WE MAKE THE PALETTE FOR PAPER

BIPL BHAVI International Private limited

Government Recognized Export House | Formerly Bhavi International Limited

BIPL BHAVI
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A Government of India Recognized Export House

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Wet Strength Agent

NTSTRENGTH WS-150S

DESCRIPTION

NTSTRENGTH WS-150S is a cationic wet strength agent that can be used in the wide range of pH 5 to pH 9. So we can reduce the dosage of alum or not use.

NTSTRENGTH WS-150S is applicable to various usages such as dry strength, Sizing Promotion, Retention promotion, etc, as well as wet strength agents.

PHYSICAL PROPERTIES

Name	NTSTRENGTH WS-150S
Active Content	15.0 ± 1.0
Chemical Description	Polyamine Polyamide - Epichlorohydrin
Appearance	Light yellow transparent Liquid
pH	4.0 ± 1.5
Specific Gravity	1.03 ± 0.01
Ionic Character	Cation
Stability	3 Month (at around 25°C)
Solubility	Completely soluble

HEALTH & SAFETY

Toxicity caused by **NTSRTRENGTH WS-150S** products alone and when incorporated into papers and paperboards, has not been reported so far. The content of **NTSTRENGTH WS-150S** is listed under Title 21 of the Code of Federal Regulations, Paragraph 176.170. However, contact with the **NTSTRENGTH WS-150S** solution should be avoided because of its acidic nature. When exposed to the solutions, wash with fresh water immediately.

WHAT is PAE – WET STRENGTH AGENT ?

The need for a wet-strength resin which could be used in neutral or alkaline papermaking led, over fifty years ago, to the development of poly(aminoamide)- epichlorohydrin (PAE) resins, sometimes referred to as polyamide-polyamine- epichlorohydrin (PPE) resins.

A dibasic acid is condensed with poly-functional amine to give a water-soluble polyamide. The secondary amine groups of the polyamide are then alkylated with epichlorohydrin, and a number of reactions take place. The resulting product consists of relatively low molecular weight polyamide backbones with many reactive side chains. Chloride counter-ions are formed as a result of the epoxidation and, at the end of the manufacturing process, the resin is usually acidified to provide stability against gelation during storage.

As the resin is dried in a paper sheet, the hydroxyazetidinium groups have two possibilities for reaction. One is to react through the amine groups of other resin molecules to give a homo-crosslinked network, and the other is to react with available carboxyl groups in the paper.

The wet strength is not fully developed by the time a paper product reaches the end of a paper machine, and strength continues to develop as the paper is stored. The rate of curing is affected by the temperature and the length of time in contact with heat. The bonds that are eventually formed are not readily broken under either acid or slightly alkaline conditions, and the wet strength is therefore permanent. Whilst this can be an advantage in certain applications, it does make the paper or paperboard more difficult to disintegrate. However, the difficulties for the disintegration of PAE-treated paper have not been reported practically when the dosage level of PAE resin is below 4%.

PAE resins are most often used in a pH range of 6 to 8, but their efficiency is adequate in the pH range 5 to 9. Reducing the pH of a papermaking furnish leads to two effects that discourage adsorption. Firstly, fewer carboxyl groups on the pulp are dissociated. Secondly, although most of the charge on the PAE resin is due to the azetidinium groups, which are insensitive to pH change, there are some tertiary amine groups present in the polymer and these lose their charge at lower pH.

PAE resins are used extensively in all types of wet-strength papers. Major examples are household products such as paper towels, napkins, facial tissue, and packaging materials like liquid packaging, corrugated boxes, paper bags, and specialties such as photographic papers, wrappings and disposables.