Degree of Substitution

Subjects: Agriculture, Dairy & Animal Science

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Degree of Substitution is the average number of substituent groups attached per repeat unit of a polymer, expressed either as a fraction of the available hydroxyl groups or as moles of substituent per anhydroglucose unit. In cellulose and starch derivatives it fixes charge density, solubility and chain extension, and it is obtained by titration, elemental analysis or spectroscopy rather than assumed from the feed ratio. Acetylated cellulose nanocrystals characterised over a range of values relate the substitution level to crystallinity and to the dispersion of the rods [1]. A mass-spectrometric method determines the value for a 6-aldehydo cellulose from its fragment pattern [2]. In carboxymethyl cellulose films the same parameter sets the response to the solvent environment [3].

substitution level | cellulose derivative | carboxymethyl cellulose | acetylation | polysaccharide | characterization

References

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