

R & D PROJECTS 2009-10

1. GOVERNMENT SPONSORED PROJECTS

1.1 Completed projects

- (i) **Project title** : Inter-firm Comparison of Energy Usage Performance in Export Oriented Textile Mills (Sponsored by Ministry Of Textiles, Govt. of India)
- Started in** : Month : April / Year : 2009
- Objectives** :
- To provide inter-mill comparison of energy consumption (both electrical and thermal) and related parameters.
 - To present targets of fuel and power consumption for individual mills and to show the scope of improvement.
 - To establish energy usage benchmark for different stages of production for the benefit of textile industry.
 - To develop “Best Practices Guidelines” for improvement in energy consumption.
- Progress of work** : NITRA has undertaken study in 8 selected export oriented spinning mills with respect to energy usage performance power system, power quality analysis, productivity and yarn quality aspects etc.
- Research out come** : Energy efficient technologies for textiles have been suggested for the use of different types of textile industries.

2. INDUSTRY SPONSORED PROJECTS

2.1 Completed projects

- (i) **Project title** : National Project on “Survey for Energy Efficiency Improvement in Textile Sector” (Sponsored by NEDO, Japan)
- Started in** : Month : September / Year : 2009
- Objectives** : To know the technologies used in textile industry.
- Progress of work** : Data collected for the project.
- Research out come** : All data report submitted to NEDO for adopting the new technologies in industry.
- (ii) **Project title** : Development of Smoke Visibility Test Apparatus as per UIC Code 564-2, Appendix-15.
- Started in** : Month : April / Year : 2009
- Objectives** : To develop an apparatus to determine the deterioration of visibility due to smoke produced when materials burn in a given sealed chamber, by assessing the attenuation of

a light beam passing through the chamber as per UIC Code 564-2 Appendix-15

Progress of work : Completed
Research out come : Smoke visibility test apparatus has been developed for the party.

(iii) **Project title** : Development of Toxicity Tester as per NCD 1409.
Started in : Month : April / Year : 2009
Objectives : The test explores the toxicity of the products of combustion in terms of small molecular species arising when a small sample of a material is completely burnt in excess air under specified conditions

Progress of work : Completed
Research out come : Toxicity index tester has been developed for the party

3. IN-HOUSE PROJECTS

3.1 Completed projects

(i) **Project title** : A New Approach to Colorimetric Determination of Phenol in Water and Textile Effluent
Started in : Month : August / Year : 2009
Objectives :

- Development of a simple method for colorimetric determination of Phenol in water and textile effluents

Progress of work :

- Periodic acid has been used for development of a new colorimetric method for determination of Phenol in water and textile effluents
- Periodic acid produced a colored complex with phenol having a λ_{\max} at 380 nm
- The experimental conditions have been optimized by studying the effect of various variables such as pH, temperature, time, concentration of periodic solution, interferences etc.
- The mechanism of the reaction of phenol with periodic acid has also been discussed

Research out come :

- The colorimetric method developed is simple and may be carried out even in a small laboratory having an spectrophotometer
- The method is applicable to both water and textile effluents having phenol in the range of 0–600 $\mu\text{g/ml}$
- The presence of various organic impurities in the textile effluents does not interfere with the results
- The results have been highlighted in 51st JTC held at PHD House, New Delhi

