

European Commission
5th framework RTD project

ECOPRESS
**Economical and safe application of
modern steels for pressure vessels**
Research Seminar



Dished end fabricated from P420 ML for ECOPRESS project
Pařity, levýstřž nřo. 41682-023 (15mm)

19th and 20th of May 2003
Aachen, Germany

plus EPERC TTF2 meeting
on the 20th of May after the seminar

Scope:

The ECOPRESS-project was launched within the framework of the GROWTH program sponsored by DG Research of the European Commission. It was started as an EPERC¹-initiative based on a pre-study HSD sponsored by DG Enterprise on the use of modern steel for pressure vessels (PV). The aim was to reduce existing conservatism in PV-design with modern steels which usually results from a lack of experience and conservative regulations. PV-manufacturers, -designers, -consultants, steel manufacturers and end-users together with research centres and universities of international renown were included in the project consortium to cover the life chain of a vessel. There were three types of steel studied in the project:

1. High strength steels, quenched and tempered with yield strength from 500 MPa up to 690 MPa.
2. TMCP steels with superior toughness and strength and ductility properties and good cold formability and weldability with yield strength up to and above 420 MPa.
3. DUPLEX stainless steel of basic type.

This European research work, gathering 17 project partners, dealt with intensive experimental work, Finite Element Modelling and component-like tests for the modelling of limit conditions of brittle and ductile fractures and plastic instability. The results have been used to provide practical recommendations for the economical and safe use of the steels mentioned above.

By means of this seminar both the consortium and EPERC express the wish of fast dissemination of actual research results into the PV-community for discussion, utilisation in building PV and standardisation. Therefore all interested engineers and scientists are invited to enter into this discussion about the economical and safe application of modern steels for pressure vessel, to attend the EPERC TTF2 meeting next to the seminar and finally to visit Aachen, the old town of Charlemagne in the heart of Europe.

Dr. Peter Langenberg, IWT, scientific co-ordinator
Prof. Dr. Wolfgang Bleck, RWTH Aachen, administrative co-ordinator
Aachen, 10th of January, 2003

¹ European Pressure Equipment Research Council

The seminar is kindly sponsored by:

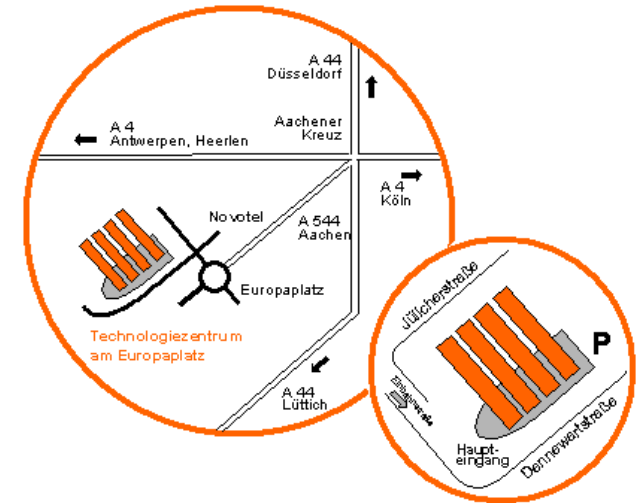


Who should attend?

- Design engineers
- Fabricators
- End-users
- Welding engineers
- Third party and notified bodies
- Steel manufacturers
- Welding consumables manufacturers
- Research centres and universities

Venue:

AGIT Technology Centre
Dennewartstr. 25, D- 52068 Aachen
<http://www.ecopress.org/seminar/venue>



Accommodation:

<http://www.ecopress.org/seminar/accommodation>

Responsible:

Dr. Peter Langenberg, IWT Aachen
Dennewartstr. 25, D- 52068 Aachen
Tel: ++49 (0) 241 963 2320
Fax: ++49 (0) 241 963 2329
Mail: peter.langenberg@i-w-t.de

First day:

Monday, 19th of May, 2003

Welcome to the ECOPRESS seminar 12.45 – 13.00
Prof. Dr. W. Bleck, Vice-Rector of the RWTH Aachen

1.1 ECOPRESS: introduction, background and purpose 13.00 – 13.30

P. Langenberg, co-ordinator ECOPRESS, designated convener of CENTC54 JWG B, IWT Aachen, Germany

1.2 Modern high strength QT, TM- and Duplex stainless steels 13.30 – 14.00

P. Bocquet, Industeel, France;
G. Luxenburger, AG der Dillinger Huettenerwerke, Germany;
D. Porter, Rautaruukki, Finland;
C. Ericsson, Avesta Polarit, Sweden

1.3 Survey of critical issues for the European Standard for unfired pressure vessels 14.00 – 14.30

G. Baylac, Consultant for Pressure Equipment, convener of CEN/TC 54 /TG DBA, France

Coffee-Break 14.30 – 15.00

Technical Session 1
“Materials”

2.1 Performance of HSS with respect to mechanical properties 15.00 – 15.30

J. Buchholz, RWTH Aachen, Germany;
R. Lezczano Ruiz, ITMA, Spain;
J. Schiedermaier, MPA Stuttgart, Germany

2.2 Performance of DUPLEX-stainless steels with respect to mechanical properties 15.30 – 16.00

C. Ericsson, Avesta Polarit, Sweden;
O. Lagerqvist, LTU Lulea, Sweden;
R. Sandström, KTH Stockholm, Sweden

2.3 Performance of TMCP-steels with respect to mechanical properties 16.30 – 17.00

K. Rahka, VTT, Finland;
D. Porter, Rautaruukki, Finland

2.4 Welding of High Strength Steels 17.00 – 17.30

S. Starck, C. Bonnet, Air Liquide, France

2.5 Fracture toughness estimations from Charpy tests 17.30 – 18.00

K. Wallin, VTT, Finland

End of first day

Conference Dinner 20.00 h

Second day:

Tuesday, 20th of May, 2003

Technical Session 2
“Limit State Design and FEA”

3.1 The new brittle fracture concept for EN13445, part 2, Annex B 9.00 – 9.30

P. Langenberg, IWT Aachen, Germany;
R. Sandström, KTH Stockholm, Sweden;
J. Buchholz, RWTH Aachen, Germany;
M. A. Guerrero, ITMA, Spain

3.2 Application of ductile fracture assessment methods for the assessment of pressure vessels from HSS 9.30 – 10.00

J. Schiedermaier, U. Eisele, MPA Stuttgart, Germany

3.3 FEA of an example vessel demonstrating the performance of the different steels 10.00 – 10.30

Th. Kermanidis, A. Diamantoudis, University of Patras, Greece

3.4 Ductile instability – is it a problem? Critical remarks on the use of FEA for PV-design 10.30 – 11.00

M. Veljkovic, O. Lagerqvist, J. Gozzi, LTU Lulea, Sweden;
K. Rahka, VTT, Finland

Coffee-Break 11.00 – 11.30

4.1 Application of the results of the ECOPRESS project from an end-user point of view 11.30 – 12.00

S. Winnik, Exxon Mobil Chemicals, UK

4.2 EPERC – The European research organisation for pressure vessel research and its contribution to standardization 12.00 – 12.30

G. Baylac, Consultant, France

4.3 Discussion of future directions for research with respect to application of modern steels for pressure vessels 12.30 – 13.00

P. Langenberg, moderation

End of Seminar

Lunch-Break 13.00 - 14.00

EPERC TT2 meeting 14.00 – 17.30

(open for all participants of the ECOPRESS-seminar)

Conference proceedings including prints of all presentations will be available at the registration desk.

Registration:

<http://www.ecopress.org/seminar> or with registration form attached

REGISTRATION FEE (incl. 16% VAT):		Charge:
1.	EPERC member (EPERC membership is free)	€150,-
2.	other Participant	€250,-
3.	ECOPRESS member - first person free - additional person	free €50,-
4.	Students	€50,-
Note: cancelling of registration with fee refund possible only before 15.04.2003 (administrative cost: 25 €)		
Fee includes:		- print of lectures - coffee + soft drinks during seminar breaks - light lunch at the end of the seminar (2 nd day) - conference dinner on 19 th of May

Payment:

WAYS OF PAYMENT:		
1. bank account transfer 2. cash, at the registration desk on 19.05.2003 Note: credit cards cannot be accepted.		
Bank transfer:		
Account:	No.:	70094
	Bank:	Sparkasse Aachen, Germany
National Transfer:	BLZ:	390 500 00
Inter-national Transfer:	IBAN:	DE83 3905 0000 0000 0700 94
	BIC/SWIFT-Code:	AACSDE 33
Key words for bank transfer:		
1. ECOPRESS seminar 2. name of person participating		

Contact:

Mrs. Silke Schneider
mail: seminar@ecopress.org

Further Information:

<http://www.ecopress.org/seminar>