

April 04

Creep Data Assessment *Procedures* and *Methodologies* for  
Industry and Research Engineers

**Two-Day Training Course and Workshop**

**Innovative Approaches to *Creep*  
*Data Assessment* for Industrial  
Structures**

**Date: 21 - 22 October 2004**

**Venue: IOM3\*, Central London, UK**

**Sponsor**

Organised as a Part of the European Commission's  
Thematic Network '*Advanced Creep*'



Organisation and Secretariat at:  
**European Technology Development, UK**

\* Venue Details: IOM3 (Institute of Materials, Minerals and Mining) –  
[www.iom3.com](http://www.iom3.com)

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## **EUROPEAN CREEP COLLABORATIVE COMMITTEE**

The European Creep Collaborative Committee (ECCC) is the leading voice of European creep experts from industry and research, and since 1991 has been engaged in co-ordinating Europe-wide creep data generation, collation and assessment activities and developing accompanying guidelines and procedures. Principal aims of ECCC are to pool national creep data resources, to provide agreed creep-rupture strength values for European Product and Design Standards, and to ensure that new creep data meets the high standards required by modern industry needs. ECCC is an industry led grouping at present comprising 44 organisations from 16 countries of Europe. The interests of alloy producers, plant manufacturers and end users are represented within the ECCC grouping.

During the period 1992-1996, ECCC concentrated its efforts on creep-rupture properties of non-welded materials through European Commission (EC) funding support. Focus switched to the consideration of properties for welded materials between 1997 and 2001. Work undertaken in these projects resulted in the development and publication of (i) extensive ECCC guidelines on data generation, exchange and assessment methods and (ii) approved Data Sheets on a scale that had not been possible before. Current ECCC activity is focused on the EC and European industry funded project ADVANCED-CREEP which is looking at material properties such as creep ductility, creep strain, multi-axiality, component testing and modelling etc. Further information on ECCC and the project 'Advanced Creep' can be seen at: [www.etd1.co.uk/eccc/advancedcreep](http://www.etd1.co.uk/eccc/advancedcreep)

## **INTRODUCTION TO THE TRAINING WORKSHOP**

ECCC's early activity resulted in the development of agreed European Procedures for creep-rupture data generation, data collation/ exchange and data assessment. In particular, a range of established and state-of-the-art assessment methods were evaluated and compared, including the German graphical method, the ISO procedure, DESA and PD6605. The outcome was new guidelines for the assessment of creep-rupture datasets involving new and original concepts relating to pre-assessment and post assessment. For example, the ECCC post assessment tests (PATs) provide an independent check on the credibility of strength values determined by any creep-rupture data assessment procedure.

Having developed guidelines for the determination and assessment of creep-rupture strength for base metals and weldments, the time is right for the European and wider international community to benefit from the newly established procedures, hence this course / workshop to train engineers/ scientists not directly involved in the use of the new ECCC concepts and procedures. The course will provide delegates with the knowledge to ensure that the creep-rupture data produced by their organisation is of the highest quality and accuracy. The course will also provide guidance on how to derive reliable long term material strength values from this data. These will provide basis for the design and life assessment of high temperature components conforming to the highest standards.

## COURSE PRESENTERS

The course presenters will be experts involved in the development of the ECCC data generation and analysis procedures. These are experts of international repute drawn from a number of European country high temperature industry and research institutes.

## WHO SHOULD ATTEND

- The Training Workshop will be particularly useful for new engineers who want to become familiar with state-of-the-art data generation and analysis practices and to improve the quality of their skills in these disciplines.
- Those involved in creep testing and the management of creep laboratories in industry or research organisations, who want to become aware of the new procedures and underlying principles.
- Those involved in assessment of the creep-rupture strength of industrial alloys.
- Design engineers who want to become aware of the origin of datasheet creep strength values.
- The course will be particularly useful for those involved in the growing business of high temperature plant life assessment and extension.

## BENEFITS

**Full notes** will be provided for use during the course and to ensure easy revision of the course at any future time. Certificates will be awarded for attendance.

**Hands-on experience** of data assessment is included in the workshop sessions. Emphasis will be placed on understanding not only the underlying principles but also their practical application to high temperature plant design and life assessment. *Participants will need to bring their own lap top computers / notebooks for this work. A few lap tops may be made available to those experiencing difficulty in bringing their own machines. This, however, can only be done by prior arrangement by contacting Dr David Robertson at ETD: [drobotson@etd1.co.uk](mailto:drobotson@etd1.co.uk) Tel: + 44 (0) 1372 229 162.*

## FINANCIAL SUPPORT

Limited support may be available to trainees from the Central and East European countries (EC Candidate Countries). For information please contact:  
Dr I A Shibli [ashibli@etd1.co.uk](mailto:ashibli@etd1.co.uk) Tel: + 44 (0) 1372 802 555

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**Day - 1** (21<sup>st</sup> October 2004)



**REGISTRATION:** (0830 – 0930 hrs)

**Morning** (0930 – 1230 hrs – *with break*)

**Module 1: Introduction to Rupture and Creep Data Generation**

- Introduction to workshop, objectives and structure
- Creep-rupture mechanism overview
- Creep / rupture testing overview and ECCC recommendations  
(includes the significance of temperature, load and strain measurement accuracies; specimen design, axially, test machines and loading, required accuracies etc.)

**1230 – 1400 hrs – LUNCH BREAK**

**Afternoon** (1400 – 1700 hrs - *with break*)

**Module 2: Creep / Rupture Data Assessment** (*with Worked Example*)

(Focus in this module will be on the determination of rupture strength and creep strength but reference will also be made to creep strain, stress relaxation etc.)

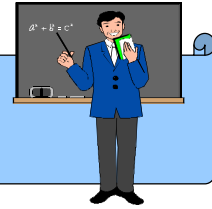
- Data assessment objectives
- Associated data requirements
- Data assessment methods
  - Overview of model equations, their physical significance and what do they represent in practice.
  - Overview of assessment methods (ISO, German-Graphical, PD6605, DESA).
  - Importance of pre-assessment.
- Post Assessment Tests (PATs), overview.
- **Worked Example 1:** Simple datasets showing sigmoidal behaviour. One objective is to demonstrate susceptibility of determined 100kh strength values to subjectivity without user experience of alloy characteristics.



**Interactive Buffet Dinner** (1800 – 2100 hrs)



**Day - 2** (22<sup>nd</sup> October 2004)



**Morning** (0900 – 1200 hrs – *with break*)

**Module 3: Procedures for Stress Rupture Data Assessment** (*with Worked Example*)

- Review of previous day, questions, clarifications etc.
- Associated data requirements, pre-assessment (material pedigree, testing practice requirements).
- Demonstration of automated procedures, PD6605 and/or DESA.
- **Worked Example 2:** PD6605 and/or DESA assessments of dataset of previous day.

**1200 – 1300 hrs – LUNCH BREAK**

**Afternoon** (1300 – 1500 hrs)

**Module 4: ECCC PAT Test Procedures for Post Analysis Data Qualification**  
(*with Worked Example*)

- Post assessment tests – 1: Background, overview, description.
- Post assessment tests – 2: Demonstration of automated PATs with a worked example.
- Workshop Review.



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# REGISTRATION FORM

ECCC Training Course - CREEP / RUPTURE  
DATA 21-22 October 2004, London

*Please copy and post/ fax/ e-mail completed Form to the address shown at the bottom.*

## REGISTRATION FEE

*For the events held in the UK, overseas delegates also need to pay UK applicable 'value added tax' (VAT) @ 17.5%. All figures shown below are in Euros.*

Until 31 <sup>st</sup> July 2004			From 1 <sup>st</sup> August 2004		
Fee	Payable (Fee + VAT)	**	Fee	Payable (Fee + VAT)	**
€600	<b>€705</b>		€700	<b>€822.50</b>	

\*\* Please put x in appropriate box.

Registration Fee covers the Workshop Notes, coffee, lunches and Interactive Buffet Dinner on Day 1.

## PAYMENT

**For payment in Euros:** Registration Fee is to be paid into the following UK Euro bank account: Account Name: European Technology Development, Bank: Nat West Bank, A/C No: 01/08061181, Sort Code: 60-12-36.

**For payment in pound sterling:** For the UK registrants payment amount equivalent (at the time of payment) to the Euro Registration Fee quoted above should be paid into the following: A/C Name: European Technology Development, Bank: Nat West Bank, A/C No: 26096625, Sort Code: 60-12-36.

With your payment please quote reference 'ECCC Workshop' & name of the delegate.  
(Please state below 'how and when was the Fee paid or will be paid') .....

**Credit Card Payment:** Payment can be made using Visa, Mastercard, Switch, JCB etc. (except American Express and Diners Club). For security reasons please provide only by fax or post the following information:

Name of account holder:  
Credit card number: Card expiry date:  
(All payments by credit card will be in equivalent pound sterling).

## ACCOMMODATION

Information on accommodation in the vicinity of the Workshop venue will be provided on registration.

## INFORMATION REQUIRED FOR YOUR BADGE

Delegate Name and Title:  
Company: Position:  
Address:  
Phone: Fax: E-mail:



Registration Section, ETD, 2 Warwick Gardens, Ashtead, Surrey KT21 2HR, UK  
Tel: + 44 (0) 1372 229 162 or + 44 (0) 1372 802 555  
Fax: + 44 (0)1372 229 164 E-mail: [registration@etd1.co.uk](mailto:registration@etd1.co.uk)

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