

[illegible]

DRAFT BELIZE STANDARD

DEFINITIONS OF TERMS USED IN THE PNEUMATIC TYRE INDUSTRY

This is a draft and should not be regarded or used as Belize Standard.

Last date for comments: (6 October 2017)



Belize Bureau of Standards
Power Lane, Ministry of Works Compound
P. O. Box 430
City of Belmopan, Cayo District
Belize, Central America

DRAFT BELIZE STANDARD
DEFINITIONS OF TERMS USED IN THE PNEUMATIC TYRE INDUSTRY

Committee Representation

The preparation of this standard for the Standards Advisory Council established under the Standards Act 1992, was carried out under the supervision of the Bureau's Technical Committee for Tyres, which at the time comprised of the following members:

TECHNICAL COMMITTEE**CHAIR**

Mr. Ricardo Diaz

REPRESENTING

Santos Diaz and Sons

MEMBERS

Mr. Vallan Hyde

Mr. Henry Reimer

Mr. Kenrick Gordon

REPRESENTING

Department of Transport

Caribbean Tyres

Department of Environment

TECHNICAL SECRETARY

Mr. Lloyd Orellano
Belize Bureau of Standards

Table of Contents

0	FOREWORD	4
1	SCOPE	4
2	TERMS AND DEFINITIONS.....	4
2.1	General	4
2.2	Definitions Related to Structure.....	6
2.3	Definitions Related to Main Components.....	7
2.4	Definitions Related to Tyre Dimensions.....	9
2.6	Definitions related to Injury and Repair.....	10

DBZS 5-201X (Revision) – Terms used in the Pneumatic Tyre Industry – Aug 1-Oct 10 2017

DRAFT BELIZE STANDARD**DEFINITIONS OF TERMS USED IN THE PNEUMATIC TYRE INDUSTRY**

0 FOREWORD

- 0.1 This standard contains terms that are common to passenger car and commercial vehicle tyre groups. The terminology is specific to new, used, retreaded and regrooved tyres.
- 0.2 The tyre industry in Belize has been greatly influenced by North American tyre industry. The purpose of this standard is to standardize and harmonize the meaning of terms as related to the local tyre industry.
- 0.3 In preparing this standard considerable assistance was derived from:
- a) ASTM F538 - Standard Terminology Relating to the Characteristics and Performance of Tires

1 SCOPE

This Belize Standard is a glossary which defines terms related to passenger car and commercial vehicle pneumatic tyres. The standard is divided into six sections dealing respectively with general definitions, definitions related to structure, main components, tyre dimensions, service and injury and repair.

2 TERMS AND DEFINITIONS**2.1 General**

- a) **Buffing** means the preparation of the original tyre surface prior to the application of unvulcanized material.
- b) **Building** means the application of tread rubber to the buffed and cemented surface of the tyre.
- c) **Cure** means the conditions necessary to produce a given state of vulcanization.
- d) **Crown tyre** means a tyre which has undergone expansion due to use in service.
- e) **Full capping** means a process in which new tread rubber is applied to that area of the casing normally in contact with the road extending over the shoulder area.

- f) **Lot** means a definitive quantity of a commodity produced essentially under the same conditions.
- g) **Mold cure method** means the method that utilizes uncured tread rubber applied to the worn tyre and then placed in heated molds which apply heat and pressure to form the tread patterns and which cure and bond the new tread rubber to the tyre.
- h) **New tyre** means a tyre which has been neither used nor subjected to a retreading operation.
- i) **Overflow** means the spew-out of tread compound at the mould parting line or at the edge of the matrix skirt.
- j) **Pneumatic tyre** means a mechanical device made of rubber, chemicals, fabric and steel or other materials, which, when mounted on an automotive wheel, provides traction and contains the gas or fluid that sustains the load.
- k) **Pre-cure method** means the method that utilizes the application of a pre-cure tread with the tread pattern already cured into the tread rubber. The pre-cure tread is applied to the worn tyre with a layer of uncured cushion gum. The worn tyre and applied tread will then be placed in a chamber (autoclave) where heat and pressure bond the pre-cure tread, cushion gum and worn tyre.
- l) **Recapping** means the process in which rubber is removed from worn tread and over the shoulders and new rubber is then applied.
- m) **Regroovable tyre** means a tyre, either original tread or retread, designed and constructed with sufficient tread material to permit renewal of the tread pattern or the generation of a new tread pattern in a manner which conforms to this standard.
- n) **Regrooved** means a tyre, either original or retread, on which the tread pattern has been renewed or a new tread has been produced by cutting into the tread of a worn tyre to a depth equal to or deeper than the moulded original groove depth.
- o) **Remoulding** means the process in which rubber is removed as necessary and new rubber, extending from bead area to bead area, is applied.
- p) **Retreading** means the generic term for used tyre reconditioning, including 2.1 (k), (n) and (w), to extend the useful life of the tyres. It can also cover the replacement of the tread rubber only or replaced of tread and sidewall rubbers.

- q) **Rim** means the specially shaped circular periphery to which a tyre may be mounted with appropriate bead fitment.
- r) **Rolling circumference** means the distance the centre of the tyre (axle) moves in one revolution of the tyre under specified conditions.
- s) **Rolling resistance** means a loss of energy (or energy consumed) per unit of distance.

NOTE: The SI unit conventionally used for the rolling resistance is the newton metre per metre (N.m/m). This is equivalent to the drag force in newtons (N).

- t) **Rubber** means a macromolecular material which has, or can be given, properties of:
 - i. at room temperature, returning rapidly to the approximate shape from which it has been substantially distorted by a weak stress; and
 - ii. not being easily changed to any other permanent shape by the application of moderate heat and pressure.
- u) **Spare tyre for temporary use** means a tyre which is a special type of spare tyre: it differs from types normally fitted to vehicle with regard to its principal characteristics (e.g. marking, dimensions, conditions of use and is intended for temporary use under restricted conditions).
- v) **Test rim** means with reference to a tyre to be tested, any rim that is listed as appropriate for use with that tyre in accordance with the listing contained in recognized publications such as the Tire and Rim Association (USA), current at the date of manufacture of the tyre or any later date.
- w) **Topcapping** means a process in which new tread rubber is applied only in that area of the casing normally in contact with the road.
- x) **Used tyre** means a tyre which has been in service and has neither been regrooved or retreaded.

2.2

Definitions Related to Structure

- a) **Bias-belted tyre** means a pneumatic tyre structure of diagonal construction (bias ply) type in which the carcass is restricted by a belt comprising two or more layers of substantially inextensible cord material laid at alternate angles close to those of the carcass.
- b) **Diagonal (cross) ply tyre (called bias tire in USA)** means a pneumatic tyre in which the ply cords extend to the beads and are laid at alternate angles substantially less than 90° to the centre-line of the tread.

- c) **Radial ply tyre** means a pneumatic tyre in which the ply cords extend to the beads and are laid substantially at 90° to the centre-line of the tread, the carcass being stabilized by an essentially inextensible circumferential belt.

2.3 Definitions Related to Main Components

- a) **Bead** means that part of the tyre which is shaped to fit the rim. It has a core made of one or several essentially inextensible strands with the plies wrapped around the core.
- b) **Bead heel** means that part of the bead which fills the angle formed by the junction of the rim flange and the bead seat.
- c) **Bead toe** means the innermost part of the bead opposite the heel.
- d) **Belt (radial ply tyre)** means layer(s) of material(s) underneath the tread, laid substantially in the direction of the tread centreline that restricts the carcass in a circumferential direction.
- e) **Belt edge covering stripping** means one or more layers of heat shrinkable organic textile cord fabric (e.g. nylon) placed over the belt edges of the steel-belted radial ply tyre.
- f) **Breaker** one or more plies under the tread region of a tire that are additional to those which extend from bead to bead.
- g) **Carcass** the part of a tire structure that does not include the tread and sidewall rubber.
- h) **Casing** a used or treadless tire to which additional tread rubber may be attached for the purpose of retreading.
- i) **Chafer** means the material in the bead area to protect the carcass against rim chafing.
- j) **Cord** means a textile or non-textile strands (threads) used in various components of the tyre carcass, plies, belts, breakers, etc.
- k) **Crown** means the road-contacting area lying between the shoulders of the tyre.
- l) **Cushion gum** means a tacky rubber compound used for adhesion, undertread repair and build up.
- m) **Groove** means the space between two adjacent tread ribs.

- n) **Inner lining** means the layer of rubber, from bead toe to bead toe, on the inside of the carcass. In the case of tubeless tyres this shall have air retaining properties.
- o) **Ply** means a layer of rubber-coated parallel cords.
- p) **Protective breaker (commercial vehicle radial ply tyre)** means an optional strip of ply material embodied within the pneumatic tyre between the tread and the belt to minimize damage to the belt.
- q) **Radial bracing ply (radial belt)** means a layer of material underneath the tread, laid substantially in the direction of the tread centreline, which restricts the carcass circumferentially.
- r) **Shoulder** means a transitional area between the sidewall and the tread.
- s) **Sidewall** means that portion of a tire between the tread and the bead.
- t) **Sidewall rubber** means a rubber layer on the sidewall of the tyre and over the carcass, which may include ornamental or protective ribs and fitting lines.
- u) **Sipe** means one of the small grooves or channels in the tread pattern.
- v) **Tire** means a load-bearing ground contacting circumferential attachment to a vehicle wheel.
- w) **Tread** means that part of a tire that comes in contact with the ground.
- x) **Tread rib** means a tread section running circumferentially around a tyre.
- y) **Tread wear indicators** means projections in the tread grooves designed to give a visual indication of the degree of wear of the tread.
- z) **Tubeless tyre** means a pneumatic tyre designed for use without an inner tube.
- aa) **Tyre fitting lines** means moulded lines on the outside of the upper bead area to facilitate obtaining concentricity when fitting.
- bb) **Undertread** means the rubber between the base of the tread grooves and the buffed casing.
- cc) **Winter tread (included types known as “Mud and Snow” or “Snow”)** means a tread pattern whose structure is primarily designed to ensure in mud and fresh or melting snow a performance better than that of an ordinary

(road type) tyre. The tread pattern of a winter tread generally consists of groove (rib) and/or solid block elements more widely spaced than on an ordinary (road type) tyre.

2.4 Definitions Related to Tyre Dimensions

- a) **Maximum overall tyre diameter in service - dynamic (Dod)** means the overall diameter as defined in 2.4 e) plus:
- manufacturing tolerances;
 - tolerance for service growth; and
 - allowance for dimensional changes due to centrifugal force.

NOTE: Definition 2.4 a) applies only to motorcycle tyres; the allowance in (iii) is to be taken into account by the motorcycle manufacturer when designing for tyre clearances.

- b) **Maximum overall tyre diameter in service - static (Dos)** means the overall diameter as defined in 2.4 e) plus:
- manufacturing tolerances; and
 - tolerance for service growth.
- c) **Maximum overall tyre width in service** means the overall width defined in 2.4 f) plus:
- manufacturing tolerance; and
 - tolerance for service growth.
- d) **Nominal aspect ratio (H/S)** means one hundred times the ratio of the section height to the section width of the tyre on its theoretical rim.
- e) **Overall diameter (Do)** means the diameter of an inflated tyre at the outermost surface of the tread.
- f) **Overall width (W)** means the linear distance between the outsides the sidewalls of an inflated tyre including elevations due to labelling (markings), decorations, and protective bands or ribs.
- g) **Section height (H)** means the radial height of attire section, expressed as one half the difference between the outside diameter of the unloaded tire and the normal rim diameter; the outside diameter is measured on a tire-wheel assembly with the tire inflated to rated inflation pressure.
- h) **Section width (S)** means the width of a new tire, including 24-h inflation growth and including normal sidewalls, but not including protective side ribs, bars, or decorations.
- i) **Groove (void) Depth** *synonymous with Tread depth* means. A measurement of the perpendicular distance from a real or calculated

reference plane defined by the edges of two adjacent ribs (lugs) to the lowest point of contact in the groove (void).

2.5 Definitions related to Service

- a) **Free rolling tyre (FRT)** means a loaded tire rolling without applied driving or braking torque.
- b) **Load index (load capacity index or LI)** means a numerical code associated with the maximum load a tyre can carry at the speed indicated by its speed symbol under service conditions specified by the tyre manufacturer.
- c) **Maximum load rating** means the load rating at the maximum permissible inflation pressure for that tyre.
- d) **Maximum permissible inflation pressure** means the maximum cold inflation pressure to which a tyre may be inflated.
- e) **Ply rating (PR)** means an index of tyre strength used to identify a given tyre with its recommended maximum permitted load under service conditions specified by the tyre manufacturer.

NOTE: It does not necessarily represent the actual number of plies in a tyre.
- f) **Service condition characteristics** means a service designation consisting mainly of the load index and speed symbol.
- g) **Special-use tyre** means a tyre for mixed use, both on and off the road and/or at restricted speed.
- h) **Speed category** means a category assigned to a tyre which denotes the maximum speed for which use of the tyre is rated.
- i) **Speed symbol** means a symbol indicating the speed at which the tyre can carry a load corresponding to its index service conditions specified by the tyre manufacturer.

2.6 Definitions related to Injury and Repair

- a) **Bead separation** means a breakdown of bond between components in the bead area.
- b) **Chunking** means the breaking away of pieces of tread.
- c) **Cord separation** means cords parting away from adjacent rubber compounds.

- d) **Crack** means any parting within the tread, sidewall, or inner liner of the tyre extending to the cord material.
- e) **Injury** means a break of any shape caused by a penetrating object or severe scuff or impact.
- f) **Inner lining separation** means the parting of the inner lining from the cord material in the carcass.
- g) **Kinked** means a sharp permanent bend in the bead wires at one or more points around the circumference of the bead.
- h) **Nail hole** means a penetration caused by a sharp small object.
- i) **Open splice** means any parting at any junction of tread, sidewall, or inner lining that extends to the cord material.
- j) **Ply separation** means a parting of rubber compound between adjacent plies.
- k) **Radial cracking** means cracking on the sidewall area, resulting from under-inflation or ageing of rubber.
- l) **Reinforcement** means any material, usually rubber and fabric, vulcanized to the tyre to add strength to the cord body at an injury.
- m) **Repair** means the permanent reconditioning of portions of a tyre that have been injured by punctures, cuts, breaks, cracks, etc. that restore strength for additional safe service.
- n) **Repair material** means the rubber compound used to fill injured areas in a tyre.
- o) **Section repair** means repairs made to the used cord when an injury has extended through the tread or sidewall. The damaged cord is removed and new cord is replaced in the form of a repair unit or patch.
- p) **Sidewall separating** means the parting of the rubber compound from the cord material.
- q) **Skiving** means the removal of damaged material by means of a bevelled cut.
- r) **Tread separation** means the pulling away of the tread from the tyre carcass.
- s) **Weather cracking** means a visual sidewall condition which appears as cracking of the rubber.

- End of Document -