

---

---

**Railway applications — Polymeric  
composite sleepers, bearers and  
transoms —**

**Part 3:  
General requirements**

*Applications ferroviaires — Traverses et supports en matériaux  
composites à matrice polymère —*

*Partie 3: Exigences générales*





**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

	Page
Foreword.....	v
Introduction.....	vi
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 Symbols.....</b>	<b>4</b>
<b>5 General characteristics.....</b>	<b>6</b>
5.1 General.....	6
5.2 Geometrical design, mass and tolerances.....	6
5.3 Surface finish.....	11
5.4 Loading.....	11
5.4.1 Loads.....	11
5.4.2 Load distribution.....	11
5.5 Characteristic bending moments.....	11
5.6 Ecodesign.....	11
<b>6 Quality control.....</b>	<b>12</b>
6.1 General.....	12
6.2 Quality control during design approval tests.....	12
6.3 Quality control during manufacturing.....	13
<b>7 Documentation.....</b>	<b>13</b>
7.1 General.....	13
7.2 Data to be supplied by the purchaser.....	13
7.3 Data to be provided by the supplier.....	14
7.3.1 Before the design approval tests.....	14
7.3.2 After the design approval tests.....	14
7.3.3 Prior to start-up of production.....	14
7.4 Marking.....	15
<b>8 Product testing.....</b>	<b>15</b>
8.1 General.....	15
8.2 Tests on product.....	15
8.2.1 General.....	15
8.2.2 Bending resistance.....	17
8.2.3 Thermal expansion.....	22
8.2.4 Permanent deformation of screw/insert in function of temperature.....	22
8.2.5 Fastening system.....	22
8.2.6 Electrical resistance.....	22
8.2.7 Screw, spike, cast-in and glued-in fastening components.....	23
8.2.8 Fire.....	23
8.2.9 System test.....	23
8.3 Tests on material characteristics.....	23
8.3.1 Chemical compatibility.....	23
8.3.2 Environmental resistance.....	23
8.3.3 Environmental compatibility.....	24
8.3.4 Mechanical properties.....	24
8.4 Additional tests for consideration (optional).....	24
8.4.1 Damaging of the sleeper surface by ballast.....	24
8.4.2 Test in track.....	24
8.4.3 Lateral resistance.....	24
<b>Annex A (informative) Definition and recommendation for measurement of rail seat inclination and twist between rail seats.....</b>	<b>25</b>