



FAILURE INVESTIGATION OF BOILER TUBES: A COMPREHENSIVE APPROACH

BY PARESH HARIBHAKTI, P.B. JOSHI,
AND RAJENDRA KUMAR

Scheduled Release: August 31, 2018

Product Code: 05243G | ISBN: 978-1-62708-156-6

Hardcover | Estimated Pages: 500

Non-Member: ~~\$220~~ **\$199**

ASM Member: ~~\$165~~ **\$149**

Prepublication prices good
through August 31, 2018

TABLE OF CONTENTS

PREFACE

ABOUT THE AUTHORS

CHAPTER 1

Introduction to Boiler Technology

CHAPTER 2

An Overview of the Functioning
of a Thermal Power Plant

CHAPTER 3

Metallurgy of Steels and Related
Boiler Tube Materials

CHAPTER 4

Materials for Boiler Tubes

CHAPTER 5

Tools and Techniques for Material
Characterization of Boiler Tubes

CHAPTER 6

Damage Mechanisms with Case Studies

CHAPTER 7

Role of Water Chemistry in
Boiler Tube Failure

CHAPTER 8

Remaining Life Assessment of Boiler Tubes

INDEX

Failures or forced shutdowns in power plants are often due to boilers, and particularly failure of boiler tubes. This comprehensive resource deals with the subject of failure investigation of boiler tubes from basic fundamentals to practical applications.

Coverage includes properties and selection of materials for boiler tubes, damage mechanisms responsible for failure of boiler tubes, and characterization techniques employed for investigating failures of boiler tubes in thermal power plants and utility boilers of industrial/commercial/institutional (ICI) boilers. A large number of case studies based on the actual failures from the field are described, along with photographs and microstructures to allow for easy comprehension of the theory behind the failures.

This book is geared to practicing engineers and for studies in the major area of power plant engineering. For non-metallurgists, a chapter has been devoted to the basics of material science, metallurgy of steels, heat treatment, and structure-property correlation. A chapter on materials for boiler tubes covers composition and application of different grades of steels and high temperature alloys currently in use and future materials to be used in supercritical, ultra-supercritical, and advanced ultra-supercritical thermal power plants. A comprehensive discussion on different mechanisms of boiler tube failure is the heart of the book. Additional chapters detailing the role of advanced material characterization techniques in failure investigation and the role of water chemistry in tube failures are key contributions to the book.

The authors have long-standing experience in the field of metallurgy and materials technology, failure investigation, remaining life assessment (RLA), and fitness for service (FFS) for industrial plants and equipment. They have conducted a large number of failure investigations of boiler tubes and have recommended effective remedial measures in problem solving for power and utility boilers.



ORDER YOUR COPY TODAY AT

www.asminternational.org/05243G

or call the ASM International Service Center at 800.336.5152.