



Metallic Materials Properties Development and Standardization (MMPDS)

MMPDS-14

CHAPTER 9 GUIDELINES

Scientific Source:

Metallic Materials design data acceptable to Government
procuring or certification agencies.

***A joint effort of government, industrial,
educational, and international aerospace
organizations.***

MMPDS-14

Copyright 2019 Battelle Memorial Institute. All rights reserved. Unauthorized
duplication or distribution may violate the Copyright Laws of the United States and of
other jurisdictions.

Except as expressly provided below, the copyrighted work contained herein may not be copied, modified, adapted, translated, included in derivative works or transferred to a third party. The information may be subject to export control laws and regulations of the United States. The user represents and warrants that the information will not be exported, transferred, sublicensed, copied, shared, disclosed, or used in any way except in compliance with all applicable export control laws and regulations of the United States.

The owner of this copy of the Handbook is hereby granted a limited license to make copies of no more than 10 individual pages of the Handbook (but specifically not including multiple sections or volumes) from this copy at a time for the sole purpose of attaching as reference and supporting information to a document authored by the owner.

The user of this Handbook assumes the responsibility for the selection of material properties from it to meet their requirements. The information contained herein is provided as-is without warranty. There are no warranties of any kind, either express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

MMPDS-14 CHAPTER 9

.....	9-139
9.5.8 INDIRECT COMPUTATION USING REGRESSION	9-142
9.5.9 HANDLING OF DERIVED PROPERTY TEST RESULTS BELOW ESTIMATED DESIGN ALLOWABLE	9-143
9.5.10 INDIRECT COMPUTATION OF EDGEWISE BEARING REDUCTIONS	9-145
9.6 ANALYSIS PROCEDURES FOR DYNAMIC AND TIME DEPENDENT PROPERTIES	9-147
9.6.1 LOAD AND STRAIN CONTROL FATIGUE DATA.	9-147
9.6.2 FATIGUE CRACK GROWTH DATA	9-173
9.6.3 FRACTURE TOUGHNESS DATA.	9-175
9.6.4 CREEP AND CREEP-RUPTURE DATA	9-183
9.7 ANALYSIS PROCEDURES FOR STRUCTURAL JOINT PROPERTIES.	9-189
9.7.1 MECHANICALLY FASTENED JOINTS	9-189
9.7.2 FUSION-WELDED JOINT DATA	9-219
9.8 EXAMPLES OF DATA ANALYSIS AND DATA PRESENTATION FOR STATIC PROPERTIES ..	9-223
9.8.1 DIRECT ANALYSES OF MECHANICAL PROPERTIES	9-223
9.8.2 INDIRECT ANALYSES OF MECHANICAL PROPERTIES	9-239
9.8.3 TABULAR DATA PRESENTATION.	9-243
9.8.4 ROOM TEMPERATURE GRAPHICAL MECHANICAL PROPERTY DATA	9-250
9.8.5 ELEVATED TEMPERATURE GRAPHICAL MECHANICAL PROPERTIES	9-275
9.9 EXAMPLES OF DATA FOR DYNAMIC AND TIME DEPENDANT PROPERTIES	9-295
9.9.1 FATIGUE	9-295
9.9.2 FATIGUE CRACK GROWTH.	9-312
9.9.3 FRACTURE TOUGHNESS.	9-318
9.9.4 CREEP AND CREEP RUPTURE	9-319
9.9.5 MECHANICALLY FASTENED JOINTS	9-327
9.9.6 FUSION-WELDED JOINTS	9-369
9.10 STATISTICAL TABLES.	9-373
REFERENCES - Chapter 9.	9-397
APPENDICES	A-1
APPENDIX A.	A-1
A.0 GLOSSARY	A-1
A.1 ABBREVIATIONS.	A-1
A.2 SYMBOLS	A-6
A.3 DEFINITIONS	A-6
A.4 Conversion of U.S. Units of Measure Used in MMPDS to SI Units	A-17
APPENDIX B	B-1
B.0 Alloy Index	B-1
APPENDIX C	C-1
C.0 Specification Index	C-1
C.1 Cross Reference of Canceled MIL Specifications	C-14

MMPDS-14 CHAPTER 9

APPENDIX D	D-1
D.0 Testing Standards	D-1
APPENDIX E	E-1
E.0 Subject Index	E-1

.