TECHNICAL TUESDAYS

DEVELOPMENTS IN RESIN FINISHING – CONCLUDING PART

REF: TT/ NOVEMBER 2020 / WK 3

Important factors for Resin finishing

Important factors to achieve desire result of resin finishing are using recommended recipe and maintain finishing process parameter. Besides these there are other factors as well, which plays a vital role in achieving good resin finished product.

These factors are:

- The fabric to be resin finished should have good absorbency. This allows resin to penetrate properly into the fabric and form crosslinks.
- In case of dyed fabric, the dye should be fast to acid catalysis and high temperatures. Hence, sulphur dyed fabric should not be resin finished. As Sulphur dyes releases acid on storage.
- Starch reacts with resin and reduces its effectiveness. Hence proper size removal or desizing is an important during preparation of the fabric.
- Another essential factor is pH of the fabric. pH of the fabric which is to be resin finished should be between 6.5 to 7.0.
- Washing removes free formaldehyde as well as untreated N-mehylol groups which may decompose to form formaldehyde. Hence, thorough washing of cured fabric reduces the chances of formaldehyde release from the finished fabric.

Summary

The demands for resin finishing have been increasing day by day. At the same time public awareness of chemical hazards and avoiding the use of them has also been increasing. This led to the development of low formaldehyde or zero formaldehyde resins. Formaldehyde is a toxic chemical, a severe eye and skin irritant and toxic if ingested. In resin finished fabrics, there are several sources capable of releasing formaldehyde. The cellulose substrate may retain some free formaldehyde reactant during the finishing process. This formaldehyde will be released during storage of the finished fabrics especially under warm and humid conditions. This may cause formaldehyde odor problem during the garment processing of finished fabrics which have been stored for a period of time. In addition formaldehyde may be formed via the hydrolysis of the N-hydroxymethyl groups from untreated cross linking agent.

Due to the harmful effect of formaldehyde and increasing public awareness of formaldehyde hazards, non-formaldehyde finishes like Glyoxal with aluminum sulfate catalyst; poly-carboxylic acids were developed. This could be the effective cross-linking agent for cotton fabric.

Recently a process was developed using monosodium phosphates as the curing catalyst for easy care/resin finishing with poly carboxylic acid. Besides, its non-formaldehyde property, strength retention is also better than DMDHEU treatment catalyzed by magnesium chloride.

In another development, sodium hydrosulphite has found to be good catalyst for resin finishing with poly carboxylic acid. By using sodium hypophosphite as catalyst, it is possible to reduce the curing time as well.

Key Words

- Free Formaldehyde is the uncombined or free monomeric formaldehyde that exists in the solution.

- Formaldehyde release is the amount of formaldehyde that escapes from a fabric into the atmosphere.

UNSCRAMBLE THE JUMBLE WORDS
SORBABENCY
MIDHU
ZARHADS
ATOMHERESP

Last week`s Answers: 1) SPRAYING 2) DRAPE 3) STIFFNESS 4) SKIRT

Wishing you a great week ahead!

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