

Development of Industrial Scale Atmospheric Pressure Air Plasma System to Treat Angora Wool for HIFEED, Ranichauri and Weaver's Society, Kullu

Angora wool is extremely warm, soft and silky to touch. As it is slippery fibre to spin, its surface is modified by glow discharge plasma. Plasma treatment assists in increasing the friction and cohesion among the fibres and assists in spinning of 100 % Angora yarn without any difficulties. Thereby it avoids problems like static charge, shedding of fibres and fibrosity. The prototype system was successfully established in the Angora Cottage Industry at Kullu in 2009 for spinning of 100% Angora yarn and making newer products with the support from Central Wool Development Board, Ministry of Textiles, Govt. of India. Since then there has been demand from Angora Farmers for establishing such plants amongst Angora industry clusters of the country.

This project was sanctioned by DST to develop and demonstrate industrial scale atmospheric pressure air plasma treatment system to modify the surface properties of 1 m wide Angora web to improve processing of Angora wool. FCIPT, IPR transferred the know-how of the technology to M/s Inspir On Engineering Pvt. Ltd.



Fig: Industrial Scale Plasma System for Angora Wool Treatment developed under DST sponsored project– after its successful testing at M/s InspirOn Engineering, Ahmedabad. The full scale industrial plasma system for processing of Angora wool has been developed by M/S Inspiron Engg Pvt. Ltd., under technology license from FCIPT-IPR and NID. This industrial scale system can run at speeds of 4.5 m/min or higher and uses air and electricity. This system has been installed at HIFEED, Ranichauri, Uttarkhand and Weavers Society, Kullu. This state of the art industrial scale system is the first one in the world for Angora wool processing using plasmas.

This development has opened the door for using plasma technology in addressing the technological problems of the Angora Cottage Industry successfully. This will help in value addition and will provide access to better markets at home and abroad for Angora products. The techno-economic viability of the plasma treatment is excellent because the cost of treatment is a negligible fraction of the Angora wool cost.



Fig 2: Prof. P.K. Kaw Director, IPR initiating the roll-out of the Plasma System