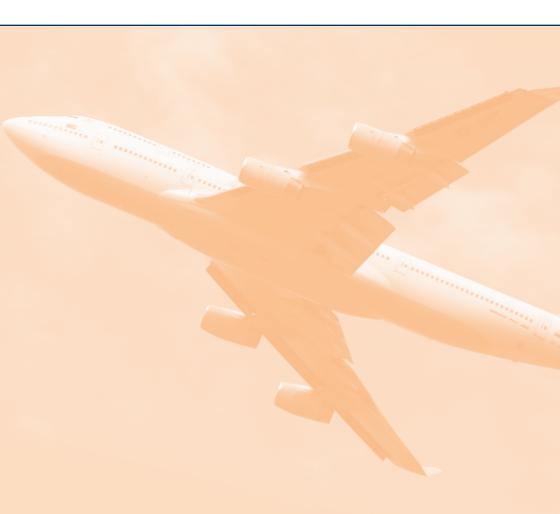




# Jet fuel thermal oxidation tube rating training guidelines (IP 323)



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### **FOREWORD**

This publication was prepared by a task force on behalf of the Energy Institute's TMS SC-B-8 Stability of Light Distillates Panel. It is intended for anyone that follows IP 323 *Determination of thermal oxidation stability of gas turbine fuels* in laboratories worldwide.

During an EI technical workshop to review IP 323 tube rating it was evident that many analysts rarely saw IP 323 tube failures. It was also identified that ratings for marginal pass/fail tubes were highly variable. This publication has been prepared to assist in the training of analysts on various IP 323 tube deposits and their ratings. It is intended only as a training reference guide, not for use as part of any IP 323 tube analysis.

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Suggested revisions are invited and should be submitted to:

Technical Department Energy Institute 61 New Cavendish Street London W1G 7AR

e: technical@energyinst.org

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This publication was prepared by:

Kevin Bower Air BP Ltd

Richard Heins Shell Global Solutions

Harry Read Consultant to BP International Ltd

Garry Rickard Intertek

Further contributions were provided by members of the EI TMS SC-B-8 Stability of Light Distillates Panel.

The EI wishes to record its appreciation of the work carried out by them and to BP International Ltd for providing the photographs in this publication.

## 1 INTRODUCTION, SCOPE AND APPLICATION

#### 1.1 INTRODUCTION

The final result from undertaking IP 323 Determination of thermal oxidation stability of gas turbine fuels is a tube colour rating based on an arbitrary scale established by ASTM for this test method. There are also two additional yes/no criteria to indicate the presence of an apparent large excess of deposit or an unusual deposit or both.

This final tube rating is assumed to be an estimate of the condition of the degraded fuel deposit on the tube. This rating provides one basis for judging the thermal oxidative stability of the fuel sample.

When determining the visual rating of used IP 323 tubes it is critical that the visual rating procedure is carried out exactly as stipulated in IP 323.

#### 1.2 SCOPE

This publication provides guidance on visual rating of used IP 323 tubes for the training of IP 323 users.

This publication does not provide reference standards for use in rating of used IP 323 tubes.

#### 1.3 APPLICATION

Due to limitations of photographic and printing technology, the tube photographs in this publication are not exact matches of what is observed in the tube rater described in IP 323 and **must not be used for rating IP 323 tubes**. The photographs are intended to be used for training purposes to show the type of deposits and ratings likely to be seen when using this test method.