



Application of Plasma Technology in Textile processing

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Abstract :- Textile materials have inherent characteristics that make them very precious, supple, lightweight, strong, large surface to volume ratio, good touch, gentleness, etc. Due to this, they are outstanding for imparting additional functionalities like hydrophobic or antibacterial. Conventional wet methods for applying such finishes require the use of large amounts of chemicals, soft water and energy in form of manpower and electrical energy. Plasma is a dry processing method and provides a solution to reduce the use of all mentioned property. In this overview, a discussion on how plasma can attain on textile materials and what the current state of addition in textile processing has presented.



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Introduction

Plasma technology

Plasma is the 4th state of matter and a gas becomes plasma when the kinetic energy of the gas particles rises to equal the ionization energy of the gas. When this level is reached, collisions of the gas particles cause a rapid cascading ionization, resulting in plasma. When the neutral molecules of a gas are energized, e.g. by exposing to high electric field, to a

point when some electrons become free and the gas turns into a mixture of electrons, ionized atoms and molecules, photons and residual neutral species. In this state it behaves as a chemically very active environment and there is a high likelihood of surface interaction with organic substrates. It is also possible to generate plasma at room temperature. [1,2].

Different forms of plasma

Artificially produced plasma	Terrestrial plasmas	Space & astrophysical plasmas
<ul style="list-style-type: none"> Those found in plasma display. Inside fluorescent lamps, neon signs etc. Rocket exhaust. The area in front of space craft's heat shield during reentry into the atmosphere. Fusion energy research. The electric arc in an arc lamp, an arc welder or plasma torch. Plasma used for surface modification of textiles etc.[2,3] 	<ul style="list-style-type: none"> Lighting. Ball lighting. St. Elmo's fire. Sprites, elves, jets. The ionosphere. The polar aurora.[2,3] 	<ul style="list-style-type: none"> The sun and other stars (Which are plasmas heated by nuclear fusion). The solar wind. The interplanetary med (Space between the planet) The Io-Jupiter flux-tube. Accretion discs. Interstellar nebulae.[2,3]

Table no 1 Forms of plasma

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