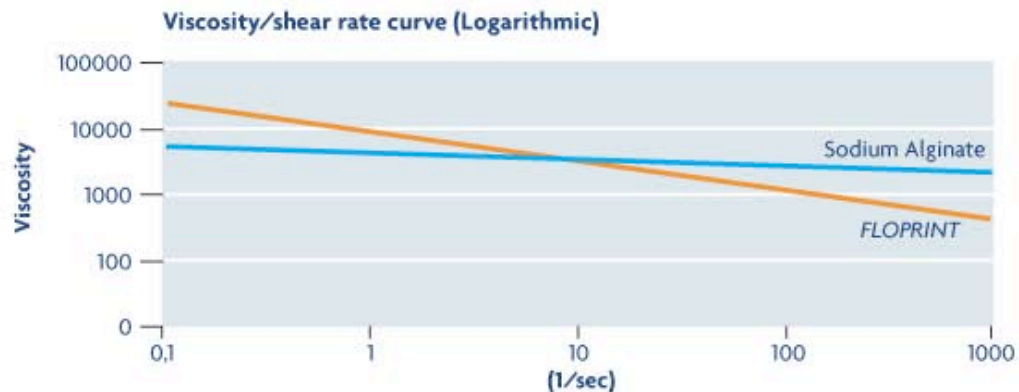
## Color yield

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.

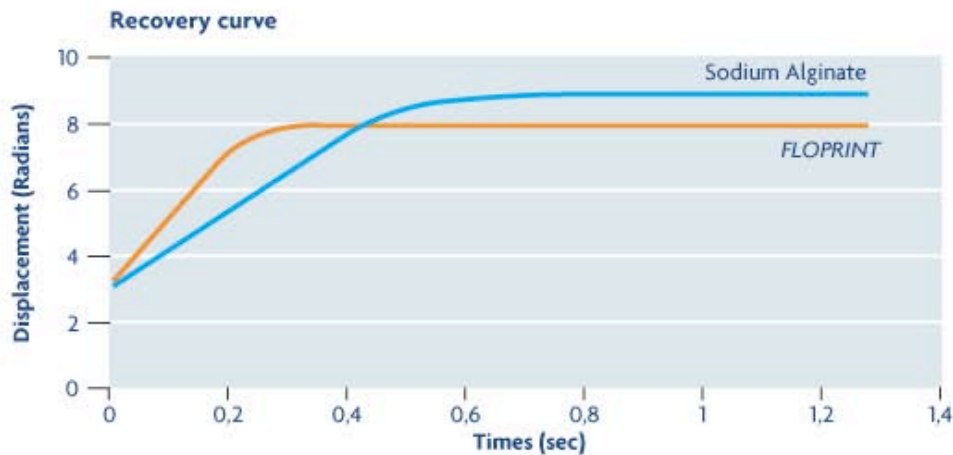


## Rheology

- 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:

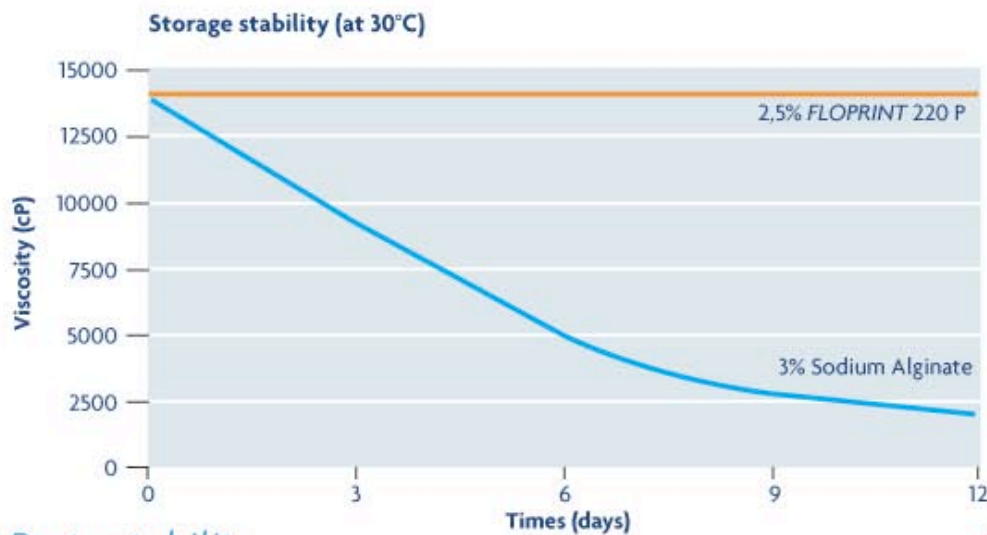


- The apparent viscosity under low shear conditions gives an indication of what happens when the printing pressure is removed, and higher values indicate better definition. At the end of the scale, apparent viscosity under high shear gives indication of behavior while the paste is subjected to shear 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.



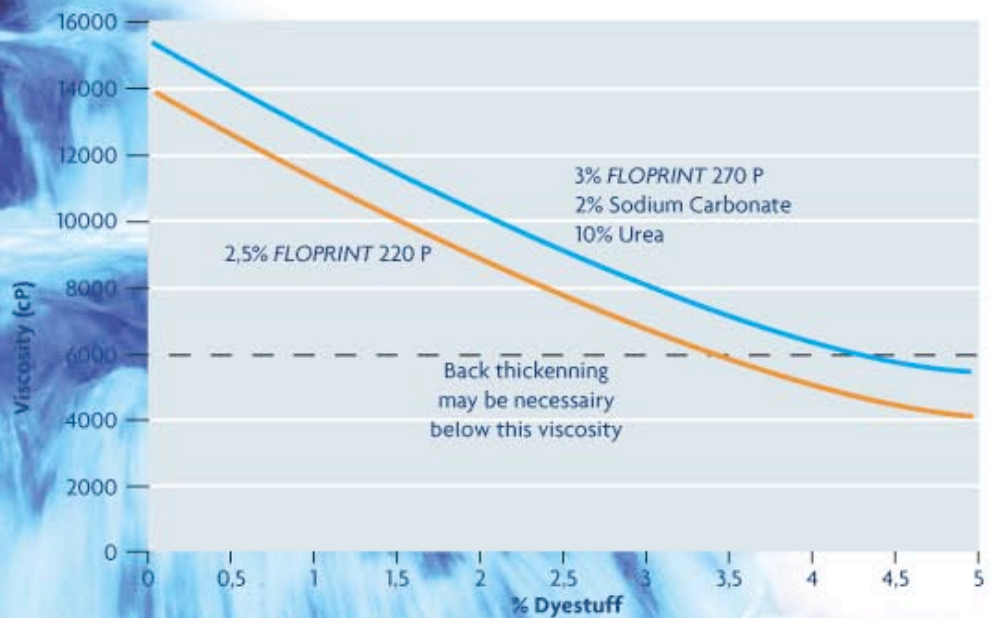
### Paste stability

● Being synthetic, **FLOPRINT** is unaffected by bacterial attack unlike sodium alginate. Printing pastes prepared with **FLOPRINT** will have far superior shelf lives than their alginate based counterparts.

# 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.

Viscosity vs. dye concentration  
(Turquoise R-BL)



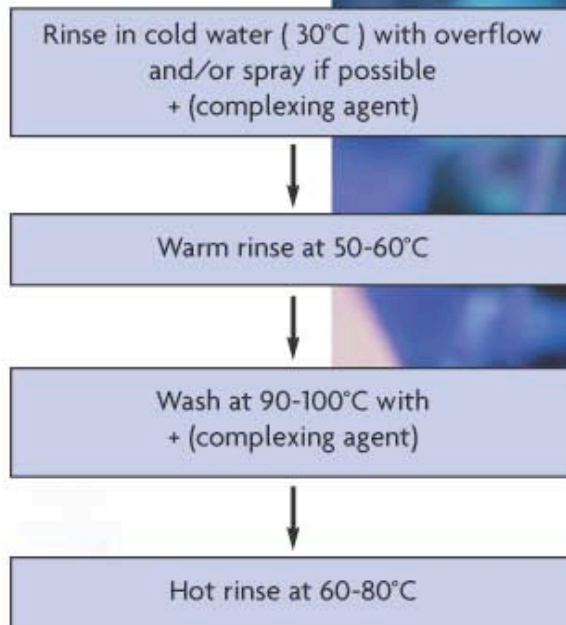
# Washing off

● 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 beneficial 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 significantly influence the wash out of **FLOPRINT**, although in such cases the additional use of complexing agent will be beneficial 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 practical to remove solubility of silicate.





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