AS 1085.1—1990

Australian Standard®

Railway permanent way material

Part 1: Steel rails

STANDARDS AUSTRALIA

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This Australian Standard was prepared by Committee CE/2, Railway Permanent Way Materials. It was approved on behalf of the Council of Standards Australia on 23 July 1990 and published on 12 November 1990.

The following interests are represented on Committee CE/2:

Bureau of Steel Manufacturers of Australia

Railways of Australia Committee

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Railway permanent way material

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Steel rails 31pp GG
Specifies requirements for rolled steel rails and profiles for asymmetric switch rails and elevated guardrails for railway purposes.
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PREFACE

This Standard was prepared by the Standards Australia Committee on Railway Permanent Way Materials to supersede AS 1085.1—1981.

The principal changes in this edition are the deletion of requirements for 47 kg and 53 kg rails and the replacement of Appendix G on rounding of numbers by a reference to AS 2706, *Numerical values—Rounding and interpretation of limiting values*. This edition also incorporates a new Appendix E on Eddy Current Test.

CONTENTS

STANDARDS AUSTRALIA

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1 SCOPE The Standard specifies requirements for rolled steel rails for railway purposes.

NOTE: Guidelines to purchasers are given in Appendix H.

2 REFERENCED DOCUMENTS The documents below are referred to in this Standard.

AS
1050 Methods for the analysis of iron and steel

1100 Technical drawing
1100.201 Part 201: Mechanical drawing

1199 Sampling procedures and tables for inspection by attributes

1213 Iron and steel—Methods of sampling

1290 General requirements for linear measuring instruments for use in construction

1391 Methods for tensile testing of metals

1399 Guide to AS 1199—Sampling procedures anad tables for inspection by attributes

1929 Non-destructive testing—Glossary of terms

2083 Calibration blocks and their methods of use in ultrasonic testing

2706 Numerical values—Rounding and interpretation of limiting values

3900 Quality systems—Guide to selection and use

3904 Quality systems—Guide to quality management and quality system elements

K1 Methods for the sampling and analysis of iron and steel

ISO Guide 44 General rules for ISO and IEC international third-party certification schemes for products

3 DESIGNATION The nominal rail size shall be designated by the nominal mass, in kilograms, of a 1 m length of rail.

The nominal rail sizes are 31, 41, 50 and 60 kg and they shall be referred to as 31 kg rail, 41 kg rail, 50 kg rail and 60 kg rail, respectively.

4 CHEMICAL COMPOSITION

4.1 General The method of sampling for chemical analysis shall be in accordance with AS 1213. Chemical composition shall be determined by any procedures which are not less accurate than AS 1050 or AS K1.

4.2 Cast analysis A chemical analysis of the steel from each ladle shall be made to determine the proportion of the specified elements. Where it is impracticable to obtain samples from the liquid steel, analysis of test samples from solid metal taken in accordance with AS 1213 may be reported as cast analysis.

4.3 Composition The cast analysis of the steel (see Clause 4.2) shall conform to the limits given in Table 1 for the appropriate size of the rail.

5 TREATMENT FOR HYDROGEN REMOVAL All 50 kg and 60 kg rails shall be produced in such a manner as to limit the amount of hydrogen present by the time the hot-rolled rails are cooled.

NOTE: Methods that may be employed to remove hydrogen include—

(a) diffusion treatment of hot-rolled rails;

NOTE: A suitable method is described in Appendix G.

(b) diffusion treatment of blooms; and

(c) vacuum degassing of the molten steel.