Gamma Irradiated Viscose and Viscose/PET Nonwoven Blended Fabrics Treated with Chitosan and Their Use as CO/CO$_2$ Gas Capturing Filter

K.E. Elnagar$^{1,*}$, M.F. Shaaban$^2$, S.H. Samaha$^1$, E.A. Elalfy$^2$

$^1$Textile Metrology Lab, National Institute for Standards (NIS), Haram Giza Egypt; $^2$Textile Research Division, National Research Centre (NRC), Dokki, Giza, Egypt

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Abstract: Chitosan is used to treat cellulosic fabrics (i.e. cotton as well as Viscose) to give the fabric antibacterial activity towards gram positive and gram negative bacteria. Blending Viscose with PET gives them combined properties which encourage their use more than each separate fabric. Viscose and Viscose/PET (50/50) non-woven fabrics were subjected to $\gamma$-radiation using different doses 70, 100, 150 and 200 Gy then treated with chitosan at different concentrations 0.5, 1.0, 1.5 and 2% (o.w.f), using pad-dry-cure technique. The produced fabrics were tested for antibacterial activity using gram negative (Escherichia Coli) and gram positive (Staphylococcus aurous) bacteria. Also, the treated fabrics were tested as green house gas capture fabric system using streams of CO and CO$_2$ gases and the penetrated amount of each gas was determined quantitavily.

Keywords: Chitosan, Viscose, Viscose/PET blend, $\gamma$-irradiation, antibacterial finishing, Green house gas.

*Corresponding: E-Mail: khnagare@hotmail.com; Tel: +201222800620; Fax: +202 33867451