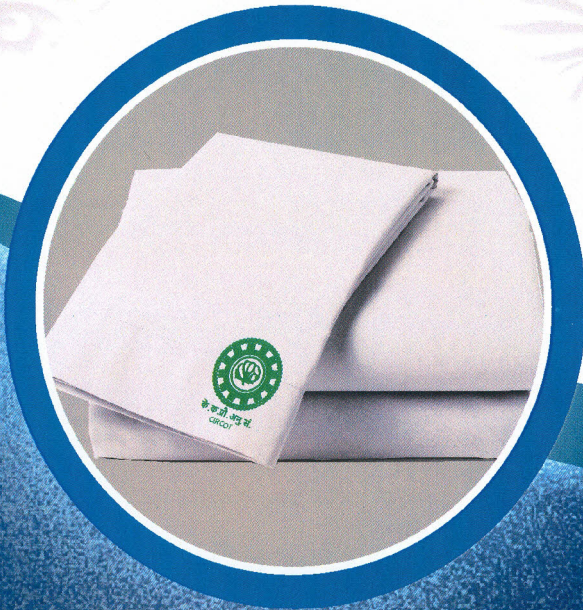




Antimicrobial Cotton Bed Sheets



ICAR-Central Institute for Research on Cotton Technology
(ICAR-CIRCOT)

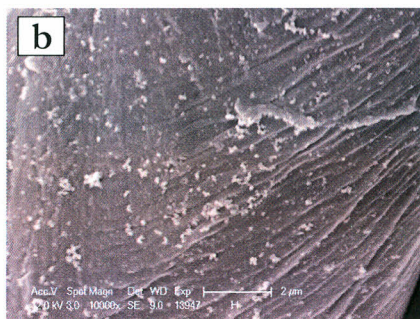
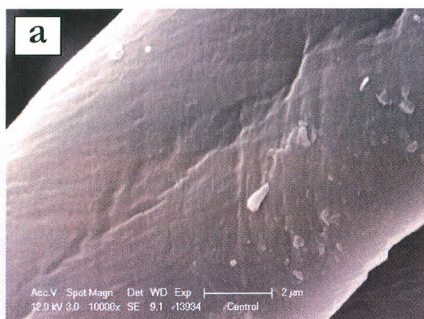
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Introduction

In the present day world, people are very conscious about hygiene and cleanliness. Durable and effective antimicrobial finish to cotton bedsheets is a challenging task in health and hygiene environments. Since cotton bedsheets could act as carrier of pathogenic and odour generating microorganisms, antimicrobial compounds like oxidising agents, coagulants, metals, metal oxides, quaternary ammonium compounds & chitosan are conventionally used for protection. ICAR-CIRCOT has developed a novel process of zinc-based nanofinishing of cotton bed sheets for imparting durable antimicrobial property.

Antimicrobial Finished Cotton Bed Sheets

A new line of antimicrobial bedsheets that inhibit the growth of bacteria on their surface are being introduced by ICAR-CIRCOT. The product made from 100% cotton fabric is nanofinished by antimicrobial treatment. They are treated with a zinc-based active ingredient that has been shown to inhibit the growth of bacteria by >99% in laboratory tests. ICAR-CIRCOT antimicrobial bed sheets provide an added layer of protection against cross contamination for patients and healthcare providers & are a natural next step in ICAR-CIRCOT'S endeavor of limiting cross-contamination in hospitals, hotels, hostels, railways, homes etc.



Scanning electron micrographs of Control (a) and Antimicrobial cotton bedsheets (b).

Antimicrobial and UV-Protection Properties

Cotton bed sheets show efficient blocking of UV radiation with Ultra Violet Protection Factor (UPF) of 50+. Qualitative assessment revealed the excellent antibacterial activity against two representative pathogenic bacteria, *Staphylococcus aureus* (Gram positive) and *Klebsiella pneumoniae* (Gram negative). Quantitative analysis of antibacterial activity showed excellent antibacterial activity (reduction >99%) before wash.

About the Product

- Single bed sheet made from 100% cotton
- ICAR-CIRCOT's antimicrobial nanofinish
- Finishing : Zinc based antimicrobial nanofinish



Photograph of antimicrobial cotton bedsheets

Performance of the Product

- Very good antibacterial activity (>98%) against two representative pathogens, *Klebsiella pneumoniae* and *Staphylococcus aureus* even after 50 wash cycles
- Excellent performance of antimicrobial properties of the bedsheets while use and wash demonstrated at the “All India Institute of Physical Medicine and Rehabilitation (Ministry of Health & Family Welfare, Govt. of India), Mumbai”.

ICAR-CIRCOT



ISO-9001:2008

ICAR-CIRCOT established in the year 1924, is engaged in basic and strategic research on processing of cotton and its agro-residues, development of value added products and quality assessment. Skill development and business incubation services are undertaken at the Institute and it also functions as a referral laboratory for cotton fibres.

AGRI BUSINESS INCUBATION (ABI)



ICAR-CIRCOT has set up an Agri Business Incubation (ABI) Centre at Mumbai to facilitate incubation of new enterprises for innovative technologies by admitting them and providing physical, technical, networking support and services. The centre provides services, facilities and need based business support to start-ups and entrepreneurs while setting up of their own enterprise.

GREEN GLOBE MUMBAI



Green Globe Mumbai

NGO "Green Globe Mumbai" is registered under the Societies Act 1860. Green Globe Mumbai is engaged in activities related to agriculture, environment and self-help groups for development of new products and provide cost effective and sustainable solutions in textile material. They mainly work for environmental issues and promoting green cover to cities and rural areas.

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