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BSI Standards Publication

Cycles - Composite material used in bicycles - Specific tests suitable for components manufactured from composite materials

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Cycles - Matériaux composites utilisés dans les bicyclettes - Essais spécifiques adaptés aux composants fabriqués à partir de matériaux composites

Fahrräder - Verbundwerkstoffe für Fahrräder - Spezifische Prüfverfahren für aus Verbundwerkstoffe hergestellte Komponenten

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European foreword

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1 Scope

The purpose of this Technical Report is to provide innovative requirements and test methods applicable to any category of bicycle (city/trekking, MTB, young adult and racing) containing components manufactured, in part or whole, from composite materials. Its aim is to provide technical solutions that reduce the risk of component failure and rider injury during the specified use of such bicycles.

This Technical Report includes requirements and test methods validated by the bicycle industry and test houses for composite assemblies including forks, frames, wheels, saddle rails and seat posts.

This Technical Report makes reference to current "state of the art" standards in the field of bicycles, agreed at CEN level through the publication of EN ISO 4210- series of standards. Therefore, the requirements and tests proposed in this Technical Report are intended to be read and applied in accordance with the appropriate EN ISO 4210 standard.

NOTE Please note that the tests described in this TR refer in places to paragraph numbers from the applicable EN ISO 4210- series.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 4210-2:2015, *Cycles - Safety requirements for bicycles - Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles (ISO 4210-2:2015)*

EN ISO 4210-3:2014, *Cycles - Safety requirements for bicycles - Part 3: Common test methods (ISO 4210-3:2014)*

EN ISO 4210-4:2014, *Cycles - Safety requirements for bicycles - Part 4: Braking test methods (ISO 4210-4:2014)*

EN ISO 4210-5:2014, *Cycles - Safety requirements for bicycles - Part 5: Steering test methods (ISO 4210-5:2014, Corrected version 2015-02-01)*

EN ISO 4210-6:2015, *Cycles - Safety requirements for bicycles - Part 6: Frame and fork test methods (ISO 4210-6:2015)*

EN ISO 4210-7:2014, *Cycles - Safety requirements for bicycles - Part 7: Wheels and rims test methods (ISO 4210-7:2014)*

EN ISO 4210-9:2014, *Cycles - Safety requirements for bicycles - Part 9: Saddles and seat-post test methods (ISO 4210-9:2014)*

3 Steerer tube fatigue test

3.1 General

To apply this test, EN ISO 4210-2:2015 and EN ISO 4210-6:2015 shall be used.

3.2 Background

The proposal for a fork steerer tube fatigue test was developed due to several professional and numerous consumer accidents that involved the fatigue failure of composite material steerer tubes. The cycle industry has developed a test to confirm stem and steerer tube compatibility as an assembly. Note

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