

JAPANESE INDUSTRIAL STANDARD

Translated and Published by Japanese Standards Association

JIS E 1203:2007

(JRCEA/JSA)

Synthetic sleepers — Made from fiber reinforced foamed urethane

ICS 45.080

Reference number: JIS E 1203: 2007 (E)

PROTECTED BY COPYRIGHT

E 1203: 2007

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal of establishing a Japanese Industrial Standard from Japanese Railway Civil Engineering Association (JRCEA) / Japanese Standards Association (JSA) with a draft of Industrial Standard based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Date of Establishment: 2007-02-20

Date of Public Notice in Official Gazette: 2007-02-20

Investigated by: Japanese Industrial Standards Committee

Standards Board

Technical Committee on Railways and

Rolling Stock

JIS E 1203: 2007, First English edition published in 2007-06

Translated and published by: Japanese Standards Association 4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

© JSA 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan KK/HN

Contents

	Page
Introd	luction · · · · · · · · · · · · · · · · · · ·
1	Scope1
2	Normative references ·······1
3	Definitions2
4	Classification ······2
5	Performance ······4
5.1	Bending strength and Young's modulus in flexure ·······4
5.2	Withstand bending load ··················4
5.3	Longitudinal compressive strength · · · · · · · 4
5.4	Shearing strength ···········4
5.5	Adhesion shearing strength ·······4
5.6	Amount of water absorption ·······4
5.7	Alternating-current breakdown voltage ·······4
5.8	Direct-current insulation resistance ······4
5.9	Track spike pulling strength · · · · · · 4
5.10	Screw spike pulling strength · · · · · · · 4
5.11	Unit volume mass ······5
5.12	Flame resistance ······5
5.13	Fatigue resistance · · · · · · 5
5.14	Weatherability ·····5
6	Dimensional tolerances ······5
7	Appearance5
8	Material ·····5
9	Manufacturing method ······6
10	Test method ····································
10.1	Test of bending strength and Young's modulus in flexure ······6
10.2	Withstand bending load test ··································
10.3	Longitudinal compressive strength test ·······7
10.4	Shearing strength test ·····8
10.5	Adhesion shearing strength test ·····9
10.6	Amount of water absorption test · · · · · · · 10
10.7	Alternating-current breakdown voltage test · · · · · · 11
10.8	Direct-current insulation resistance test · · · · · · 12
10.9	Track spike and screw spike pulling strength test · · · · · · 13
10.10	Measurement of dimensions

E 1203: 2007

10.11	Measurement of unit volume mass	15
10.12	Flame resistance test ·····	15
	Fatigue resistant test ·····	
10.14	Weatherability test ·····	16
11	Inspection ·····	17
12	Designation of product ·····	17
13	Marking	17

Synthetic sleepers — Made from fiber reinforced foamed urethane

JIS E 1203: 2007

Introduction Although the synthetic sleepers have been recently in increasing demand for the railway business entities because they have good physical properties such as no decay and deterioration which the past performance of laying for about 25 years has shown, they have been previously manufactured based on the functional specification of each business entity. For this reason, this Japanese Industrial Standard was established in order to facilitate improved quality by standardizing the performance etc. of the product.

- 1 Scope This Standard specifies the synthetic sleepers for the permanent way which are moulded into the sleeper shape using the material composed of continuous glass fibre and rigid polyurethane foam.
- 2 Normative references The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

```
JIS B 7502 Micrometer callipers

JIS B 7507 Vernier, dial and digital callipers

JIS B 7512 Steel tape measures

JIS B 7516 Metal rules

JIS B 7753 Light-exposure and light-and-water-exposure apparatus (Open-flame sunshine carbon-arc type)

JIS B 7754 Light-exposure and light-and-water-exposure apparatus (xenon-arc lamp type)

JIS E 1001 Railway—Permanent way vocabulary

JIS E 1108 Rail spikes

JIS E 1109 Screw spikes

JIS K 6911 Testing methods for thermosetting plastics

JIS Z 8703 Standard atmospheric conditions for testing
```