COMPENDIUM OF
INDIAN STANDARDS

Technical Textiles for Mobiltech Applications

Prepared By:
TEXTILES
DEPARTMENT

BUREAU OF INDIAN STANDARDS
NEW DELHI

INTRODUCTION

Mobiltech refers to the category of technical textiles used in the manufacture of components for automobiles, aircraft, railways, and marine vehicles. These textiles play a crucial role in enhancing safety, comfort, and performance in vehicles.

This compendium offers a comprehensive overview of Indian Standards related to Technical Textiles for Mobiltech Application such as textiles for tyre cords, car body covers, non-woven carpet mats and automotive tufted floor coverings etc. encompassing their specifications, performance requirements, and testing methods for automotive textiles. This compendium serves as a valuable reference by bringing together key standards in one consolidated and accessible document, supporting innovation and quality in vehicle-related textile applications.

The work of standardization under the domain of technical textiles for mobiltech has been undertaken by **Technical Textiles for Mobiltech Applications** Sectional Committee TXD 38 under Textile Divisional Council of Bureau of Indian Standards with a mandate to formulate Indian standards for terminology, testing, code of practice and specifications for technical textiles for mobiltech applications such as automobiles, railways, ships and aircraft.

A. LIST OF PRODUCT STANDARDS ON TECHNICAL TEXTILES FOR MOBILTECH APPLICATIONS

1) IS 11573 : 2024 Textiles — Polyamide Yarn for Cycle and Rickshaw Tyres — Specification (first revision)

This standard prescribes the requirements of grey polyamide tyre yarn and dipped polyamide tyre yarn for cycle and rickshaw tyres. This standard specifies the requirements of linear density, twist per meter, breaking strength, and elongation at break etc. of tyre yarn for cycle and rickshaw tyres.

2) **IS 11926: 2024 Textiles — Polyamide Tyre Cord Fabric For Automotive Tyres — Specification (First revision)**

This standard prescribes the requirements of nine varieties of grey polyamide tyre cord fabric used in the manufacturing of automotive tyres. This standard specifies the construction particulars of polyamide tyre cord fabrics and requirements for nine different linear densities of grey polyamide tyre cords, specified in the following Tex values: 210, 215, 315, 420, 475, 475, 630, 710, and 710.

3) **IS 13137: 2024 Textiles — Dipped Polyamide Tyre Cord Fabric For Automotive Tyres — Specification (Second revision)**

The standard prescribes the requirement of nine varieties of dipped polyamide tyre cord fabric for the manufacturing of automotive tyres. The warp sheet is woven and dipped in resorcinal

formaldehyde latex (RFL) dip solution. This standard specifies the construction particulars of dipped polyamide tyre cord fabric and requirements for nine varieties of dipped polyamide tyre cords.

4) **IS 17757 : 2022 Textiles — Automotive Tufted Floor Covering — Specification**

This standard specifies the requirements for tufted carpet fabrics used for floor covering inside the automobiles which include floor of cabin compartment, boot space, utility compartment or any other area.

5) **IS 17758 : 2022 Textiles — Automotive Non-woven Carpet Mat — Specification**

This standard specifies requirement for automotive non-woven floor carpet/mat to be used in floor, deck surface, seat back surface, trunk side, quarter trim lower and other parts of the automobile.
This standard classifies the material on the basis of end use of the automotive non-woven floor carpet/mat with backing in the following types :
a) Type I — To be used in floor;
b) Type II — To be used for trim surface; and
c) Type III — To be used for deck surface, seat back surface, luggage compartment, parcel tray etc.

6) **IS 18671 : 2024 Textiles — Coated Car Body Cover — Specification**

This standard specifies the requirements of PVC coated woven car body covers used for protecting the cars from heavy rains, heat, snow, and harmful UV rays etc.

7) IS 7133 : 2024 Textiles — Cotton tyre cord and tyre cord fabric for cycle and rickshaw — Specification (Second Revision)

This standard prescribes the requirements of grey cotton tyre cords and tyre cord fabric for cycle and rickshaw tyres. This standard covers the requirements of light duty and heavy duty two types of cotton tyre cords and tyre cord fabric for cycle and rickshaw tyres namely Variety 1 and Variety 2.

B. LIST OF TEST METHOD STANDARDS ON TECHNICAL TEXTILES FOR MOBILTECH APPLICATIONS

1) IS 4910 (Part 1) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 1 Definition of Terms *(Second Revision)*

This standard (Part 1) defines various terms used in the testing of tyre yarns, cords and tyre cord fabrics made from man-made fibres.

2) IS 4910 (Part 2) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 2 Linear Density (Second Revision)

This standard (Part 2) prescribes a method for determination of linear density of man-made fibre tyre yarns and cords taken from cheeses, cones, bobbins, spools, hanks, or tyre cord fabrics.

3) IS 4910 (Part 3) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 3 Load and Elongation Characteristics (Second Revision)

This standard (Part 3) prescribes a method for determination of breaking load, elongation at break, load at specified elongation, elongation at specified load and tenacity of man-made fibre tyre yarns and cords taken from cheeses, cones, bobbins, spools, hanks, or tyre-cord fabrics.

4) IS 4910 (Part 4) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 4 Dip Pick-Up (Second Revision)

This standard (Part 4) prescribes methods for determination of amount of dip on man-made fibre tyre yarns, cords and tyre cord fabrics treated with resorcinol formaldehyde latex (RFL) dip solution.

5) IS 4910 (Part 5) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 5 Heat Shrinkage and Heat Shrinkage Force (Second Revision)

This standard (Part 5) prescribes method for determination of heat shrinkage and heat shrinkage force developed in man-made fibre tyre yarns and cords when exposed to elevated temperature under a standard pre-tension of 5 mN/tex ± 1 mN/tex. This standard is applicable to man-made fibre tyre yarns and cords taken from cheeses, cones, bobbins, spools or tyre cord fabrics. In case of tyre cord fabrics, the cords shall be removed from the tyre fabrics for testing.

NOTE — In case of yarn/cord range from 200 dtex to 7 000 dtex (180 denier to 6 300 denier), the method given in Annex B may be followed if agreed to between the concerned parties.

6) IS 4910 (Part 6) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 6 Wet Contraction and Wet Contractile Force

(Second Revision)

This standard (Part 6) prescribes method for determination of wet contraction and wet contractile force developed in rayon and nylon (polyamide) tyre yarns and cords when immersed in water at (27 ± 2) °C under a standard pretension of (5 ± 1) mN/tex.

7) IS 4910 (Part 7) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 7 Heat Degradation (*Second Revision*)

This standard (Part 7) prescribes methods for determination of degradation in strength of rayon and nylon (polyamide) tyre yarns and cords taken from cheeses, cones, bobbins, spools, hanks, and tyre cord fabrics after being subjected to elevated temperature.

8) IS 4910 (Part 8) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 8 Thickness (Second Revision)

This Standard (Part 8) prescribes a method for determination of thickness (gauge) of man-made fibre tyre cords taken from cheeses, cones, bobbins, spools, or tyre cord fabrics.

9) IS 4910 (Part 9) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 9 Sampling for Tyre Yarns, Cords and Tyre Cord Fabrics Made from Rayon (First Revision)

This Standard (Part 9) prescribes the methods for sampling of tyre yarns, tyre cords and tyre cord fabrics for determination of various physical characteristics, namely, linear density, breaking load, elongation, tenacity, thickness gauge, twist, dip pick up, heat shrinkage and heat shrinkage force, wet contraction and wet contractile force, heat degradation, adhesion and growth. It specifies the number of tests for determination of various characteristics with specified degree of accuracy. It also lays down the criteria for ascertaining the conformity to the specified requirements.

10) IS 4910 (Part 10) : 2023 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 10 Creep (Second Revision)

This Standard (Part 10) prescribes a method for measuring creep (change in length) of tyre cords taken from cheeses, cones, bobbins, spools or tyre cord fabrics under a specified load.

11) IS 4910 (Part 11) : 2024 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 11 Commercial Mass (*Second Revision*)

This standard (Part 11) prescribes methods for determination of commercial mass of consignments of man-made fibres, tyre yarns, cords and tyre cord fabrics. This standard is applicable to dipped as well as undipped material.

12) IS 4910 (Part 12) : 2024 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 12 Sampling for Tyre Yarns, Cords and Tyre Cord Fabrics Made from Polyamide (*First Revision*)

This standard prescribes the methods for sampling of tyre yarns, tyre cords and tyre cord fabrics for determination of various physical characteristics, namely, linear density, breaking load,

elongation at break, thickness (gauge), twist, heat shrinkage, heat shrinkage force and heat degradation. It gives the number of tests for determination of various characteristics with specified degree of accuracy. It also lays down the criteria for ascertaining the conformity to the specified requirements.

13) IS 4910 (Part 13) : 2024 Tyre Yarns, Cords and Tyre Cord Fabrics Made from Man-Made Fibres — Methods of Test Part 13 Static Adhesion of Textile Tyre Cord to Vulcanized Rubber (First Revision)

This standard (Part 13) prescribes four methods for determination of static adhesion of dipped cords to rubber, namely H-Test, T-Test, U-Test, and strip adhesion test.The property levels obtained with these methods are affected considerably by the history of the cord and the rubber compound. However, they yield data on which the judgement may be based for the service quality of the material.