



Introduction

ECCC¹ has successfully led European collaborative assessment of high temperature materials for standardisation, pressure equipment design, and component safety and integrity since 1992. The ECCC was founded as an EU project, but is now independently governed by European industry, and will shortly begin a new 3-year project phase, “JIP 3”.

ECCC’s “core business” in creep data generation and assessment continues to thrive. Activities are also broadening to meet the changing needs of the energy and high temperature process plant industries as outlined below.

Technical Highlights

In the current “JIP 2” programme (2015 -2017), ECCC has:

- Updated and reanalysed its unique database on key high temperature steel Grade 91, and derived slightly reduced creep rupture strength values, to be published as a Data Sheet
- Updated and reanalysed its creep database on Grade 92 steel, broadly confirming established creep rupture strength values, with ECCC microstructural studies also showing good long term stability
- Developed bespoke “ePAT” software which automates the well-known “Post Assessment Tests” developed by ECCC to evaluate the validity of an individual creep rupture strength assessment. The ePAT software is available to all active ECCC members, and can be used by an individual member for both collaborative and company internal applications.
- Commenced work on material properties required in assessment of flexible plant operation, including creep ductility (in particular Grade 92), creep relaxation, and the modelling and analysis of creep-fatigue interactions during cyclic loading.
- Developed models for nuclear application and EN standardisation to determine temperature limits below which negligible creep can validly be taken to occur
- Broadened its test programmes to include new blading material, welded joints including the effects of multiple heat treatments, advanced materials for steam pipework and tubing, and non-fossil energy applications
- Held a major International Conference in Dusseldorf with 165 attendees, covering ECCC and external R&D on high temperature applications to gas, coal, and biomass – fired power plant, nuclear energy, petrochemical and process plant, and solar thermal energy
- Set up online electronic access for current members to the full range² of indexed ECCC documentation from 1992 onwards

¹ European Creep Collaborative Committee. See the Joint Industrial Program proposal for ECCC at http://eccc.c-s-m.it/layout_html_standard/en/eccc_european_creep_collaborative_committee/eccc_joint_industrial_projects.html

² Subject to the agreed access restrictions with respect to confidential data sets

- Renewed technical interchange with the Japanese Society for Materials Science, commenced collaboration with the ASME Boiler and Pressure Vessel Code Committee, and explored links with technical organisations e.g. in Russia, China, and Korea.

JIP 3 Project Plan – The ECCC Commission

In 2016, the ECCC set up a one-year Commission to review its structure, management, concerns and aspirations, and to make recommendations. The Commission analysed the options, put forward a range of proposals, and invited all ECCC members to give comparative ratings. Lead priorities were then identified together with the Management Committee. It was identified that ECCC should become more proactive in delivering what its members need, alongside its established capabilities and expertise in long term testing and data assessment.

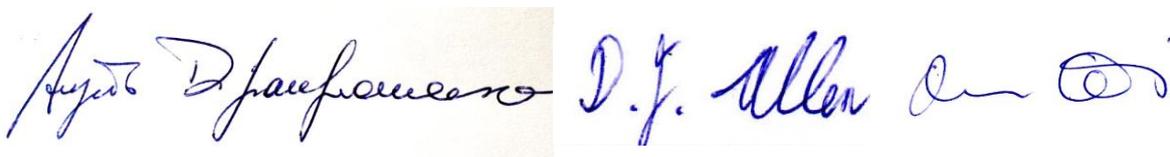
The following new collaborative project initiatives will thence be taken forward in JIP3:

- A "Project CEN" initiative will be pursued to strengthen ECCC's links with CEN, to ensure that the best available design values are put forward, and to promote dialogue with the longer term aims of improving EN Standards and linked design rule developments.
- ECCC Data Sheets provide a comprehensive, publicly available reference source on high temperature creep and rupture strength properties. An improvement programme will be launched to clarify the level of reliability of each individual Data Sheet and upgrade older Data Sheets where appropriate. To meet design, operation and standardisation needs more effectively, ECCC will also seek to generate and provide more comprehensive Data Sheets including creep ductility, creep strain and time-to-strain data where appropriate.
- ECCC development of worldwide links, in particular with the US and Japan, will be taken forward to pursue the long term aim of improving global coordination in high temperature materials engineering. ECCC's extensive databases and expertise in data assessment represent real European assets and technical strengths which can and do provide leverage in undertaking wider global collaborative development.

In parallel, ECCC's range of collaborative activities will include new testing programmes, ongoing creep data collation and assessment exercises on materials of industrial interest, and modelling and analytical developments to meet the needs of industrial members, including small-scale testing, extended extrapolation, and damage in flexible operation.

ECCC Membership

The ECCC JIP will continue under the aegis of its Secretariat at Rina Consulting – Centro Sviluppo Materiali Spa (CSM), Rome, and the annual membership fee of 2500 euro per organisation will again be unchanged. ECCC organises two 3-day meetings each year, to which all members are invited. Specialist topics are covered in sequential sessions, and so delegates with specific interests may find that single-day attendance is sufficient to pursue those interests. National Creep Groups, affiliated to ECCC, also enable a wider range of companies to get effectively involved. To enquire about ECCC membership, please contact the Secretary, Arianna Gotti, at CSM, email: arianna.gotti@rina.org.



The image shows two handwritten signatures in blue ink. The first signature is 'Arianna Gotti' and the second is 'D.J. Allen'. The signatures are written in a cursive style.

Augusto Di Gianfrancesco
ECCC Chairman

David Allen
ECCC Commissioner

Arianna Gotti
ECCC Secretariat