IS 4505 : 2015

Sodium Formaldehyde Sulphoxylate — Specification (First Revision)

This standard prescribes the requirements and the methods of sampling and tests for sodium formaldehyde sulphoxylate dihydrate. Sodium formaldehyde sulfoxylate (SFS) is a white, water-soluble, non-toxic chemical with many industrial and pharmaceutical uses

Sodium formaldehyde sulphoxylate ($NaHSO_2.CH_2O.2H_2O$) a derivative of sodium hydrosulphite and formaldehyde, is a sodium salt of sulphoxylic acid formaldehyde, molecular weight 154. It typically contains sodium bisulphite formaldehyde ($NaHSO_3.CH_2O.H_2O$) and sodium sulphite as impurities.

Sodium formaldehyde sulphoxylate is a powerful reducing agent and exerts its full reducing action intensively only at high temperatures. Due to its specific characteristic in differing from its allied product sodium hydrosulphite, sodium formaldehyde sulphoxylate finds extensive application in textile industry for printing and stripping dyed textiles prior to redying and discharge printing. It is used in bleaching sugarcane juice for making jaggery, as a redox catalyst in emulsion of polymers and as a stabilizer/antioxidant in pharmaceutical drug formulations.

Sodium formaldehyde sulphoxylate is manufactured by reacting sulphur dioxide with zinc dust in aqueous suspension to form zinc hydrosulphite solution. Formaldehyde and more zinc dust are added to this solution to form basic zinc formaldehyde sulphoxylate which is subsequently decomposed with caustic soda to form sodium formaldehyde sulphoxylate and insoluble zinc hydroxide.

This standard was first published in 1968 and subsequently revised in 2015. In the first revision, the sodium formaldehyde sulphoxylate has been categorized into two grades based on the application and pH requirement has also been revised. Also, the requirements of iron, lead, copper and zinc have been made more stringent. For lead estimation, Atomic Absorption Spectrophotometric method has been adopted as a replacement of colorimetric method.

GRADES

There shall be two grades of material, namely:

a) Grade 1 — Discharge agent for textile printing and stripping and bleaching of oils, fats, soaps and jaggery.

b) Grade 2 — For polymer and pharma applications.