Report on
TECHNOTEX- 2009
"Providing Better, Secure & Sustainable Life"
Workshop-cum-Exhibition on
Strengthening Government-Industry-Consumer Partnership in Protech

- The Workshop on Protective Textiles, second in the series of TECHNOTEX-2009 Workshops on Technical Textiles was organized on 15th September 2009 by Ministry of Textiles and FICCI in New Delhi. Over 150 representatives of Industry, Government, Defence and Security forces etc attended the Workshop. Key speakers of the Workshop were:

  - ✓ **Smt. Rita Menon**, Secretary, Ministry of Textiles, Government of India
  - ✓ **Shri Ajoy Acharya**, Additional Secretary (Defence Production), Ministry of Defence
  - ✓ **Shri Bhupendra Singh**, Joint Secretary, Ministry of Textiles
  - ✓ **Shri Shishir Jaipuria**, Chairman, FICCI Taskforce on Technical Textiles & Managing Director, Ginni Filaments Ltd.
  - ✓ **Shri R C Sharma,** Director, Delhi Fire Services
  - ✓ **Shri A. B. Joshi**, Textile Commissioner, Government of India
  - ✓ **Dr J V Rao**, Director, NITRA (Northern India Textile Research Association)
  - ✓ **Dr. V K Kothari**, Professor, Department of Textile Technology, IIT- Delhi
  - ✓ **Shri Mukesh Vijaywargi**, President- New Markets, Klopman International
  - ✓ **Shri Rajesh Srivastav**, Principal Senior Scientific Officer, Directorate General Quality Assurance (DGQA), Ministry of Defence

- Following are the main highlights of the discussions of the Workshop:

- Shri Mukesh Vijaywargi, President- New Markets, Klopman International presented International perspective on Protective/ Fire retardant textiles. Mr Vijaywargi highlighted in his presentation that key driver of growth in European market is that European directive lays down the basic safety requirement which protective clothing must satisfy. In Europe, emergency services uses highest protective clothing followed by utilities like gas, electrical and water, petrochemical, construction, chemical and manufacturing whereas in India petrochemical, chemical and manufacturing segments use some protective clothing but emergency services and construction sector use very little protective clothing and almost no protective clothing is used in utilities like gas, electrical and water.

- In India, market size of protech is currently only 2% as compared to Europe. There is a massive opportunity for growth in protective textiles given India's huge population and the need for protective textiles.

- Usual textiles catch fire in a few seconds of exposure to fire and cause serious injury. However, with proper fire retardant clothing many lives could be saved. There is a huge requirement of fire retardant clothing in oil sector including petrol pumps, hydro carbon industry, BMC personnel working at emergency sites etc.

- There is a need to :

    - ✓ Make fire retardant (FR) clothing mandatory in the high risk industries of petrochem and electrical utilities where still conventional clothing are being used in most companies.
    - ✓ There is also a need for legislative inputs to make employer more accountable to identify and protect the employees and there is an immediate need for its implementation. There is a need for setting up standards which make it easy for companies to source standardized products.
    - ✓ There is a critical need for creating awareness

- Mr Rajesh Srivastava, Principal Senior Scientific Officer, DGQA, made a presentation from user perspective.

- Defence forces on land, sea and air throughout the world are heavily dependent on protective textiles of all types since they offer invaluable functional properties for military forces. Different types of protection are required in defence like environmental, thermal, ballistic, nuclear, biological, chemical and flame, heat and flash.

- Defence textiles needs to be light weight, durable and comfortable, windproof, airpermeable and biodegradeable, flame retardant, heat resistant and ballistic protective etc.

- Defence protective textile clothing can be classified as:

    - ✓ ECC clothing like sleeping bags, down jackets, down trousers, face masks, gloves, pancho etc.
    - ✓ Engineering equipments like flexible revetment for fire trenches, support kit overhead protection, shelters and bridging.

- ✓ General Protective Clothing items like camouflage uniform, tents, tarpaulins, netting mosquito flame retardants etc.
- ✓ Body Armour Protectives like combat helmets and ballistic resistance of personal body armour.

- Mr Srivastava also highlighted the technical requirements of ECC clothing, Body Armour Protectives and General Protective Clothing etc. He emphasized that their requirements need to be fully understood, appreciated and met to the maximum possible extent. Industry in India needs to meet the expectations of defence forces so that maximum items could be produced locally.

- It is recommended that rapid and productive interaction among various stakeholders should take place.

  - ✓ There is a need to enhance expertise and if required joint ventures and strategic alliances with international companies should be done.
  - ✓ There is a need for understanding military needs for catering to the fast growing demand.
  - ✓ There is a critical need to set up standards for the industry so that they can provide quality products to defence forces.

- Mr Bhupendra Singh, Joint Secretary, Ministry of Textiles in his presentation highlighted the fact that globally technical textiles accounts for 22% of total fibre consumption whereas, in India technical textiles accounts for only 4% of total fibre consumption.

- Various initiatives have been taken by Ministry of Textiles to promote technical textiles like:-

  - ✓ Concessional rate of 5% customs duty on most of the technical textile machinery.
  - ✓ Reduction in excise duty on man-made fibre and filament yarns.
  - ✓ Coverage of technical textile machinery under TUFs.
  - ✓ 10% capital subsidy on identified technical textiles machinery has been provided under TUFs.
  - ✓ Withdrawal of excise duty exemption on sanitary napkins, baby diapers etc.
  - ✓ Anomaly in customs duty has been removed on finished goods vis-à-vis raw material.

- Dr J V Rao, Director, NITRA highlighted the fact that in about 24% of fire accidents, the first item to catch fire is textiles. Therefore, there is a strong need to implement standards on FR (Fire Retardant) textiles by enacting and enforcing fire safety legislation and guidelines especially for the public places, buildings and for children wear. He also explained that synthetic blended fabric and cotton blended fabric catches fire after 5 seconds of fire out-break but pyroguard fabric does not catch fire even after 30 seconds of fire outbreak, which can greatly help in protecting people in case of fire.

- Dr Rao further explained the regulations on FR textiles in different countries like USA, Europe, Britain, France, Italy, Japan etc.

- Following recommendations were made by NITRA:

    - ✓ In view of public safety and property loss as well as high environmental pollution involved in fires, relevant Indian standards should be made mandatory for textiles used in public places/buildings- hospitals, schools, airports, theaters etc.
    - ✓ IS standards on FR textiles could be made mandatory under the BIS Act.
    - ✓ Standards developed by BIS or FR textiles need to be included in National Building Code of India 2005 immediately as a separate chapter.
    - ✓ In order to prevent the import of sub-standard and hazardous FR textiles, the relevant India standards could be made mandatory for imports also.
    - ✓ Ministry of Home Affairs should issue circular/draft legislation to all State Governments & Union Territories for enactment of appropriate legislation measure.

- Dr Rao also highlighted the importance of high-visibility warning clothing (HVG). HVGs are classified on the basis of task load, nature of work, color and complexity of the work, environment and lighting. Dr Rao also highlighted the different classifications of high visibility garments. For high-visibility clothing it is recommended that their usage is made statutory since at present statutory requirement is in force in a few institutions like AAI, Railways, DMRC etc.

- Dress code should be strictly followed for those working in risky environments. Appropriate IS standards have been formulated and Ministry of Home Affairs should ensure compliance to the safety guidelines for which designated authority may also be notified.

- The bullet-proof jacket protects the bearer by dissipating the kinetic energy of the projectile into the equipment layers by deformation of the fabric layer cutting across yarns. With the rising trend of crime, violence and terrorism the demand for bullet proof jackets is rising as

well, by defence, paramilitary forces. Despite high demand there have been very few suppliers in the market. Indian Army alone can use upto 12 lac pieces per annum given assured supply and realistic prices. Dr Rao also highlighted the technologies of bullet proof jackets.

- Dr V K Kothari, Professor, IIT Delhi highlighted the importance of extreme cold protection clothing, chemical and biological protection, radiation and electrical protection clothing. There are various hazards of extreme cold climate like increased incidence of arthritis, rheumatism and bronchitis, cold metal injury, hypothermia and frostbite. To avoid all these hazards, fabric should have thermal insulation, evaporative resistance, wind and water resistance. Dr Kothari also discussed the technalities of cold weather protective clothing.

- Second type of hazard discussed by Dr Kothari was Chemical hazard. Chemicals affect human based on their characteristics and mode of entry. Chemicals lead to toxicity, corrosiveness, flammability, reactivity and oxygen deficiency. Chemical resistant clothing provides an effective barrier between the chemical used and area of the body to be protected. Appropriate chemical resistant clothing must demonstrate no penetration, no significant degradation and low permeation rate. Dr Kothari also explained the technical requirements of chemical resistant clothing.

- Dr Kothari discussed radiation protection from Ultra Violet Rays. Ultra Violet Rays in the range of 200 to 290nm are absorbed by atmosphere and does not reach the earth. Ultra Violet Rays in the range of 290-320nm are responsible for development of skin cancers and in the range of 320-400nm causes little visible reaction on skin but decrease immunological response of skin cells. Appropriate fibres should be used to avoid the affect of UV Rays.

- Prof Kothari in his presentation highlighted Electrostatic Protection also. Electrostatic or static electricity refers to the phenomenon associated with the build up of electrical charges generated, for example by contact and/or rubbing of two objects. The most common way to confer anti-static properties on a fabric is to incorporate conductive fibres/yarns. Common conductive elements used in fabrics include carbon, copper, silver, stainless steel or metallic salts.

- Mr Shishir Jaipuria, Chairman, FICCI Taskforce on Technical Textiles & Managing Director, Ginni Filaments Ltd said that it is important that Protech is identified as one of the priority areas under technical textiles. Last week WHO, Royal Children's Hospital- Melbourne and University College, London released a study which has identified fire-related deaths as

amongst the top ten causes of death globally in the age group of 10-24 years. And in case of India, loss of life due to fire is reported to be the second largest cause of unnatural deaths.

- Mr Jaipuria highlighted that as development takes place there would be further growth of high rise buildings, multiplexes, hospitals, exhibition halls, shopping malls etc and application of protech textiles assumes great importance in such places for the sake of public safety. All this underlines the need for more such workshops where consumers, regulators, policy makers and the industry interact and exchange views on the issue of public safety.

- Besides fire retardant textiles, there are number of other products like bullet proof jackets, high altitude clothing etc that are part of protech. There is an immense potential for these products both domestically and also in exports. With the support of Ministry of Textiles and Ministry of Defence we can provide the enabling policy framework for the growth and development of this industry within India.

- While addressing the delegates in the Workshop, Mr R C Sharma, Director, Delhi Fire Services said that we need specifications for Fire Retardant clothing and need testing facilities also in all parts of the country.

- Mr Sharma said for public places like hotels, hospitals, schools, multiplexes etc FR clothing should be made mandatory for the sake of public safety. Also, imported suits are not very suitable for our climatic conditions, light weight suits are required with some insulation inside.

- Shri Ajoy Acharya, Additional Secretary (Defence Production), Ministry of Defence made observations on the presentations done by various experts in the Workshop. He said that specifications and testing in India for technical textile are very stringent and long time periods are required to get the testing done. To overcome this bottleneck, standards need to be specified and testing facilities need to be set up all over the country.

- There is latent demand for technical textile products in India. To achieve the consumption of technical textiles to 23% of total fibre consumption as in developed countries, there is a critical need to create awareness about the technical textiles products.

- Smt. Rita Menon, Secretary, Ministry of Textiles emphasized the need for setting up standards and creating awareness about the use of Protective textiles. She also highlighted that there is a huge untapped potential in Hospitality sector, Power sector, Oil sector and

Multiplexes etc for Protective textiles. Smt. Menon said that testing labs for testing of technical textiles products would also be created in the Country.

- In discussion, the following issues were highlighted:

  - It was pointed out by one of the participants that there is a need to set up incubators to facilitate innovation in this area. As massive investment and long gestation period is required for developing new products, which are normally beyond the resources available with the small industry players, incubators can really help in the innovation in this segment.

  - It was highlighted by one of the participants that we are exporting technical textile products following US and European standards. We have BIS standards but don't have testing facilities that's why there is a dire need for setting up testing facilities in the Country. Also, it was mentioned that some work is already underway in this area in NITRA.