

TERMS OF REFERENCE FOR THE R&D PROJECT

1. Title of the project: Study construction, performance and safety requirements of prevailing varieties of Elastic Narrow Tapes.

2. Background:

2.1 IS 9686:1980 primarily focuses on natural rubber as the main material for elastic narrow tapes. While natural rubber has proven its efficacy, the advent of synthetic materials such as rubber variants, lycra, spandex, and crochet present an opportunity to enhance the performance and versatility of these tapes. These modern materials offer improved durability, elasticity, and a wider range of applications compared to traditional natural rubber.

2.2 Elastic Narrow Tapes come in a variety of types, distinguished by their raw material and manufacturing methods and other parameters, given their growing demand and diverse applications, it becomes essential to revise the existing Indian standard IS 9686:1980 *Elastic narrow tapes — Specification* for inclusion of all the major varieties of Elastic Narrow Tapes prevailing in the current market scenario.

3. Objective: To collect the technical data and scientific evidence for constructional, performance and safety requirements of prevailing varieties of Elastic Narrow Tapes from primary and secondary sources of information.

4. Scope:

a) Undertake study and analyze the existing literature which include but not restricted to the following:-

- International standard and regulation,
- Journals and research papers,
- Standard operating procedures (SOPs)/guidelines of Ministry/regulator/users,
- Studies/research conducted by any organization
- Any other relevant published information.

b) Collection of the database for manufacturers (small, medium and large-scale), testing infrastructure and users of elastic narrow tapes in the country.

c) Collection of import and export data, type of standards and regulation being followed by domestic/foreign manufacturers, comparative analysis of these standards and regulation.

d) Undertake minimum 2 visits to each of small, medium and large-scale manufacturer and collect the information on the following aspects: -

- i) Types of raw material being used
- ii) Manufacturing process
- iii) Good manufacturing practice
- iv) In-process controls being exercised during manufacturing

- v) Varieties being manufactured
- vi) Standards being followed
- vii) Testing method being used
- viii) Testing infrastructure available
- ix) Post manufacturing quality/in-house data for safety, performance and constructional parameter for all the varieties being manufactured
- x) Sampling plan being followed
- xi) Marking and labelling of the product
- xii) Packaging and storage conditions
- xiii) Sustainability practices [sustainable raw material, energy efficient processes and methodologies, renewable energy sources, 3Rs (Reduce, Reuse and Recycle), waste management and disposal mechanisms]
- xiv) Focused group discussions with teams involved in production, testing, and R&D to address quality issues, discuss challenges faced, and gather suggestions for improvement

The feedback from other manufacturers (where visit is not carried out) shall be collected by circulating suitable questionnaire covering above information through email or any other digital means.

- e) Undertake minimum 2 visits to users and 2 visits to testing labs (one govt and one private NABL accredited lab) to collect information including but not restricted to the following: -

User

- i) Standards and regulations being followed
- ii) Compliance mechanism being followed (test certificate from supplier, third party testing)
- iii) Focused group discussion on quality issues, challenges being faced and suggestions if any.

Lab

- i) Standards and regulation being followed
- ii) Testing methods being followed
- iii) Testing infrastructure
- iv) Focused group discussion on testing related issues, challenges being faced and suggestion

The feedback from users and labs (govt and private NABL accredited) where visit is not carried out shall be obtained through suitable questionnaire covering the above information.

- f) Collection of minimum 5 samples from each from large, medium and small-scale industries of each variety of elastic narrow tapes and carry out testing from 2 NABL accredited labs (1 Govt Lab and 1 Pvt. Lab) for parameters such as but not restricted to length, width, thickness, extension before ageing, extension after ageing, colour fastness to light and washing.
- g) Preparation of a comprehensive project report covering all the above information.

5. Research Methodology:

- i) Collect and analyze the data/information as specified in the scope [4 (a), (b) and (c)].
- ii) Visit manufacturers, users and labs and collect data/information as specified in the scope [4 (d) and (e)].
- iii) Collect and test the samples as specified in the scope 4 (f).
- iv) Analyze the data/information and prepare a comprehensive project report.

6. Expected Deliverables:

- a) Comprehensive report in soft/hard form of study covering all the aspects detailed in the scope of the R & D project.
- b) Questionnaire feedback, testing report, focussed group discussion report, other relevant documents and information shall be appended to the project report.

6. Requirement for the CVs:

Graduate in Textile Technology/Textile Engineering with minimum 5 years of working experience in testing or manufacturing of Narrow Fabric/Braiding industry.

7. Timeline and Method of Progress Review:

The timeline for the completion of the project is 120 days from the date of award of project.

Timeline	Method of progress
Up to 30 days	Literature review, desktop study, collection of data and information NOTE – The sampling plan for visit and collection of samples shall be discussed and finalized with the nodal officer after literature survey and desktop research.
Up to 60 days	Mid term review(An interim report shall be provided by the proposer.) Visit to manufacturer, user, testing lab and collection of samples
Up to 90 days	Testing of samples (except long duration test with testing time more than 30 days) preparation and submission of first draft report
Up to 120 days	Submission of the final project report.

9. Support BIS will Provide: BIS will provide access to latest available editions of Indian standards and/or international standards relevant to the project, on request.

10. Nodal Point

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