STUDIECENTRUM VOOR KERNENERGIE
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OPEN REPORT
SCK•CEN-BLG-1042 REV.(1)

Overview and Critical Assessment of the Tensile Properties of unirradiated and irradiated EUROFER97

EFDA Workprogramme TW5-TTMS-001
Deliverable 6

E. Lucon and W. Vandermeulen

Revision (1)

October, 2007

NMS
SCK•CEN
Boeretang 200
2400 Mol
Belgium

EFDA
EUROPEAN FUSION DEVELOPMENT AGREEMENT

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Verified by:	W. Vandermeulen		
Approved by:	L. Sannen		

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Abstract

Material research represents a crucial issue for the assessment of fusion as a future viable source of energy. Structural materials, in particular, need to show a superior mechanical and chemical behaviour to guarantee the safe operation of the reactor during its whole lifetime, while retaining low activation characteristics to minimise the environmental impact of the produced waste. In this context, specific efforts have been focused for the last twenty years in Europe, Japan and the US, on developing suitable Reduced Activation Ferritic Martensitic (RAFM) steels as candidate structural materials. EUROFER97 has recently emerged in Europe as the reference material for the DEMO design.

In the framework of the Long-Term Programme of EFDA (European Fusion Development Agreement), a coordinated effort has been launched aimed at providing a critical assessment of the mechanical and microstructural properties of EUROFER97 in the unirradiated and irradiated conditions, based on the results accumulated since the late 90's within numerous EFDA tasks.

SCK•CEN has been in charge of collecting and analyzing tensile data; to this objective, an extensive data base of tensile results for EUROFER97 and other relevant RAFM steels has been compiled. The results of our assessments are presented in this report, where tensile data are investigated in relation with various irradiation parameters, such as test temperature, accumulated dose and irradiation temperature. The effect of other parameters, such as irradiation environment and dose rate, has also been addressed.

Due to the scarcity of information available in the literature, only limited comparisons are presented with other RAFM steels, particularly in the irradiated condition.

Keywords

Fusion research, reduced activation ferritic/martensitic (RAFM) steels, tensile properties, irradiation parameters, EUROFER97.

TABLE OF CONTENTS

1 Introduction

Ferritic/Martensitic steels, with chromium contents ranging between 9% and 12%, were introduced into fusion material programmes about 30 years ago, when it became evident from research in fast reactor programmes that they possessed better swelling resistance and excellent thermal properties with respect to austenitic stainless steels [1]. Indeed, the choice of possible structural materials for the first wall or the blanket structure of the reactor was limited, since the operating conditions envisage both elevated temperatures (in the range 500-700 °C) and a flux of high-energy neutrons.

In the course of the 80's, attention was redirected towards so-called "low activation" structural materials, which during irradiation would either not activate or give rise to induced radioactivity rapidly decaying to allow safe operation or at least hands-on reactor maintenance [2,3]. However, truly low activation materials were not feasible and "reduced activation" material were proposed instead, whose chemical composition would carefully exclude all elements which could transmute by interaction with neutrons into long-life radioactive elements; low enough radioactivity levels should be achieved in about 100 years, as compared to several thousands for conventional structural steels [4].

Reduced Activation Ferritic/Martensitic (RAFM) steels are presently considered as primary structural materials for a demonstration fusion plant (DEMO). Although service conditions are not yet fully established in terms of temperatures, stresses or environment, simplified studies are available investigating different concepts [5]. As far as temperatures are concerned, designers push for elevated temperatures in order to increase efficiency; considering stresses in the order of 50 MPa, the upper operating temperature for RAFM steels would be similar to that of conventional power plants when creep is a limiting factor, that is approximately 550-600 °C. Depending on the type of coolant, oxidation or liquid-metal corrosion and/or embrittlement could require a reduction of the service temperature [6,7]. Predictably, irradiation effects are of highest concern amongst environmental conditions in a fusion reactor.

The European Fusion Long Term Programme is carried out under the coordination of EFDA (European Fusion Development Agreement) Close Support Unit located in Garching, Germany [8]. Within the area "Materials Development", first priority is given to timely supply a structural material for breeding blankets inserted in DEMO. As these have to be tested in ITER, this material has consequently to be fully qualified also to the needs of Test Blanket Modules (TBMs). The EU reference material is a 9Cr RAFM steel, called EUROFER97, which exhibits a tempered martensitic microstructure and presently allows operation up to 550 °C [9,10].

Since one of the main issues of RAFM steels is the effect of irradiation at temperatures lower than about 400 °C, EFDA has devoted considerable efforts and budget to the characterization of post-irradiation mechanical and microstructural properties of EUROFER97 within a task designated "*Irradiation Performance of EUROFER*" (TTMS-001), which involves numerous European research institutes. Within this task, EUROFER97 has been irradiated in test reactors up to a wide range of radiation damage: from 0.3 up to 70-80 dpa. The investigation of irradiation performance limits of EUROFER includes the irradiation of various product forms at different temperatures, and post-irradiation examinations (both mechanical tests and microstructural investigations).

In 2005, EFDA launched an activity aimed at the collection and critical assessment of the mechanical and microstructural property data of irradiated EUROFER97, based on the information gathered in the framework of TTMS-001 and from other data sources. The activity also included properties of the unirradiated material and comparisons with other RAFM steels, such as F82H, JLF-1, CLAM and others.

The task was split among four European laboratories, namely FZK (Charpy and fracture toughness), NRG (fatigue and creep), PSI (fracture toughness and microstructure) and SCK•CEN (tensile properties).

This report presents a critical assessment of the tensile property data of EUROFER97 in the unirradiated and irradiated conditions.

The information presented herein will be summarized and included in the final report of the task, along with the outcome of the investigations performed by FZK, NRG and PSI. The final report will be issued under the coordination of EFDA, and will hopefully include recommendations for the improvement of the post-irradiation mechanical and microstructural properties of the final version of EUROFER97.

2 Database of RAFM steels tensile properties

The first phase of this activity consisted in the collection of available tensile test results for EUROFER97 in the unirradiated and irradiated conditions. The main sources used were:

- reports issued within EFDA tasks (mainly TTMS-001, but also TTMS-002, TTMS-004 and TTMS-005);
- the "European Database for Reduced Activation Ferritic/Martensitic Steels" developed by F. Tavassoli (CEA), version Dec 2002;
- the RAFM steels tensile properties database assembled by Yamamoto and Odette (UCSB) [11];
- articles published in the open literature.

In a few cases, tensile results are known to exist but have not yet been officially published; the responsible investigators have been contacted and, when possible, data have been provided in an "informal" manner.

Using all collected tensile data, an EXCEL97 database has been compiled in order to facilitate the analysis of the available information. The database, reproduced in Annex 1, contains more than 1000 records (each record corresponds to the results of an invidual tensile test). It includes data for EUROFER97, F82H, JLF-1, CLAM and OPTIFER, as well as for other experimental 9Cr and 12Cr alloys; these latter have not been used for the analyses presented here.

For every record in the database, the following information is provided (when available):

- test identification (literature reference and specimen id);
- material identification (denomination, heat and product form);
- heat treatment information;
- irradiation conditions (name of the experiment, reactor, temperature, dpa, dpa rate, He produced, fast fluence and irradiation environment);
- specimen dimensions;
- test conditions (strain rate, test temperature and test environment);
- test results:
  - yield strength R_y;
  - (ultimate) tensile strength R_m;
  - ratio R_m/R_y, which provides an indication of the strain hardening capability;
  - true stress at fracture;
  - uniform elongation ε_u;
  - total elongation ε_t;
  - reduction of area Z.

Not all tensile parameters have been considered in each analysis, but only the ones which have been deemed relevant to the aspects under investigation.

Literature references referred to in the second column of the database are listed in Annex 2; some of them duplicate references given in the relevant section of this report.

3 Strategy used and materials considered

In the unirradiated condition, EUROFER97 tensile properties have been analyzed as a function of test temperature (T_{test}) and compared to equivalent information for other relevant RAFM steels (F82H, JLF-1, CLAM and OPTIFER). Almost all tests have been performed at strain rates of the order of 10^{-4} s^{-1}; additionally, a few data measured at lower strain rates allow a very limited assessment of strain rate effects.

In most cases, the heat treatment consisted of a normalization at 980 °C, air cooling and temper at 740-760 °C depending on the product form. Further details are provided in the database in Annex 1.

As far as irradiated properties are concerned, the collected information allows tensile results to be analyzed as a function of the following variables:

- test temperature, T_{test};
- irradiation temperature, T_{irr};
- accumulated dose (dpa).

Since irradiated tensile results depend on these three variables, data pooling has been necessary in order to detect and investigate the influence of each experimental variable. Pooling has been performed by grouping available data in terms of T_{irr}, dpa and T_{test}; for the former two variables, "data bins" have been created by considering data in a reasonably narrow range, where the effect of T_{irr} or dpa variation can be deemed negligible. The results of data pooling are presented in Annex 3 (irradiation temperature), Annex 4 (dose) and Annex 5 (test temperature).

More limited investigations, due to the scarcity of relevant information, have also been performed in terms of dose rate and irradiation environment, using data generated from experiments performed in HFR (Petten) and BR2 (Mol).

The nominal chemical compositions of the RAFM steels considered in this study are summarized in Table 1. Details on the heat treatments are found inside the database (Annex 1).

Table 1 - Nominal chemical compositions of the RAFM steels considered in this study.

Steel	C	Cr	W	V	Ta	Mo	Nb
EU97-1	0.09-0.12	8.5-9.5	1.0-1.2	0.15-0.25	0.06-0.09	<0.005	<0.001
EU97-2	0.09-0.12	8.5-9.5	1.0-1.2	0.15-0.25	0.06-0.14	<0.005	<0.005
F82H-mod.	0.09	7.7	1.96	0.15	0.023		<0.001
JLF-1	0.1	8.85-8.87	1.94-1.99	0.19-0.2	0.08-0.09	2	
OPTIFER	0.1	8.5	1.16	0.23	0.1		
CLAM	0.10-0.12	8.91-9.0	1.44-1.55	0.20-0.21	0.07-0.15		

Steel	Ni	B	N	Si	Mn	P	S	Other
EU97-1	<0.005	<0.001	0.015-0.045	<0.05	0.20-0.60	<0.005	<0.005	O<0.01 Ti<0.01
EU97-2	<0.01	<0.002	0.015-0.045	<0.05	0.20-0.60	<0.005	<0.005	O<0.01 Ti<0.02
F82H-mod.			0.006	0.10	0.16	<0.002		
JLF-1		0.0002		0.04-0.05	0.45-0.46	0.003	0.002	
OPTIFER		0.004	0.06		0.6	0.004	0.004	
CLAM			0.02	0.01	0.40-0.49	0.003	0.002	Ti<0.006

For EUROFER97, two batches have been considered. The original batch of 3.5 tons (EUROFER97-1) was produced in 1997 by Böhler under different product forms (bars of 100 mm diameter and plates of 8, 14 and 25 mm thickness) [10]. The second batch (EUROFER97-2) was produced in 2005 by SaarSchmiede as about 8 tons of different product forms (forgings, plates and tubes) according to slightly revised specifications with respect to EUROFER97-1 [12].

F82H and JLF-1 are two 9Cr steels developed in Japan by JAERI and Japanese Universities respectively. The first one is considered the reference Japanese RAFM steel, similar to EUROFER97 in Europe. It was produced in several heats and product forms; however, the so-called "IEA heats" (produced according to the specifications reviewed and accepted by the International Energy Agency) are considered the reference heats and correspond to what is commonly referred to as "F82H-mod" (modified) [13]. Although data from the "pre-IEA heats" are also included in our database, only results for F82H-mod have been considered in the analyses.

OPTIFER is an experimental 9Cr alloy which was developed and investigated in Europe during the phase (mid '90s) which preceeded the production of the reference RAFM steels such as E97 or F82H, approximately at the same time as the research on JLF-1 in Japan [14]. Similar materials for which data can be found in the literature are BATMAN, the MANET series and the ORNL developmental alloys [1].

Finally, the CLAM steel (Chinese Low Activation Material) has been recently developed and investigated in China by ASIPP (Institute of Plasma Physics, Chinese Academy of Sciences), based on a wide review of on-going international programs on the development of RAFM steels [15-18]. No irradiated data have yet been published for this material.

In this report, comparisons between EUROFER97 and other RAFM steels are much more extensive and meaningful for the unirradiated than for the irradiated condition. The reasons are:

- all available tensile data for irradiated EUROFER97 are for $T_{irr} \leq 350$ °C;
- for F82H-mod and other RAFM steels, most of the irradiated data in our database which correspond to $T_{irr} \leq 350$ °C come from experiments conducted in HFR Petten using gas-filled capsules. In these experiments, irradiation temperature was not well controlled inside the capsules and large deviations from the nominal values can be expected[1] [19]; since post-irradiation tensile properties are quite sensitive to T_{irr}, these data have <u>not</u> been used in the analyses, and the irradiation temperatures have been highlighted in yellow in our database;
- most of the <u>reliable</u> results for F82H-mod and other RAFM steels derive from irradiations conducted in Japan (JMTR) and correspond to higher irradiation temperatures (400 °C – 580 °C), for which EUROFER97 data do not exist.

[1] It must be noted that even some experiments performed in HFIR (US) on F82H-mod and JLF-1 are questionable as far as the actual irradiation temperature is concerned [20].

4 Unirradiated tensile properties

Tensile properties for the unirradiated materials have been fitted in this study using 5th order polynomial functions, except in cases where the fitting appeared unsatisfactory due to the limited number or the scatter of available data, so that lower order polynomials have been used in order to derive the overall trends.

It must be emphasized that tensile parameters related to specimen ductility, such as uniform elongation, total elongation and reduction or area, are known to be affected by sample configuration, namely by the ratio between gage length and square root of the cross section ($L_o/\sqrt{A_o}$) [21]. Other sources of uncertainty that can also play a role are differences in the methodology used for measuring specimen elongation (extensometer or machine crosshead displacement) or discrepancies in the definition of the reduced section length (L_o). Therefore, the comparison of such data from non self-similar specimens is less meaningful and affected by larger scatter than for yield or tensile strength values.

Detailed information about specimen configuration, as well as other relevant material characteristics such as heat treatment conditions, are provided in the data base (Annex 1).

4.1 EUROFER97-1

The tensile properties of four different product forms have been considered, namely 8 mm and 14 mm plates (heat E83698), 25 mm plate (heat E83697) and 100 mm bar (heat E83699). Data are shown in Figure 1 to Figure 6 for yield strength, tensile strength, R_m/R_y, uniform elongation, total elongation and reduction of area respectively. Fabrication data provided by Böhler and two test results, obtained by NRG at a significantly lower strain rate (5×10^{-6} s^{-1}), are also included. Overall fits are represented by black solid curves.

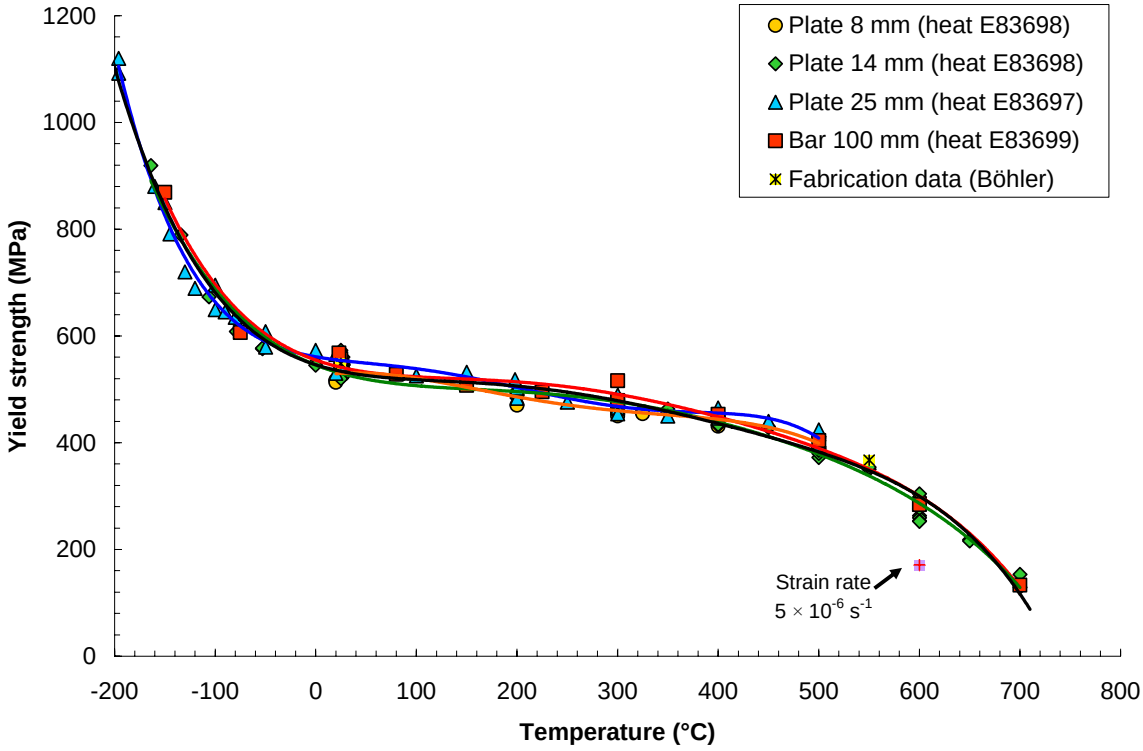

Figure 1 - Yield strength for unirradiated EUROFER97-1.

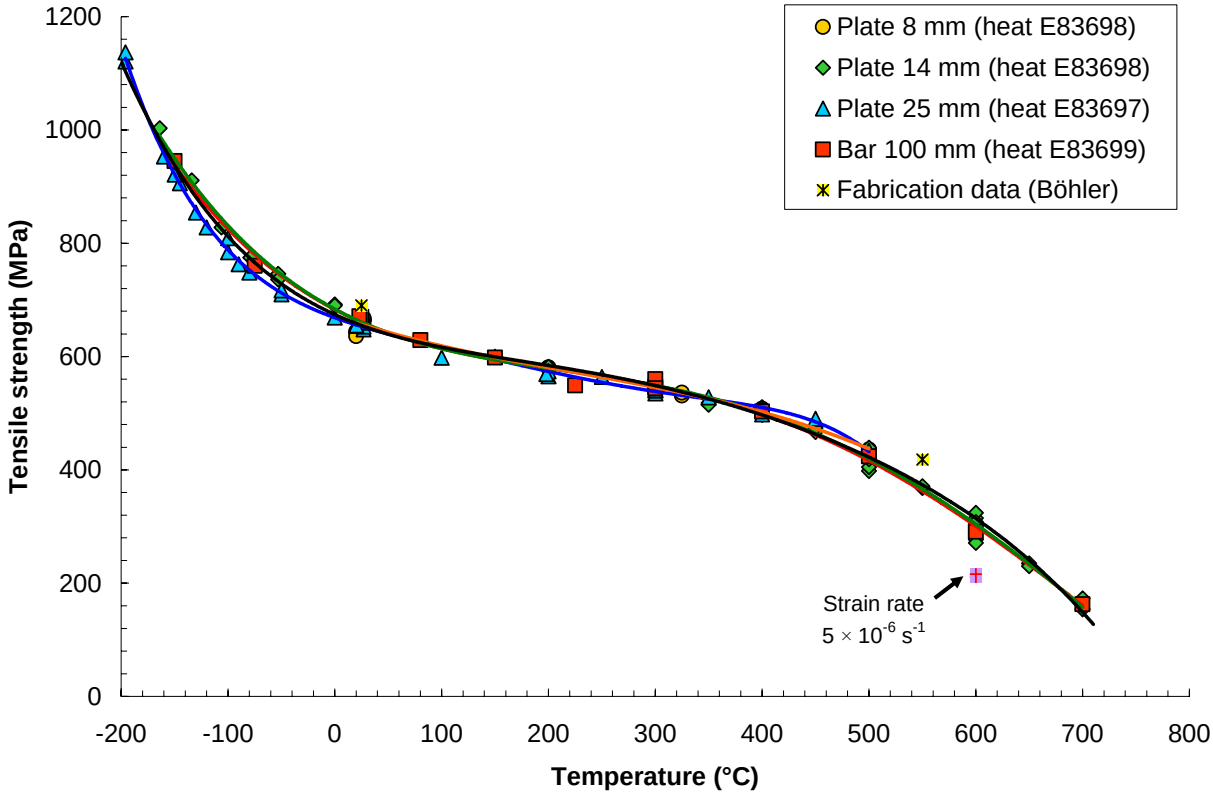

Figure 2 - Tensile strength for unirradiated EUROFER97-1.

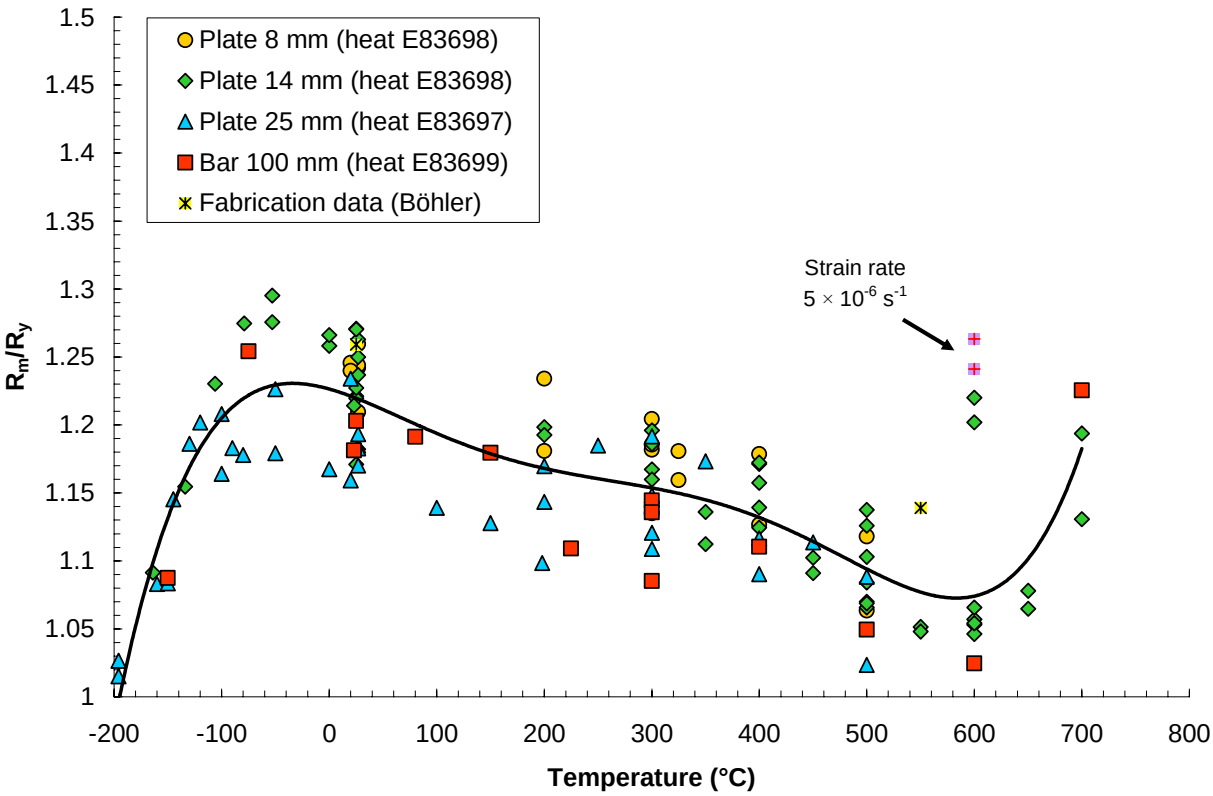

Figure 3 – Strain hardening capability for unirradiated EUROFER97-1.

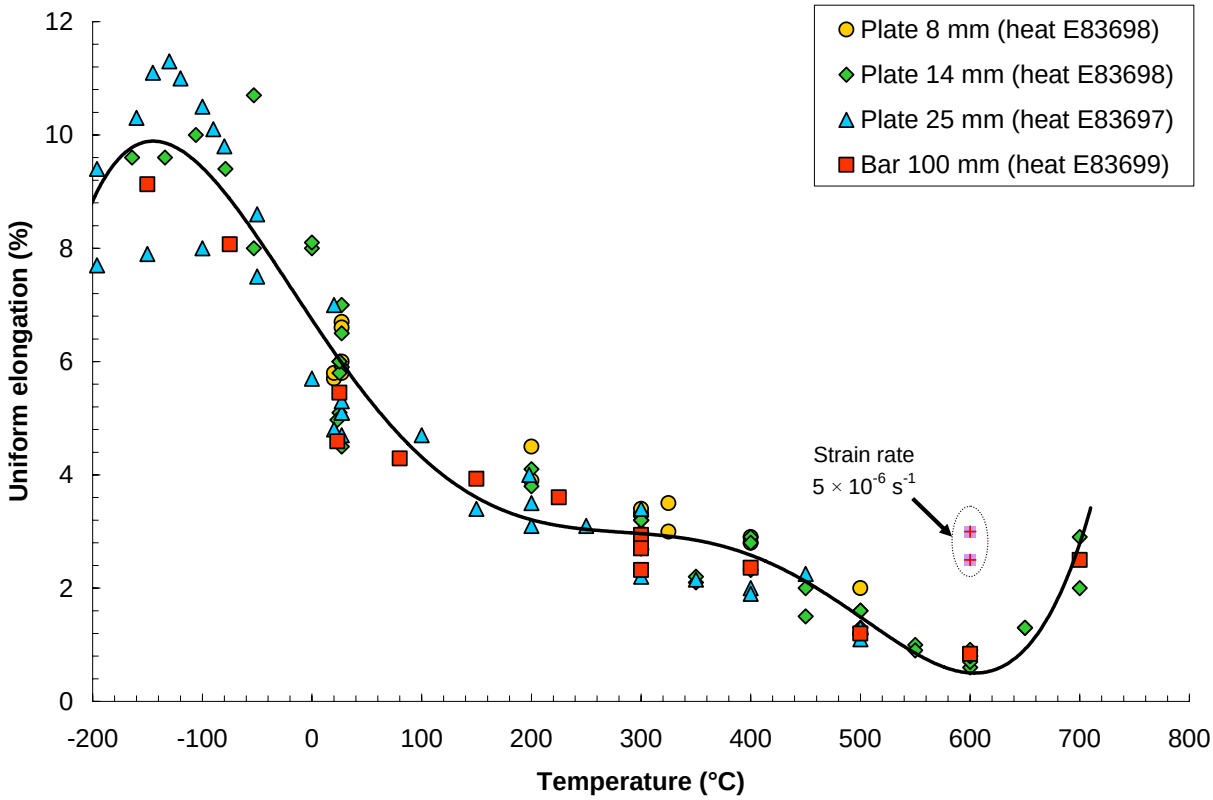

Figure 4 – Uniform elongation for unirradiated EUROFER97-1.

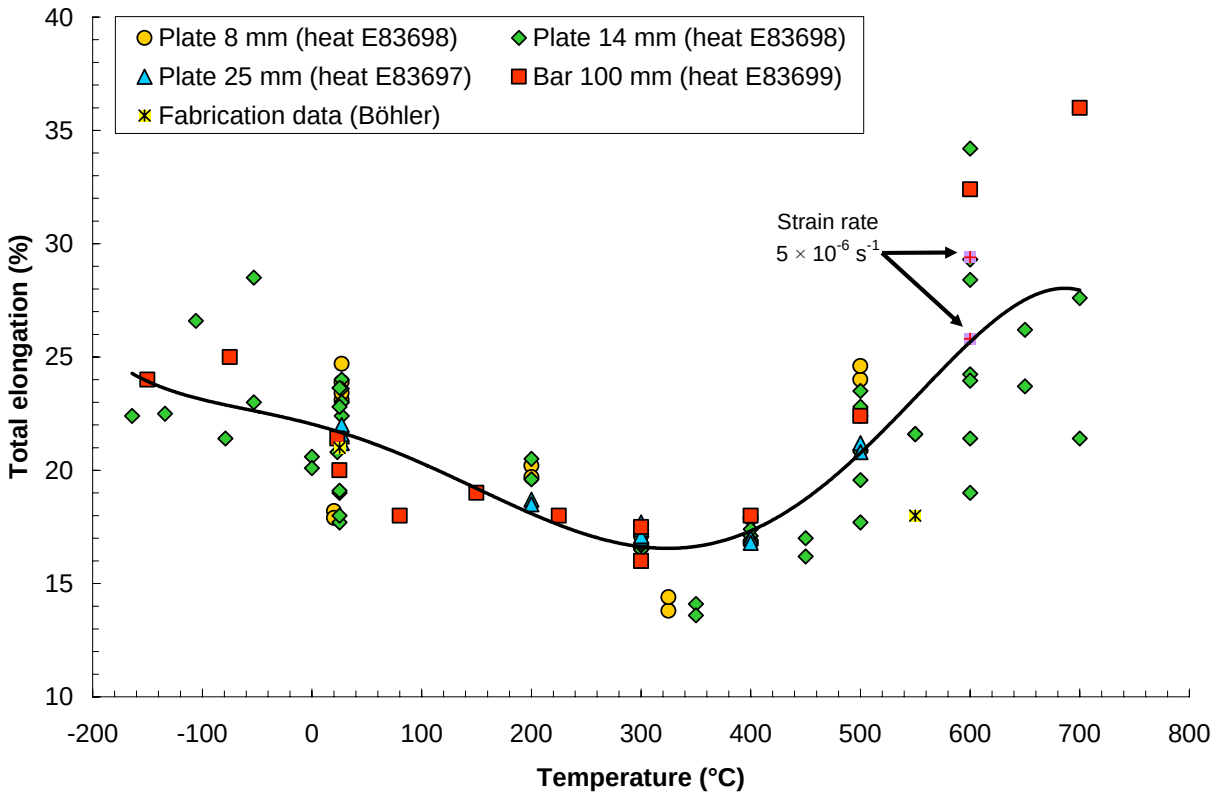

Figure 5 – Total elongation for unirradiated EUROFER97-1.

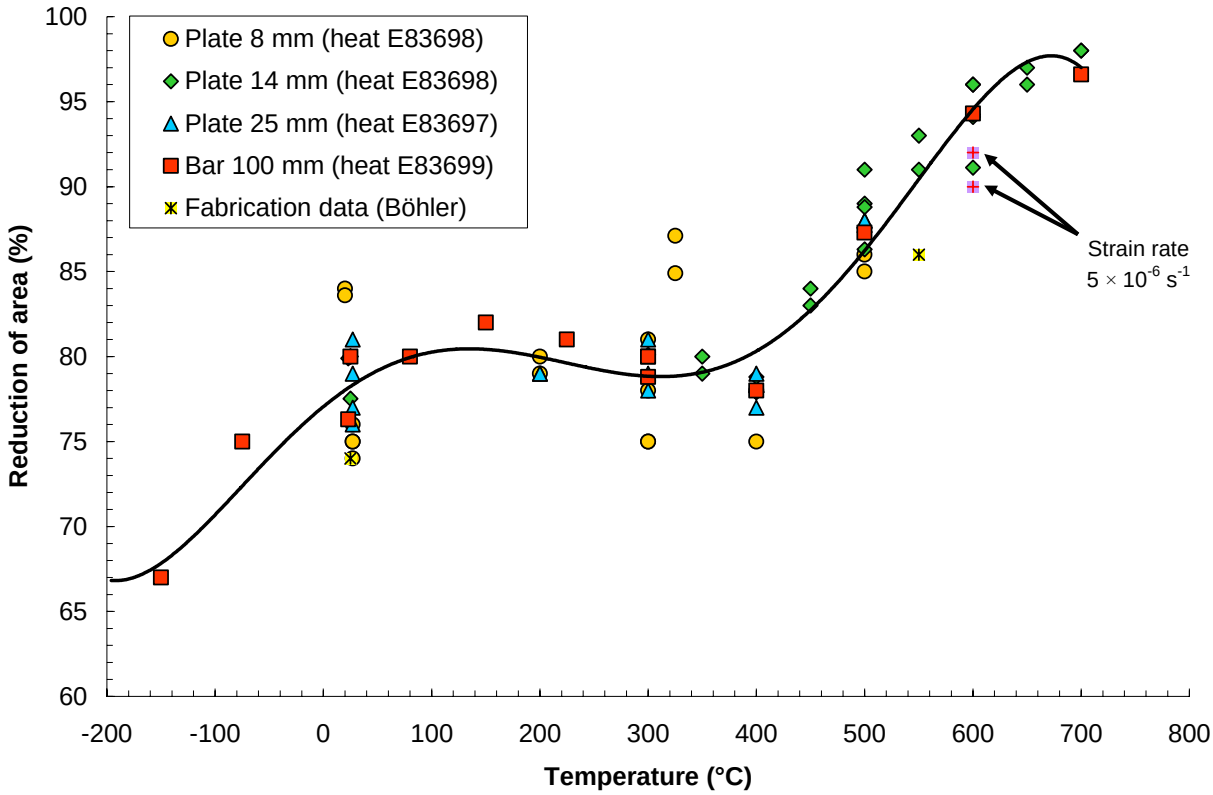

Figure 6 – Reduction of area for unirradiated EUROFER97-1.

The coefficients of the polynomial regression functions (in the form $Y = AX^5 + BX^4 + CX^3 + DX^2 + EX + F$) and the coefficient of determination R^2 are summarized in Table 2.

Table 2 - Coefficients of the polynomial regression functions for unirradiated EUROFER97-1.

Coefficient	Variable				
	R_y	R_m	ε_u	ε_t	Z
A	-2.314E-11	-8.215E-12	-	-	-1.922E-12
B	3.647E-08	1.488E-08	-	-	2.225E-09
C	-2.138E-05	-1.168E-05	-6.565E-10	6.169E-08	-4.070E-07
D	5.013E-03	3.865E-03	1.532E-05	7.562E-06	-1.801E-04
E	-6.020E-01	-8.616E-01	-1.774E-02	-2.236E-02	5.210E-02
F	545.9	674.2	6.701	21.71	77.05
R^2	0.98	0.99	0.94	0.61	0.87

4.1.1 Discussion

- No significant effect of product form is observed for any of the tensile parameters.
- Yield and tensile strength values are contained in a narrow scatter band. More dispersion characterizes the ductility parameters (as could be expected due to the differences in sample geometries), but overall trends are nevertheless clear.
- The 25 mm plate appears to have slighlty lower mechanical resistance for $T_{test} < 0$ °C. However, differences between this plate and the remaining product forms are way smaller than those which have been reported in terms of Charpy or fracture toughness properties [19].

- The strain hardening capability shows a steady decrease with increasing temperatures above 0 °C, until a minimum is reached at 600 °C.
- Uniform elongation steadily decreases with increasing temperature until it reaches a minimum (<1%) around 600 °C, before increasing again. A slight tendency of the 8 mm plate to provide the highest and of the 25 mm plate to provide the lowest ε_u values is visible between RT and 400 °C.
- Total elongation shows a minimum (~15%) around 350 °C. For higher temperatures, ε_t increases but so does the scatter.
- Reduction or area generally increases with temperature, although between 100 and 400 °C values of Z oscillate between 75% and 85%.
- A decrease of the strain rate causes a significant drop of mechanical resistance and strain hardening capability, while uniform and total reduction appear to increase slightly; reduction of area seems almost unaffected or slightly reduced.

4.2 EUROFER97-2

A more limited number of tensile data are available for the second EUROFER97 batch, all in the unirradiated condition and provided by FZK and SCK•CEN. Tensile properties for the six different heats produced are shown in Figure 7 to Figure 12.

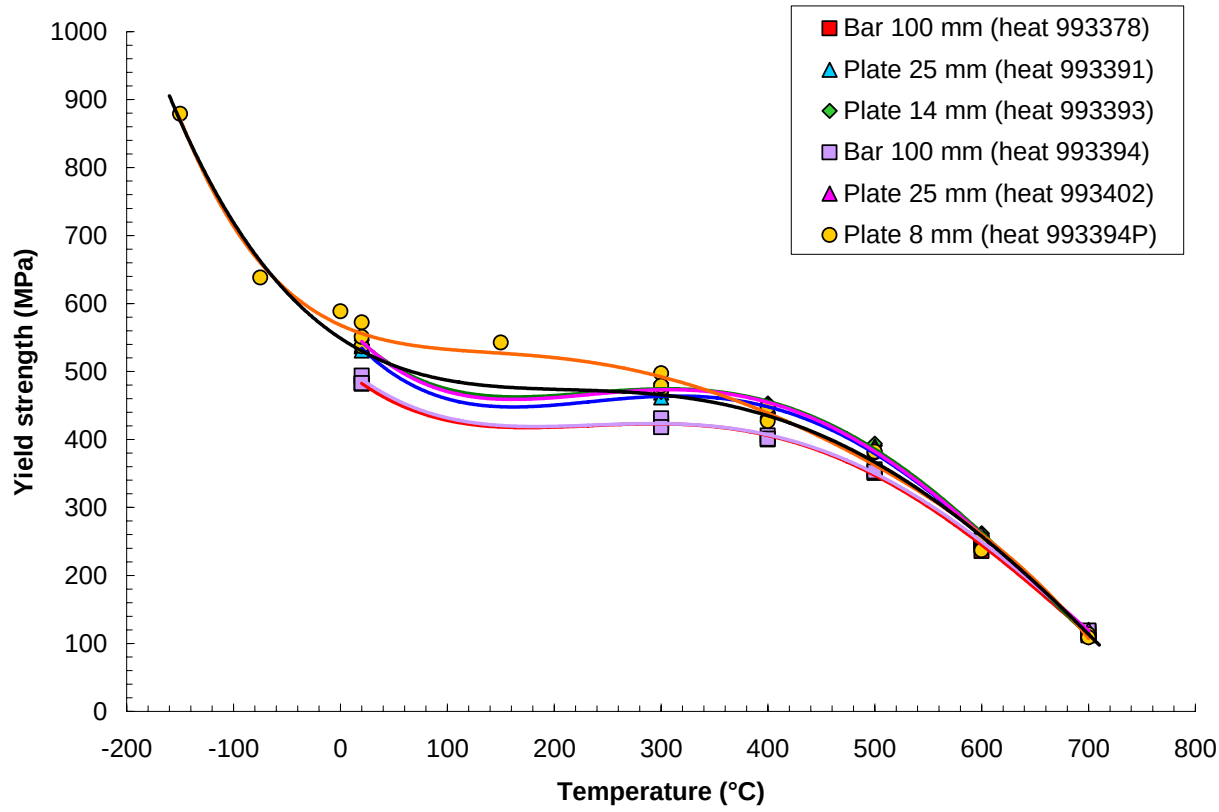

Figure 7 - Yield strength for unirradiated EUROFER97-2.

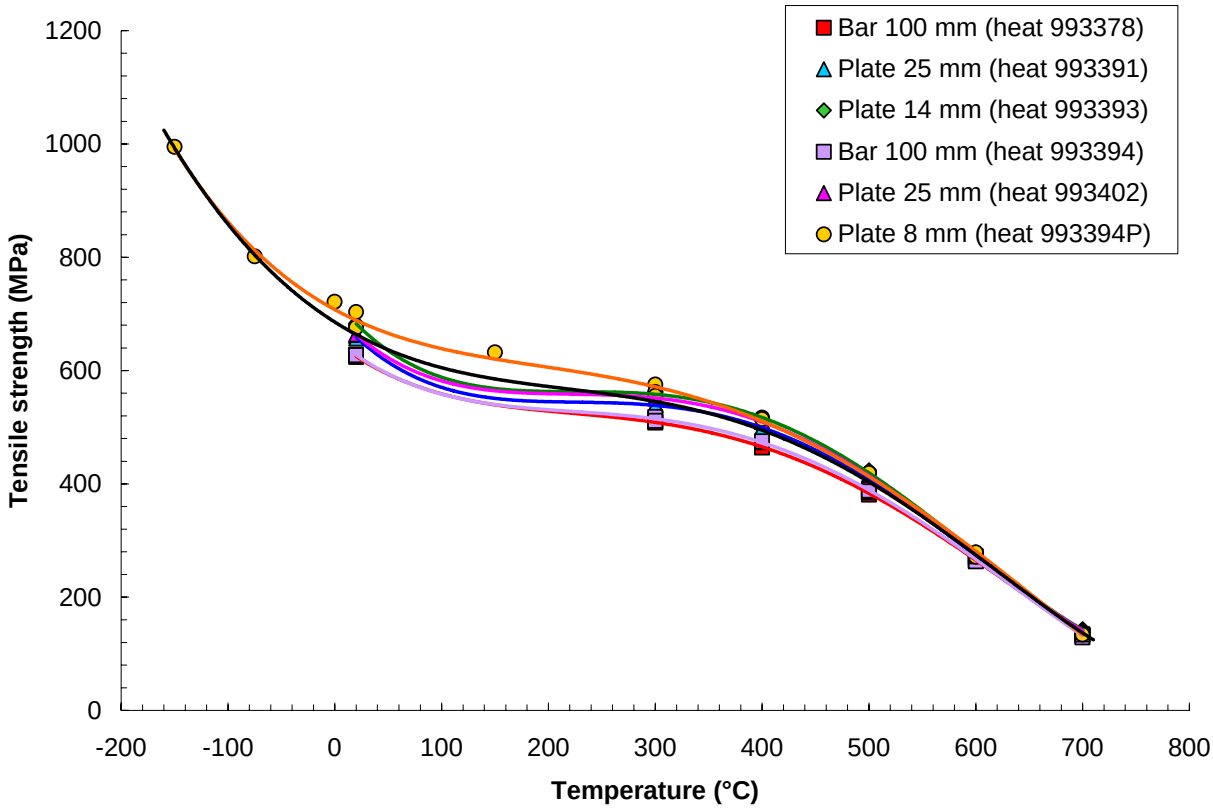

Figure 8 - Tensile strength for unirradiated EUROFER97-2.

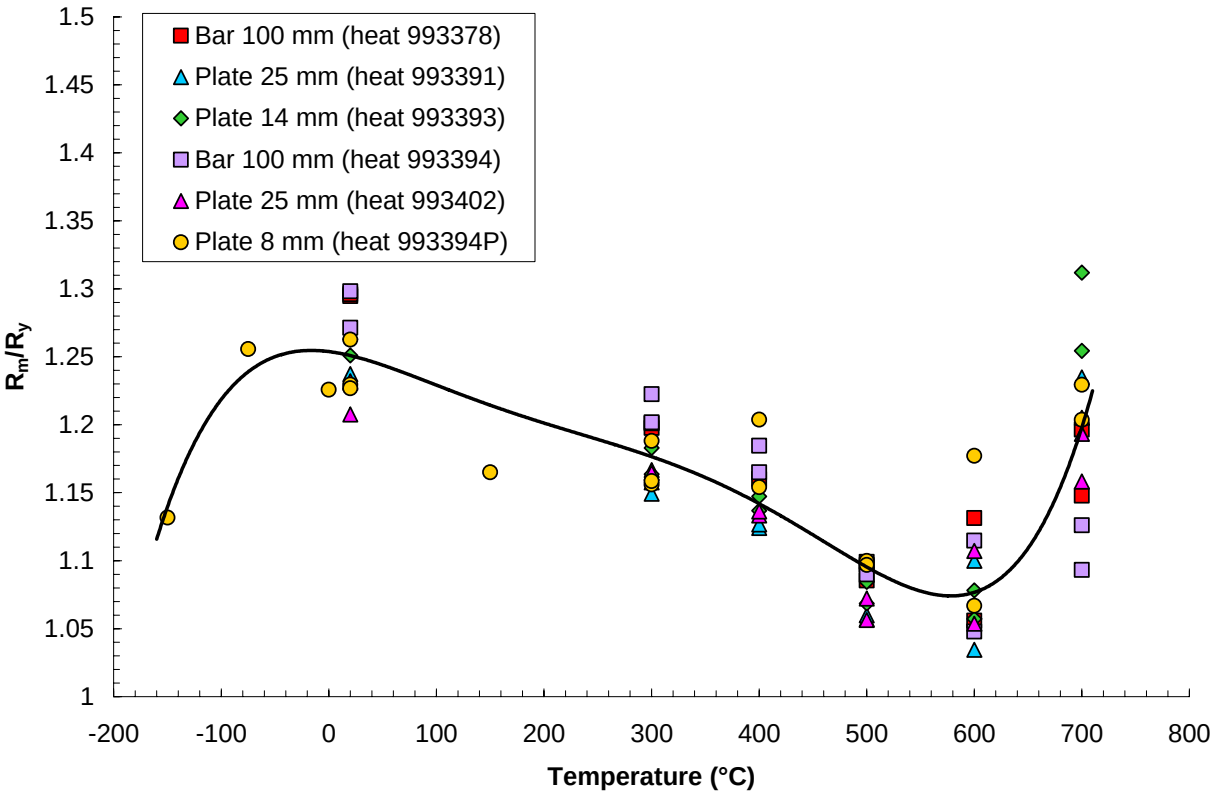

Figure 9 – Strain hardening capability for unirradiated EUROFER97-2.

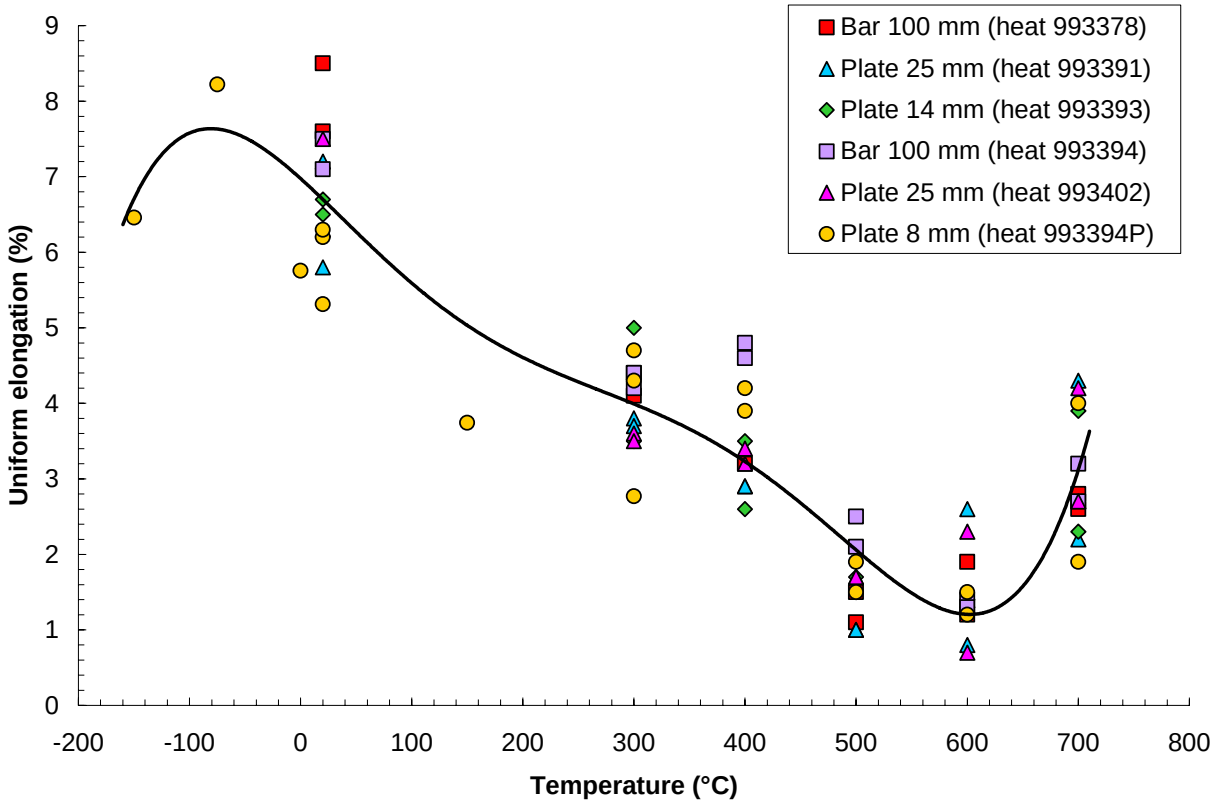

Figure 10 – Uniform elongation for unirradiated EUROFER97-2.

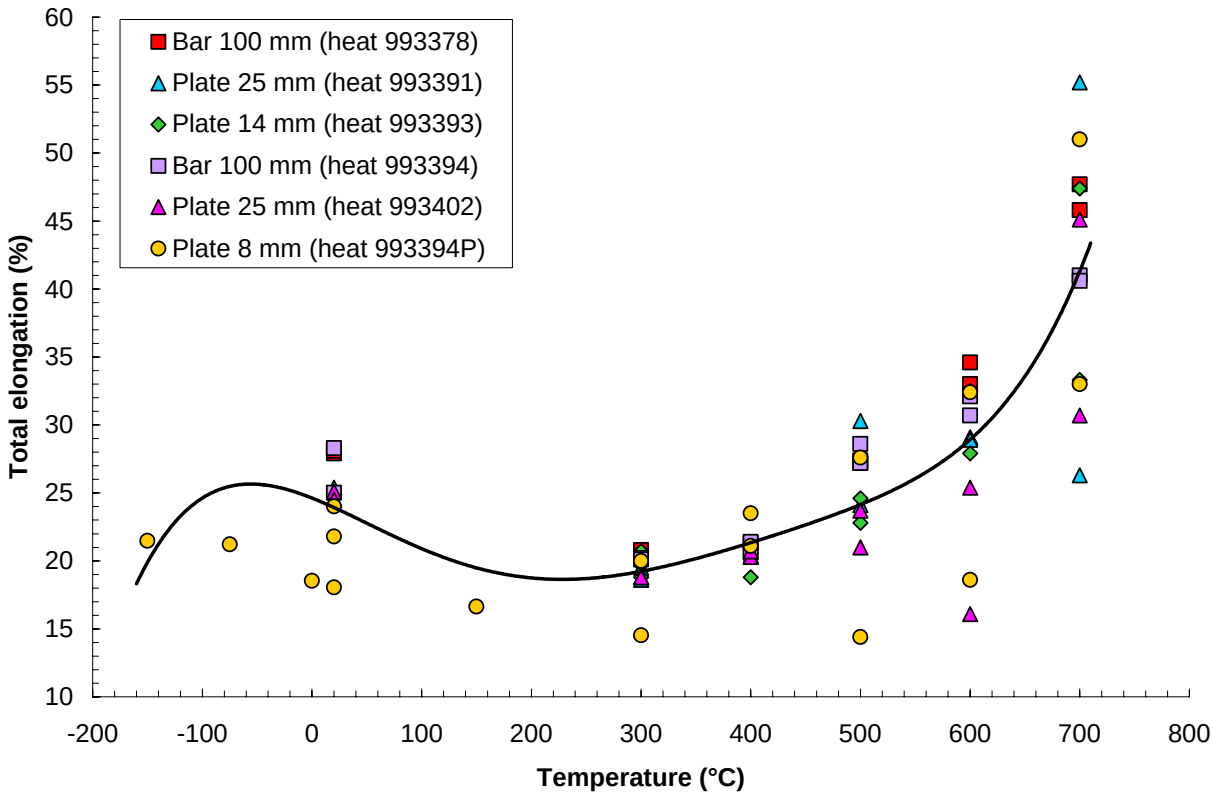

Figure 11 – Total elongation for unirradiated EUROFER97-2.

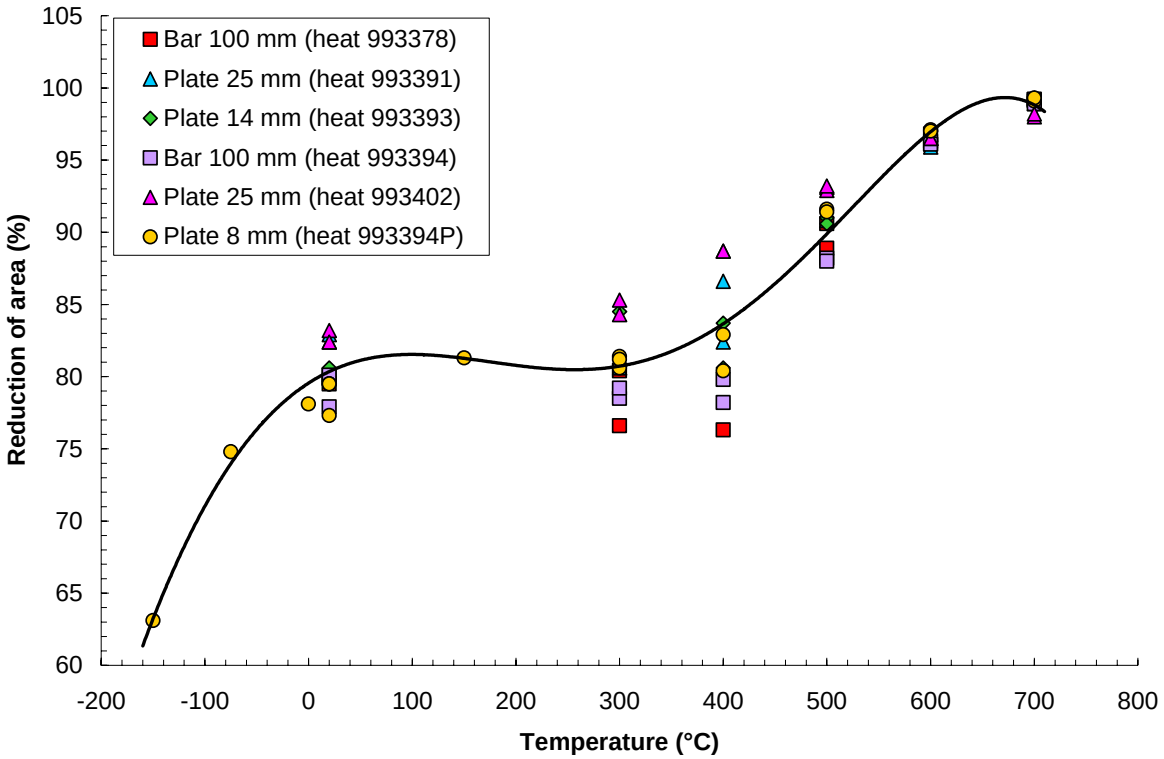

Figure 12 – Reduction of area for unirradiated EUROFER97-2.

The coefficients of the polynomial regression functions are summarized in Table 3.

Table 3 - Coefficients of the polynomial regression functions for unirradiated EUROFER97-2.

Coefficient	Variable				
	R_y	R_m	ε_u	ε_t	Z
A	-1.599E-12	4.392E-12	6.116E-13	1.788E-12	-6.711E-13
B	7.901E-09	-4.853E-10	-8.119E-10	-2.652E-09	1.866E-10
C	-1.152E-05	- 7.5633E-06	3.286E-07	1.322E-06	6.296E-07
D	5.344E-03	4.608E-03	-3.091E-05	-1.593E-04	-3.288E-04
E	-1.044	-1.191	-1.328E-02	-3.202E-02	4.629E-02
F	548.9	685.6	697.5	24.65	79.55
R^2	0.98	0.99	0.87	0.70	0.93

4.2.1 Discussion

- More scatter is observed for yield and tensile strength values than for EUROFER97-1, caused by the fabrication process of the different product forms; additional heat treatments should reduce such dispersion down to level of EUROFER97-1.
- The 100 bars show lower mechanical resistance than the plates below 500 °C, whereas the 8 mm plate exhibits the highest yield and tensile strength up to 400 °C.
- The strain hardening capability shows as similar trend as for EUROFER97-1, with a minimum around 600 °C.
- Uniform and total elongation values measured on the 8 mm plate show large scatter, with the measurements provided by SCK•CEN at RT and 300 °C systematically lower than those by FZK. This could be partially explained in terms of the different specimen configurations used; however, even the FZK measurements in the range 500-700 °C show significant scatter. A minimum for uniform elongation (1%-2%) is observed at 600 °C.
- Plates tend to provide higher reduction of area values than bars.

4.3 Comparison between EUROFER97-1 and EUROFER97-2

The tensile properties of the first and second batch of EUROFER97 are compared in Figure 13 to Figure 18; no more distinction is made between product forms.

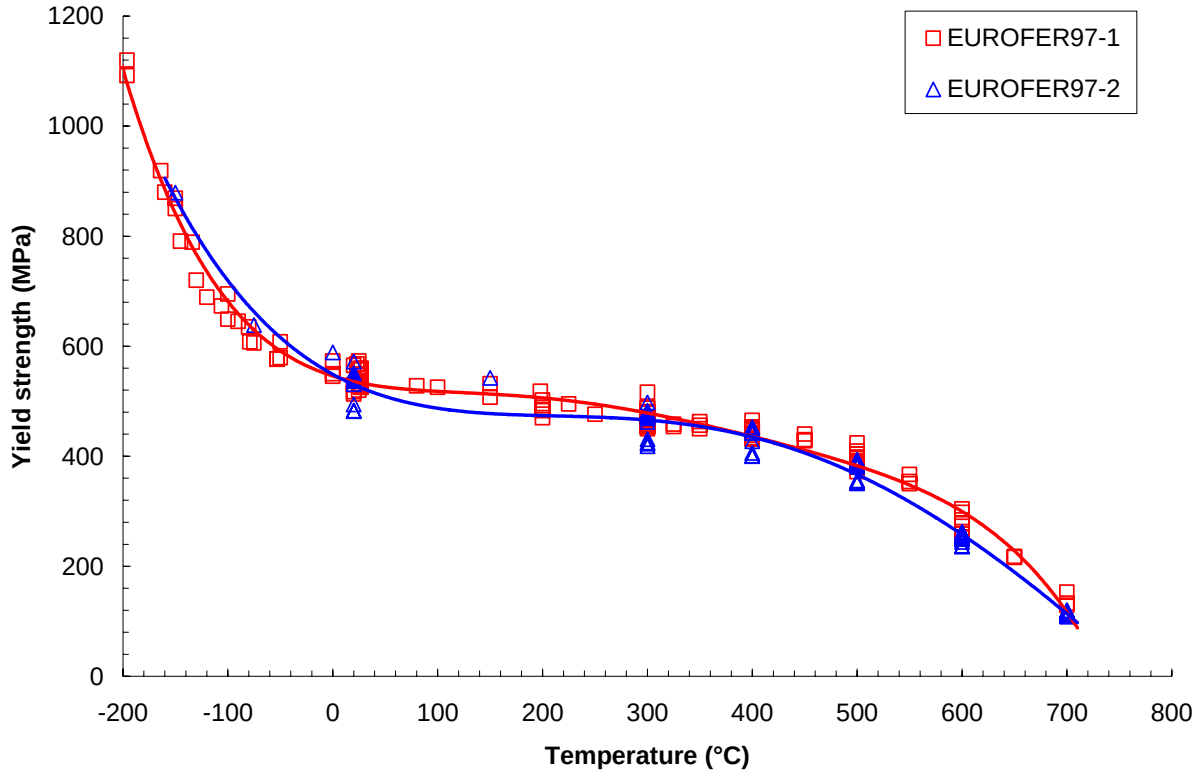

Figure 13 - Comparison between the yield strength of unirradiated EUROFER97-1 and EUROFER97-2.

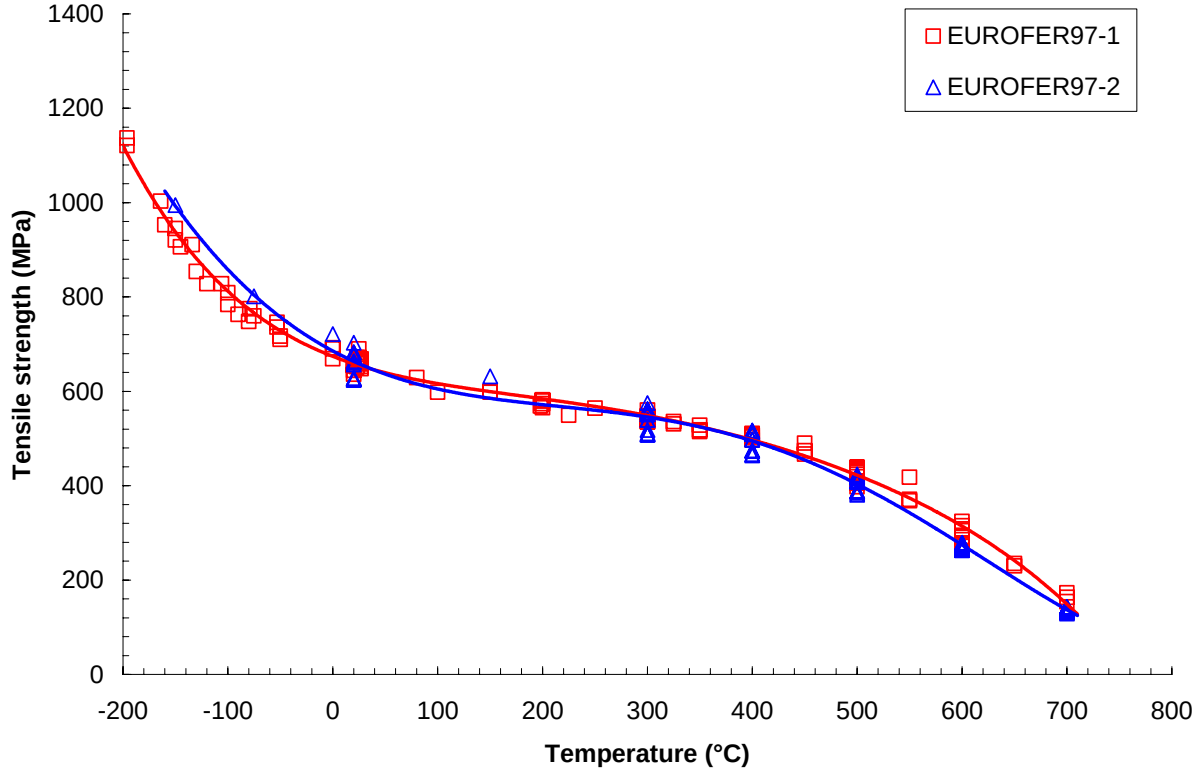

Figure 14 - Comparison between the tensile strength of unirradiated EUROFER97-1 and EUROFER97-2.

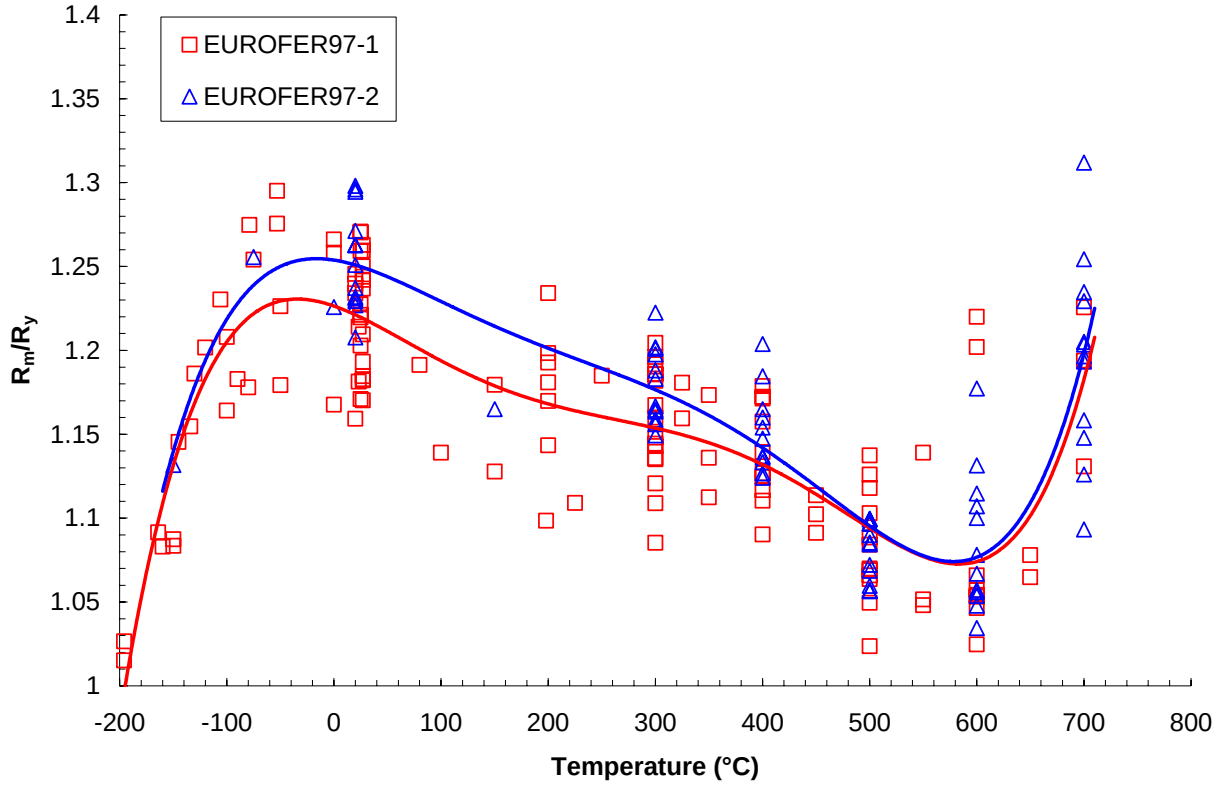

Figure 15 - Comparison of the strain hardening capability for unirradiated EUROFER97-1 and EUROFER97-2.

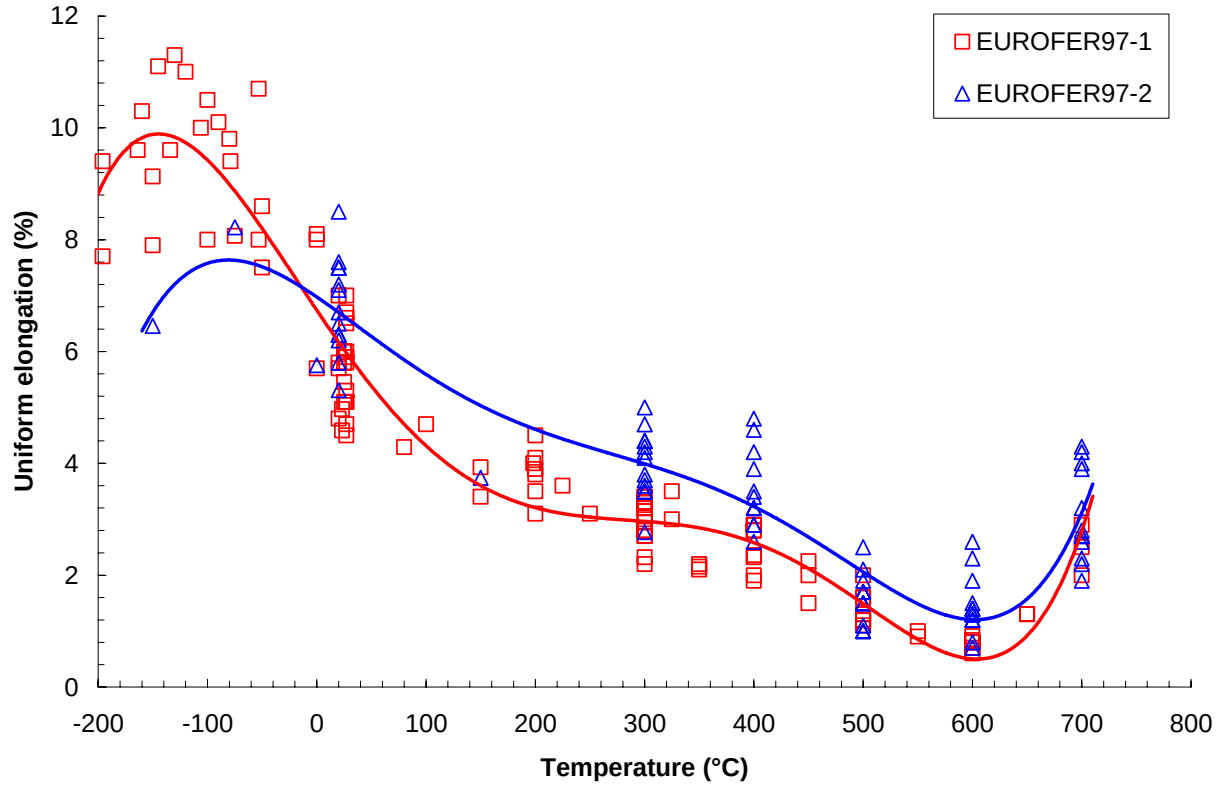

Figure 16 - Comparison between uniform elongation values of unirradiated EUROFER97-1 and EUROFER97-2.

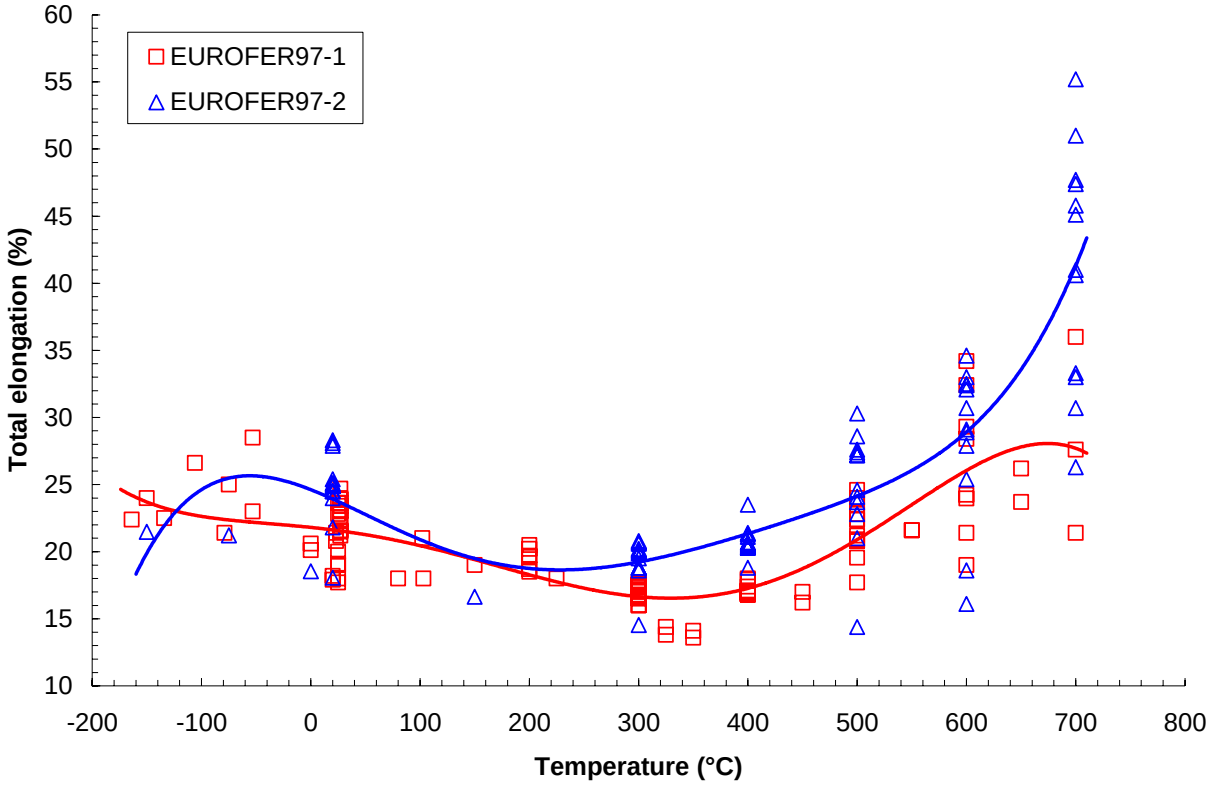

Figure 17 - Comparison between total elongation values of unirradiated EUROFER97-1 and EUROFER97-2.

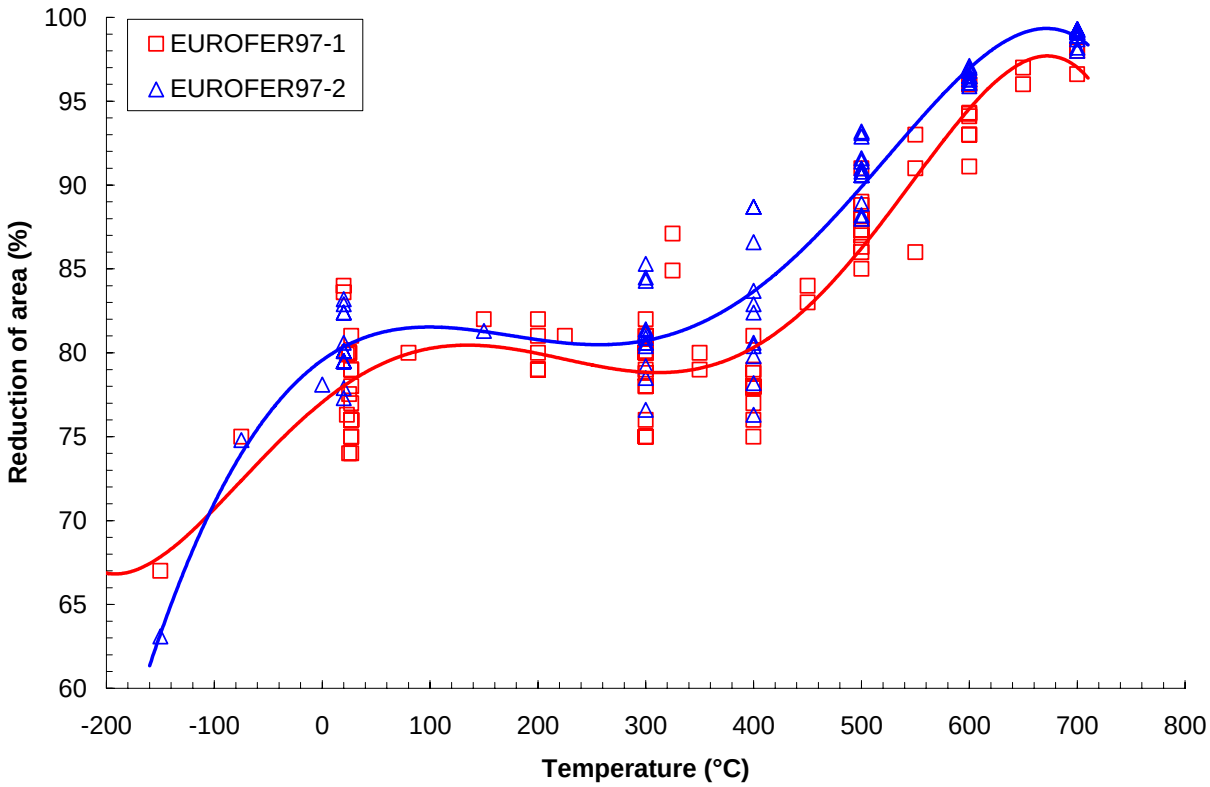

Figure 18 - Comparison between reduction of area values of unirradiated EUROFER97-1 and EUROFER97-2.

4.3.1 Discussion

- EUROFER97-1 and EUROFER97-2 are substantially equivalent in terms of mechanical strength, although the second batch exhibits slightly lower yield and tensile strength for temperatures above 400 °C.
- The strain hardening capability of EUROFER97-2 is generally better than EUROFER97-1.
- EUROFER97-2 shows a consistent improvement in ductility over EUROFER97-1 above RT, with a gain of a few % in terms of uniform elongation, total elongation and reduction of area. This is obviously related to the higher strain hardening shown by the second batch.

In short, we observe that the second batch exhibits equivalent strength but better ductility than the first batch.

4.4 Comparison with other RAFM steels

The tensile properties of EUROFER97-1 and EUROFER97-2 are compared to those of other RAFM steels (F82H-mod, JLF-1, CLAM and OPTIFER) in Figure 20 to Figure 25. Only tests performed at strain rates in the range 10^{-3} to 10^{-4} s^{-1} are considered.

For F82H, as previously mentioned, only the so-called IEA heats (9741 and 9753) have been used for the comparison; these heats, as shown in Figure 19, present slightly lower mechanical strength than the pre-IEA heats, at least up to 550 °C.

For completeness, the tensile properties of the RAFM steels used for comparison are illustrated in Annexes 6 (F82H), 7 (JLF-1), 8 (CLAM) and 9 (OPTIFER).

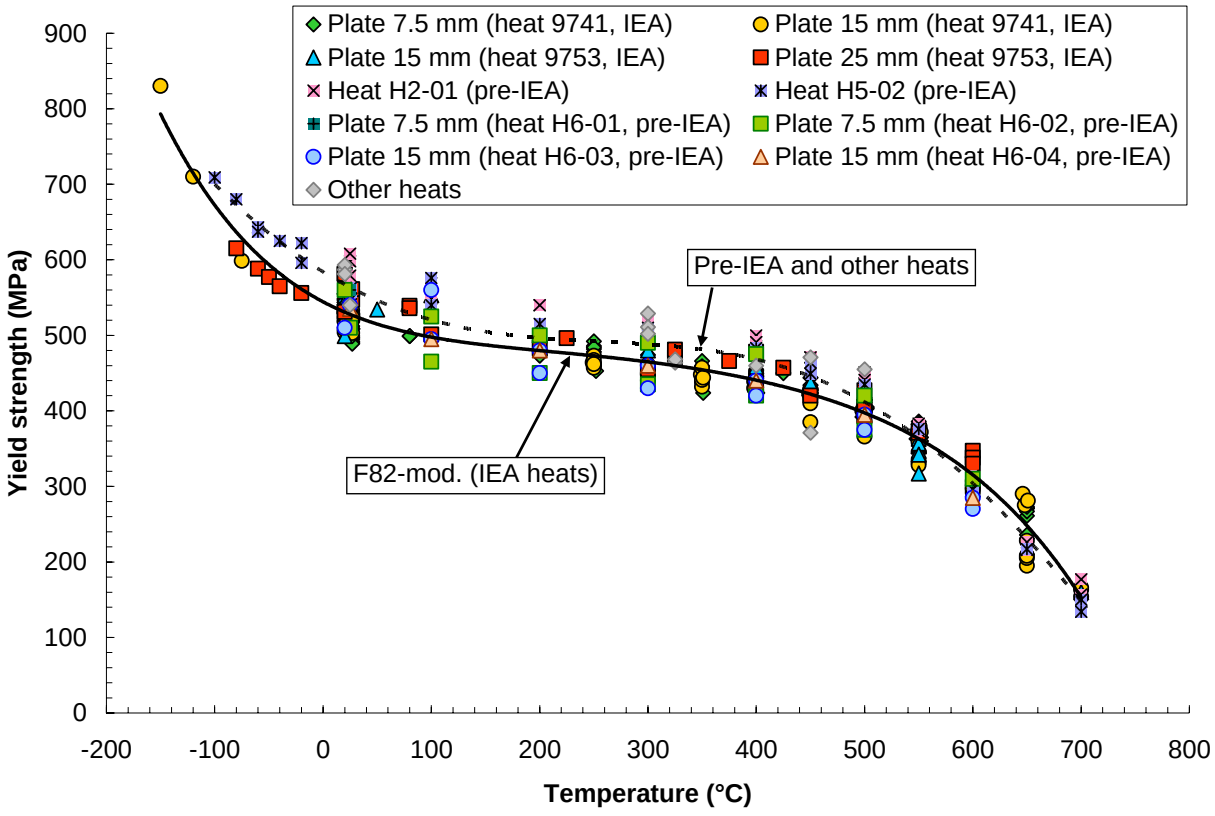

Figure 19 - Yield strength for different product forms of unirradiated F82H.

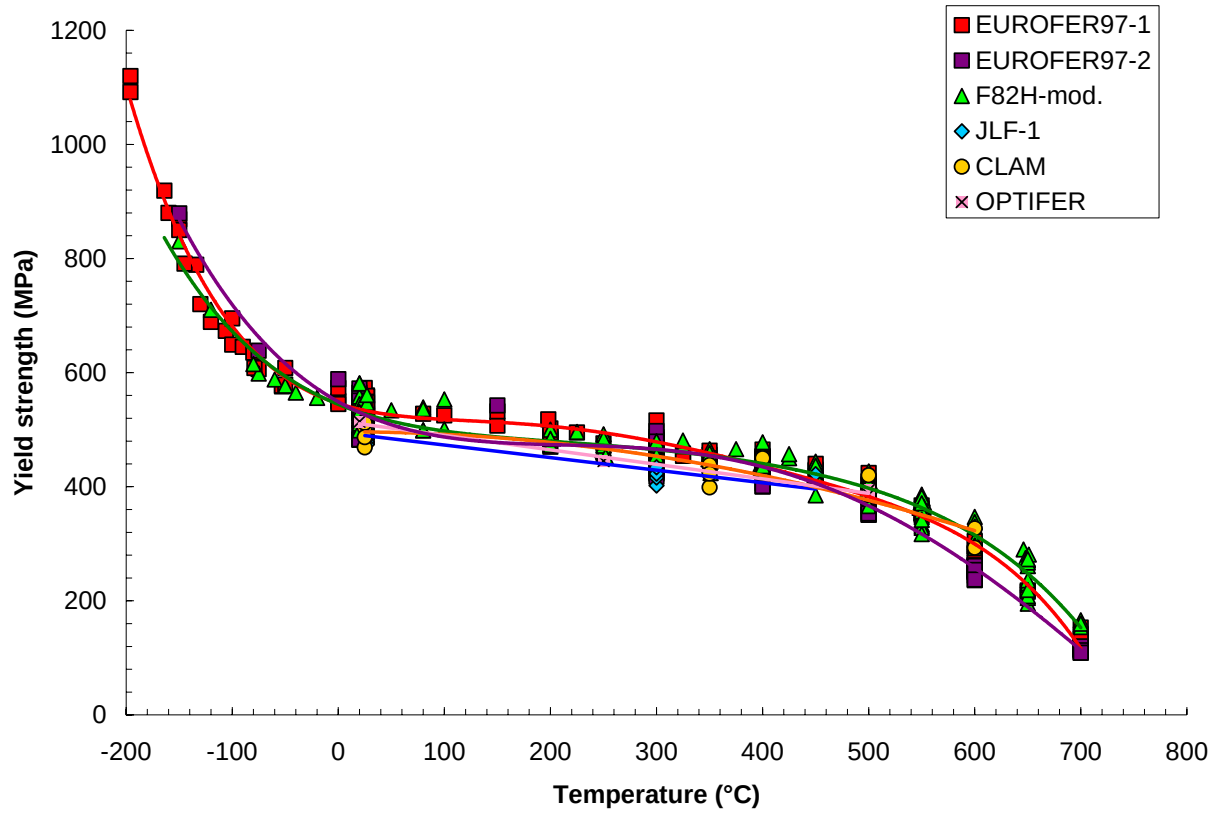

Figure 20 - Yield strength for various RAFM steels in the unirradiated condition.

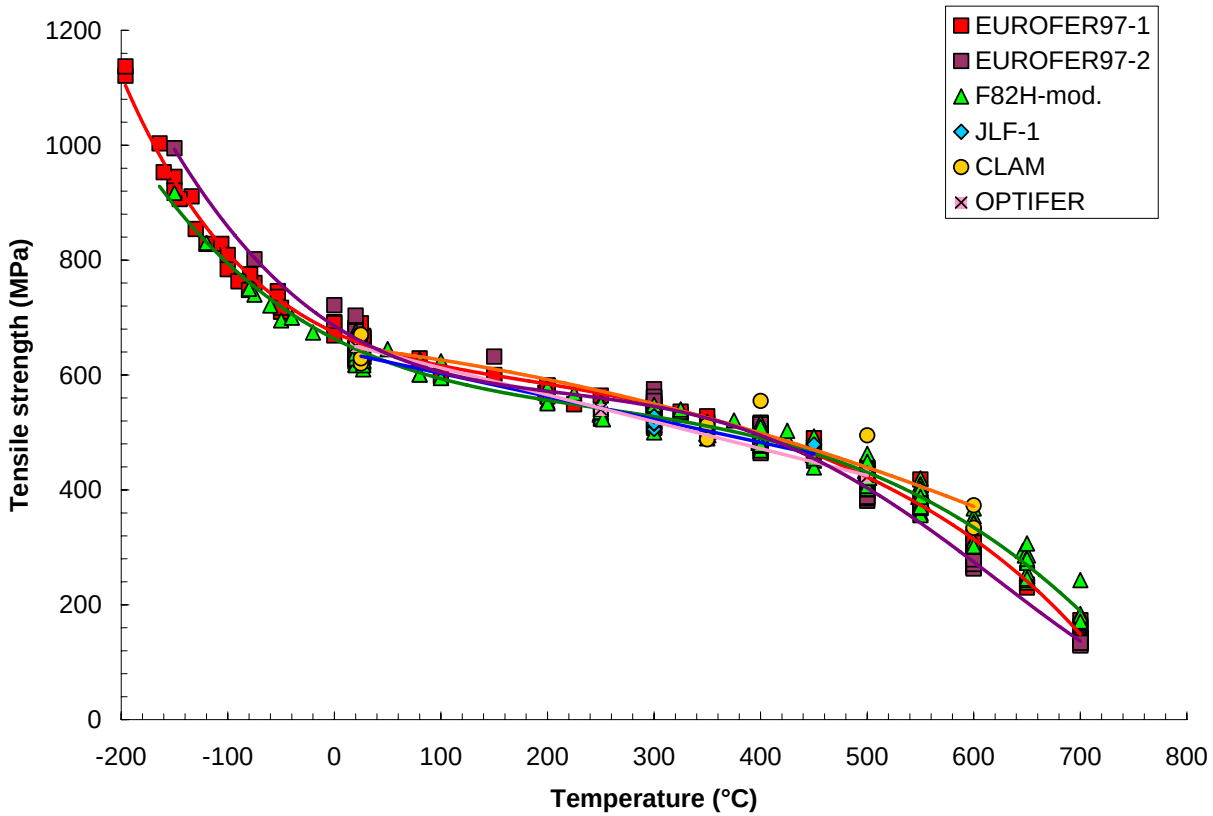

Figure 21 - Tensile strength for various RAFM steels in the unirradiated condition.

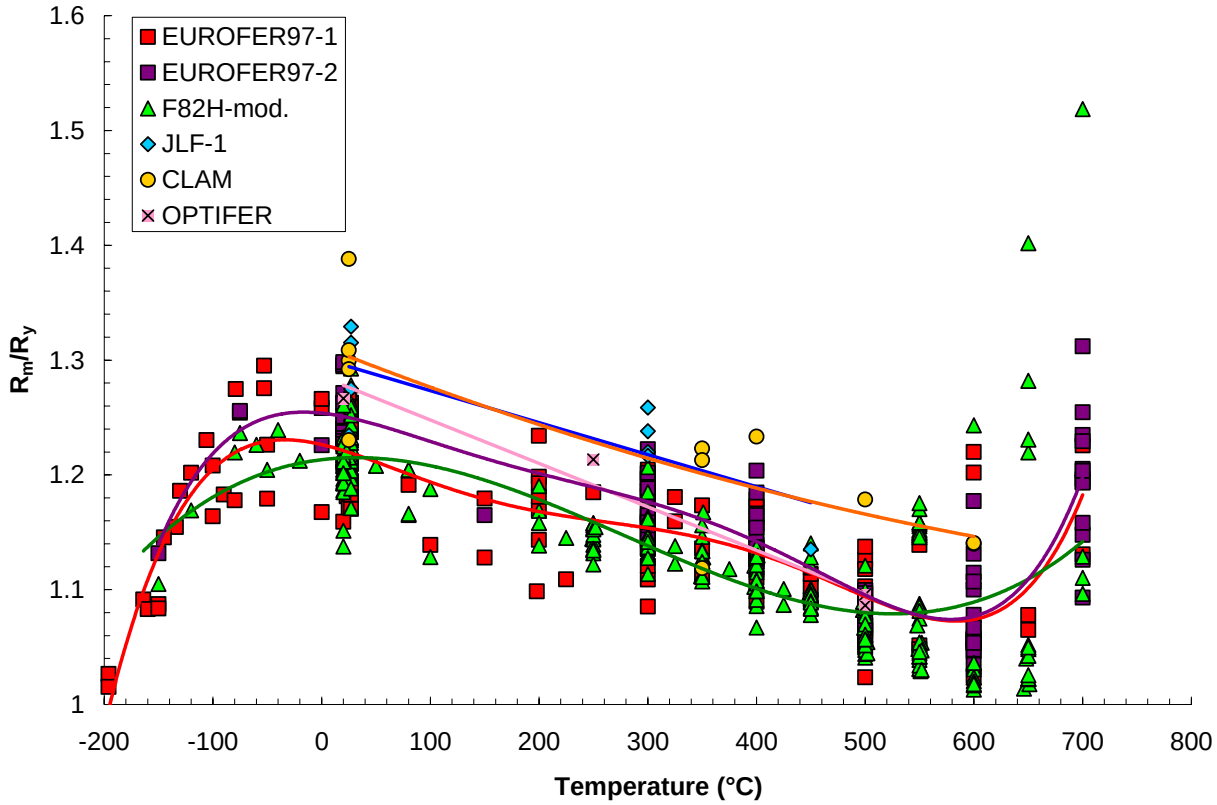

Figure 22 – Strain hardening capability for various RAFM steels in the unirradiated condition.

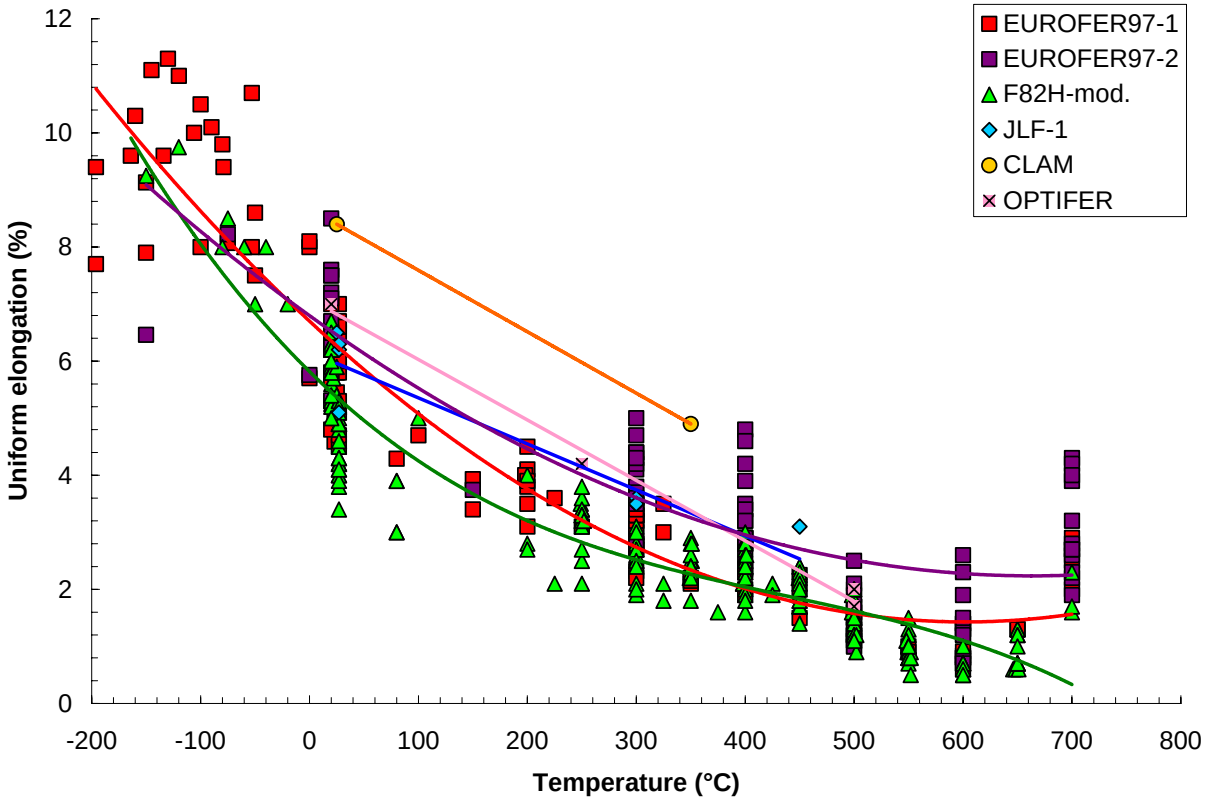

Figure 23 – Uniform elongation for various RAFM steels in the unirradiated condition.

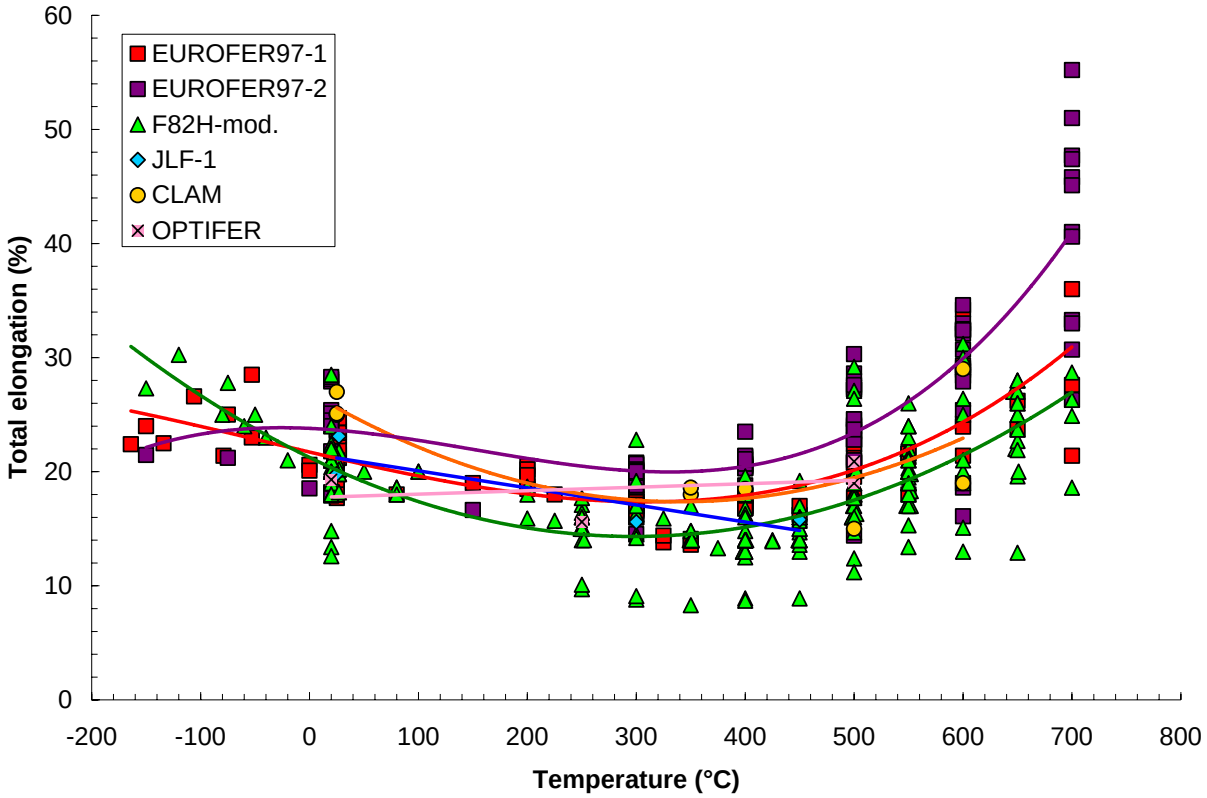

Figure 24 – Total elongation for various RAFM steels in the unirradiated condition.

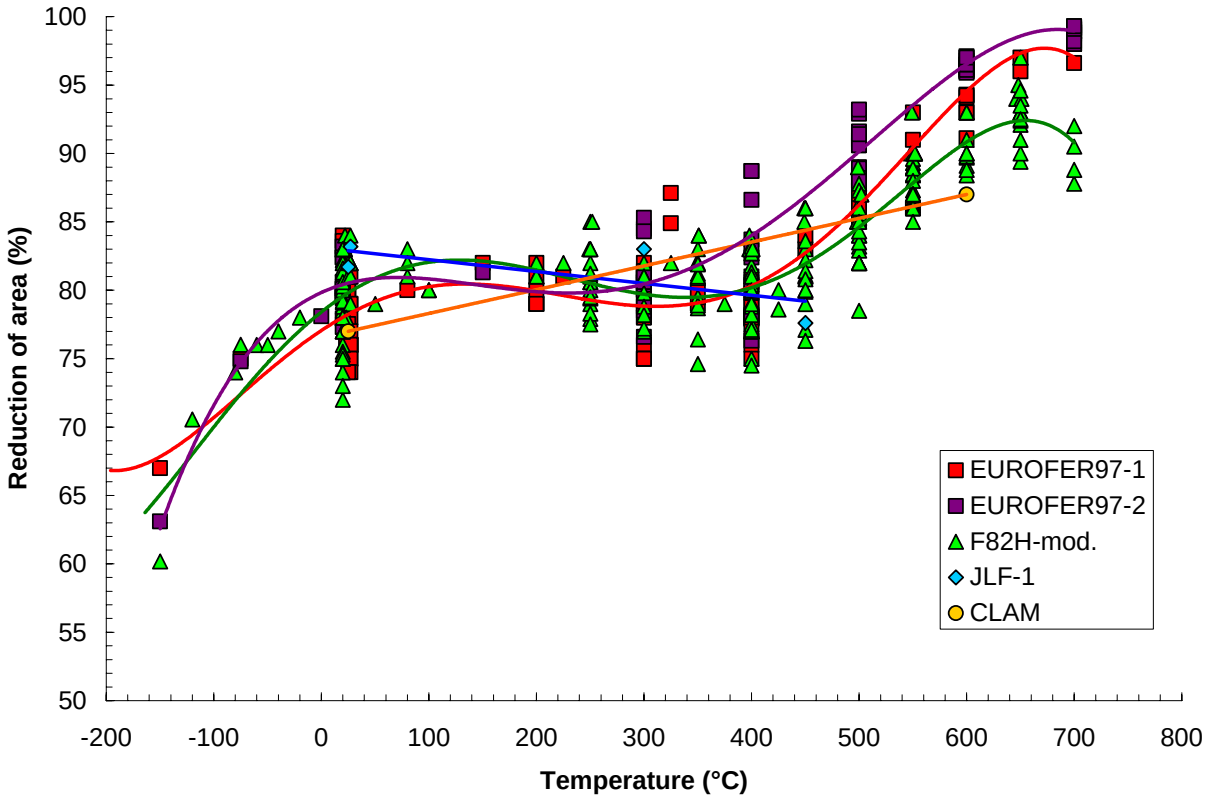

Figure 25 – Reduction of area for various RAFM steels in the unirradiated condition (no data available for OPTIFER).

4.4.1 Discussion

- All RAFM steels considered display equivalent mechanical resistance. A tendency is observed for the yield and tensile strengths of EUROFER97 to be slightly higher than those of F82H-mod at low temperatures (< 0 °C), while the opposite is observed at high temperatures (> 500 °C).
- In terms of strain hardening capability and ductility parameters, the comparisons are complicated by the large experimental scatter (partly induced by the variety of sample configurations). Nevertheless, it appears that F82H has lower strain hardening capability than EUROFER97 above 300 °C and lower ductility above room temperature.
- The CLAM steel shows the highest strain hardening which may explain the comparatively high uniform elongation at RT and 350 °C, although just two experimental values are available in the literature and have been included in our database.

5 Irradiated tensile properties

5.1 Dose dependence

In order to investigate the dose dependence of the tensile properties of EUROFER97, the following approach is followed:

- the test temperature is kept constant (or variable within narrow limits);
- data have been grouped and identified based on the irradiation temperature (different symbols on the same plot).

Along with the tensile parameters considered in the previous section, values of irradiation hardening ΔR_y have been analyzed, using for the reference condition the regression function established for the unirradiated EUROFER97-1 or EUROFER97-2 (Figure 1 and Figure 7).

Based on the tensile results available in our database, the following data sets have been analyzed:

- T_{test} = RT-50 °C, T_{irr} = 50,60,300,325 °C (Figure 26 to Figure 32);
- T_{test} = 100 °C, T_{irr} = 60,300 °C (Figure 33 to Figure 39);
- T_{test} = 300-325 °C, T_{irr} = 60,300,325,330,336 °C (Figure 40 to Figure 46);
- T_{test} = 400 °C, T_{irr} = 60,300 °C (Figure 47 to Figure 53);
- $T_{test} \sim T_{irr}$, with T_{irr} = 50 – 350 °C (only irradiation hardening, Figure 54).

All tensile parameters are represented as a function of accumulated dose (dpa), except yield strength, irradiation hardening and tensile strength, which are plotted in terms of the square root of dose (√dpa). Such dependence is suggested by the principle of dispersed barrier hardening [22], assuming a 1:1 relationship between hardening feature number density and dose.

Due to scarcity of data and the large scatter, values of strain hardening capability, uniform elongation, total elongation and reduction of area have not been fitted. General trends are usually clearly visible anyhow.

Tensile strength values have been fitted using a second-order polynomial ($Y = AX^2 + BX + Y_o$, with Y_o = value in the unirradiated condition); values of yield strength and irradiation hardening have been fitted as a function of dose using the following general fitting expression [11]:

$$Y = Y_{sat}\left[1-\exp\left(-\frac{dpa}{dpa_o}\right)\right]^p + Y_o \qquad (1)$$

where Y can be yield strength, tensile strength or irradiation hardening, Y_{sat} is the value at saturation, dpa_o specifies the dose transient prior to saturation, p is an effective dispersed-barrier hardening exponent. Y_o is an offset which corresponds to the unirradiated value and is equal to 0 in case Y corresponds to irradiation hardening. The initial hardening rate is characterized by Y_{sat}/dpa_o^p.

In the case of simple dispersed barrier hardening with one type, size and strength of hardening feature, and with a number density that initially increases linearly with dose, $p \approx 1/2$. This is the so-called Makin and Minter model [23,24], and for irradiation hardening it reduces to:

$$\Delta R_y = \Delta R_{y,sat}\sqrt{1-\exp\left(-\frac{dpa}{dpa_o}\right)} \qquad (2)$$

with the initial hardening rate given by $\Delta R_{y,sat}/\sqrt{dpa_o}$.

Regressions using p = 1/2 have been performed on yield data, only for T_{irr} = 300 °C; results from specimens irradiated at different temperatures have been plotted but not fitted. Data for EUROFER97-1 and EUROFER97-2 have been fitted together.

The regression coefficients are shown in Table 4.

Table 4 - Regression coefficients.

Data set		R_y (MPa)		
T_{test} (°C)	T_{irr} (°C)	$R_{y,sat}$	dpa_o	$R_{y,o}$
RT-50	300	580.427	4.83028	533.191
100	300	642.075	8.11746	517.922
300	300	564.649	9.61140	617.000
400	300	477.89	6.7961	435.93
Data set		ΔR_y (MPa)		
T_{test} (°C)	T_{irr} (°C)	$\Delta R_{y,sat}$	dpa_o	
RT-50	300	581.766	4.76735	
100	300	642.074	8.11742	
300	300	552.357	8.95682	
400	300	477.88	6.7959	
Data set		R_m (MPa)		
T_{test} (°C)	T_{irr} (°C)	A	B	Y_o
RT-50	300	-3.805	152.81	654.92
100	300	-1.070	147.53	616.44
300	300	6.844	108.05	548.71
400	300	-9.4836	144.94	497.00

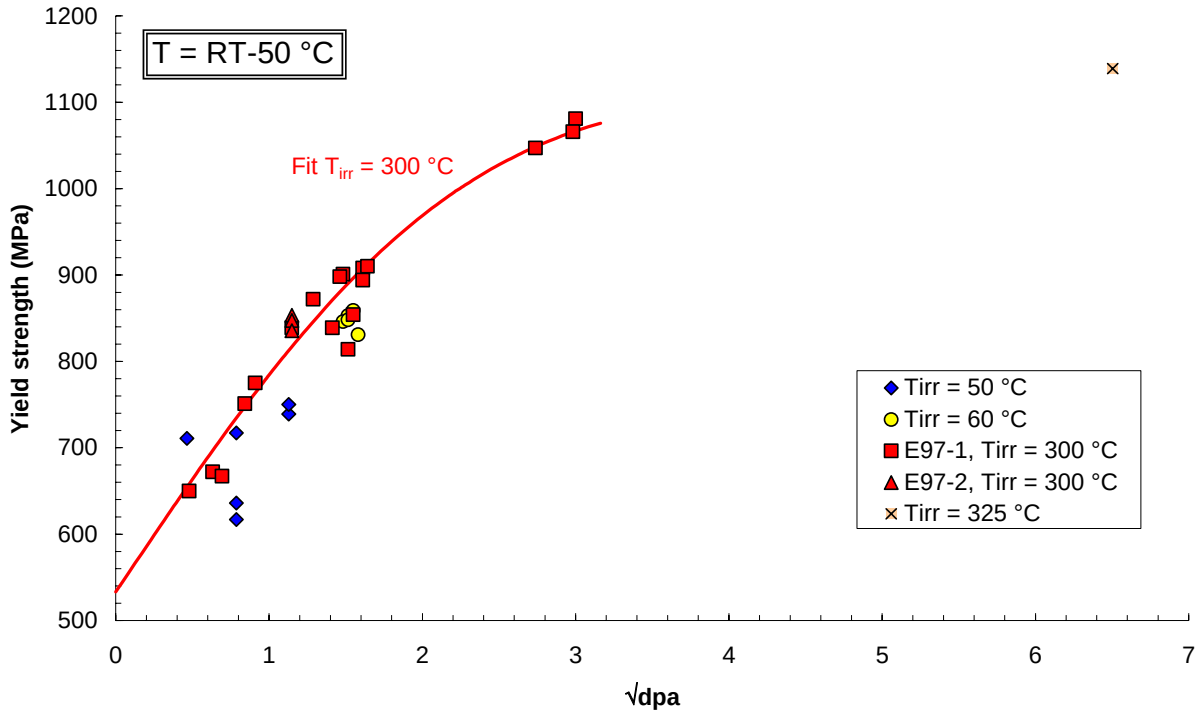

Figure 26 - Yield strength measured at RT-50 °C for irradiated EUROFER97.

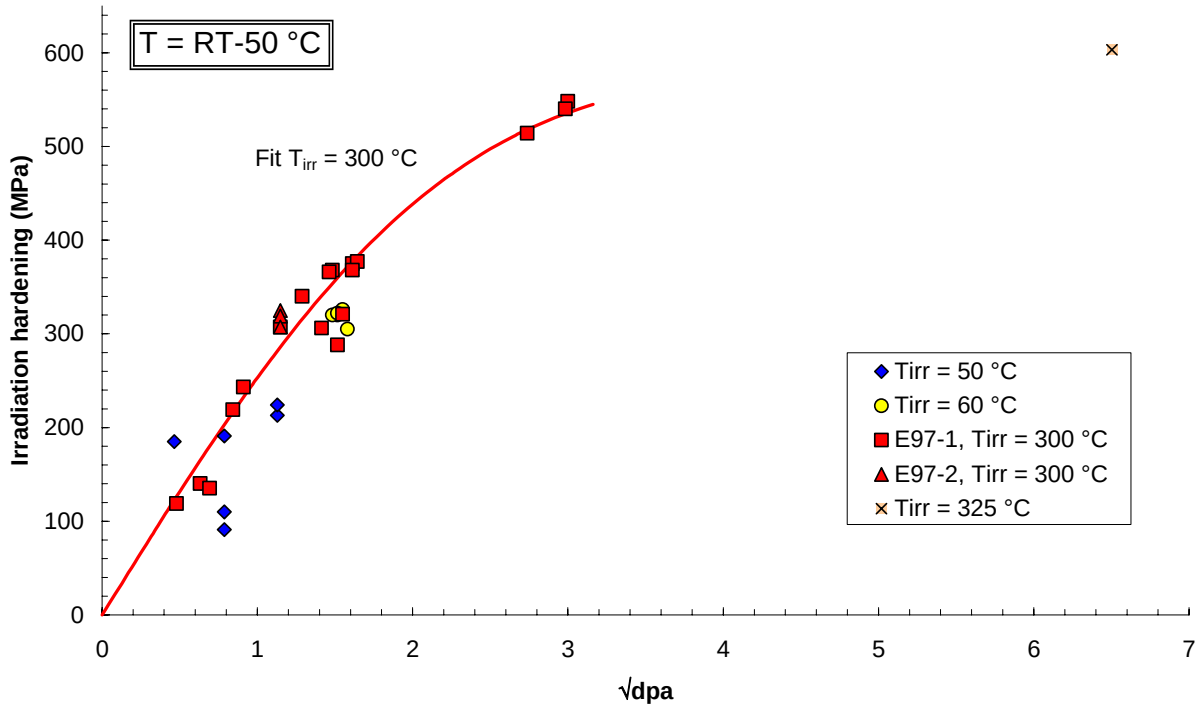

Figure 27 – Irradiation hardening measured at RT-50 °C for irradiated EUROFER97.

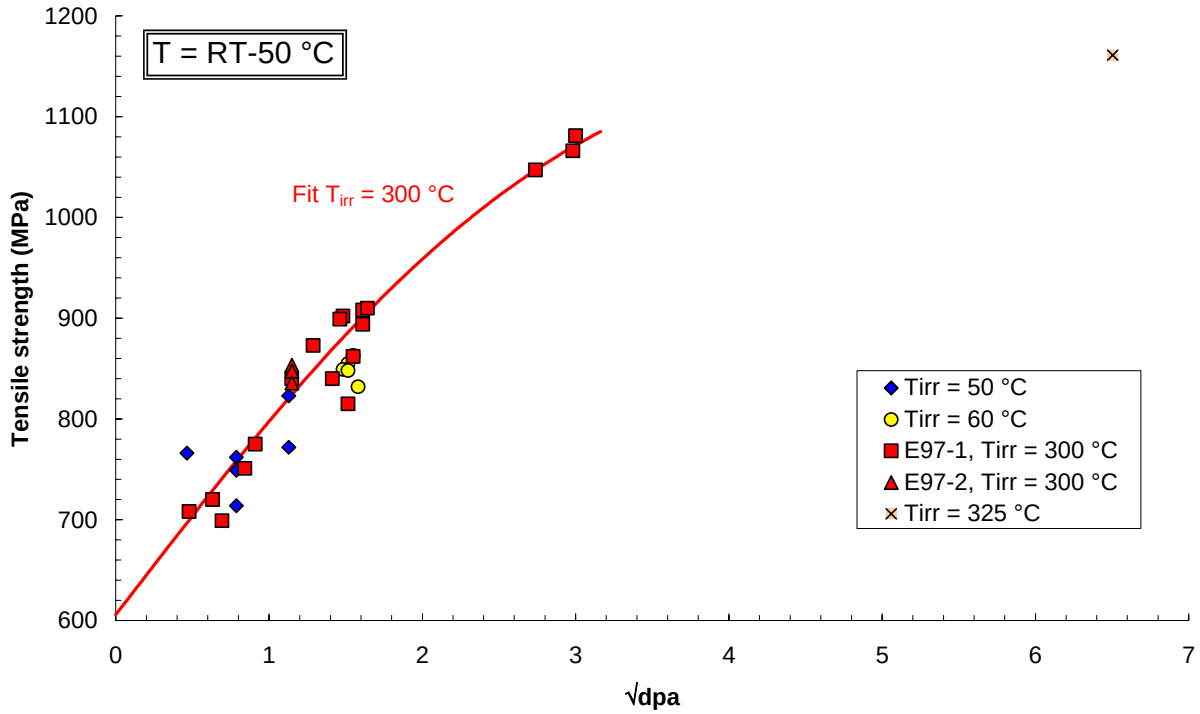

Figure 28 – Tensile strength measured at RT-50 °C for irradiated EUROFER97.

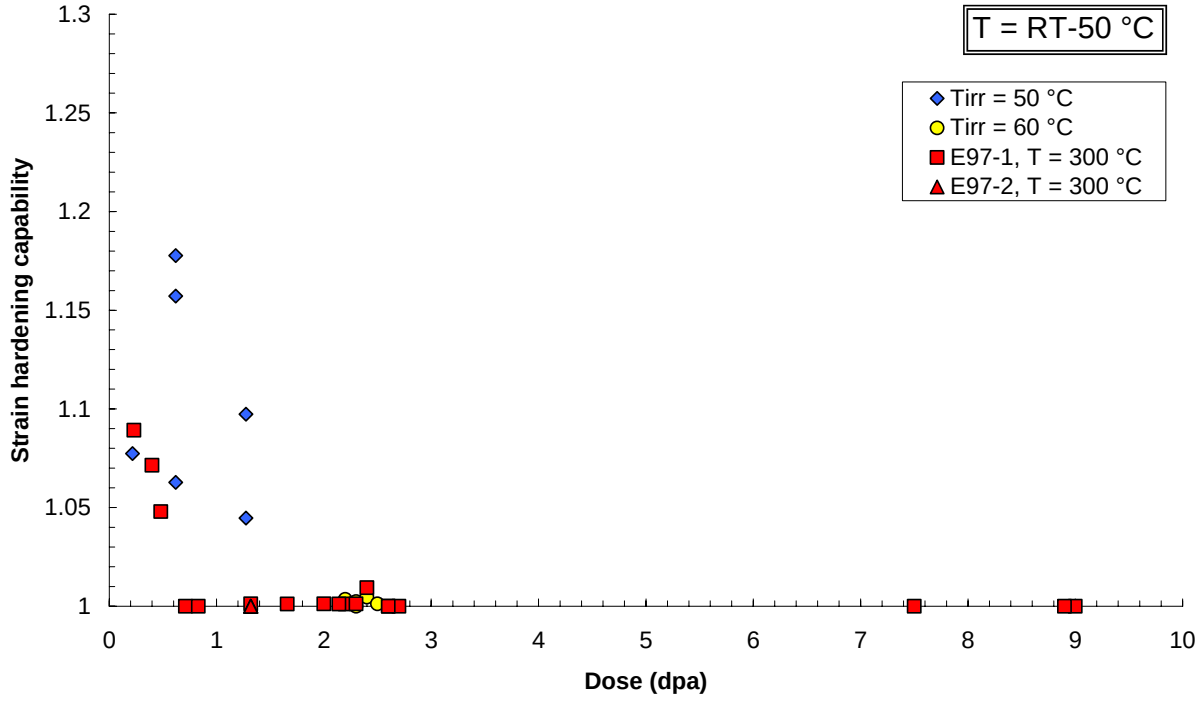

Figure 29 – Strain hardening capability at RT-50 °C for irradiated EUROFER97.

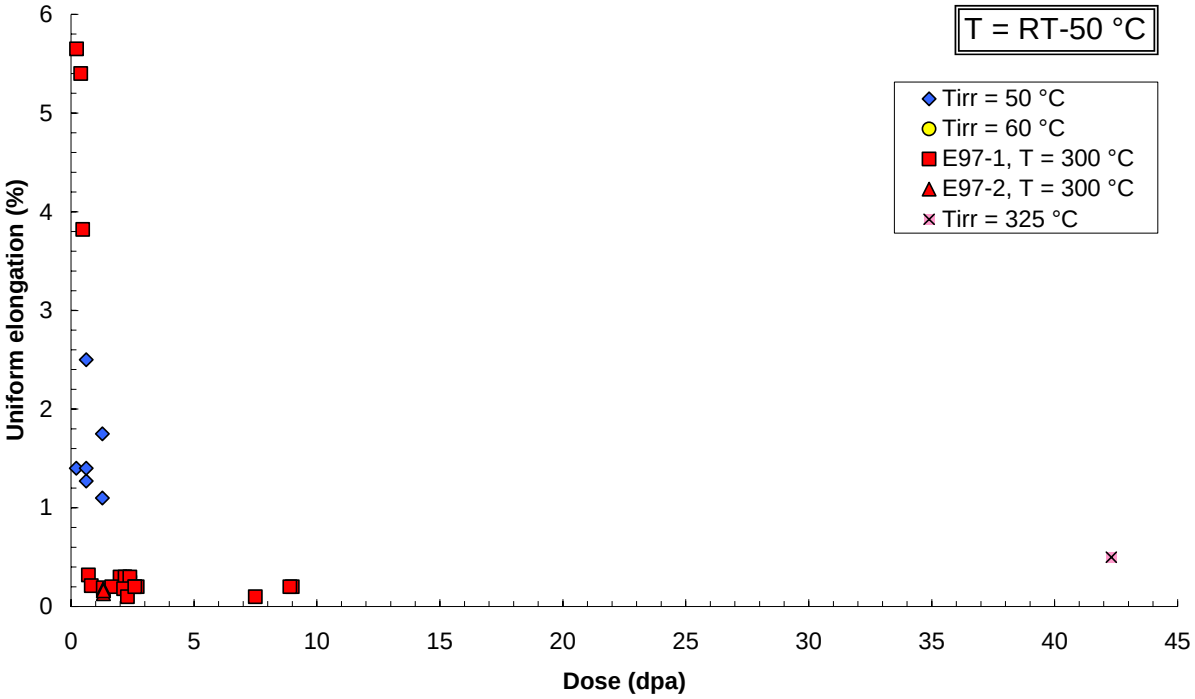

Figure 30 – Uniform elongation measured at RT-50 °C for irradiated EUROFER97.

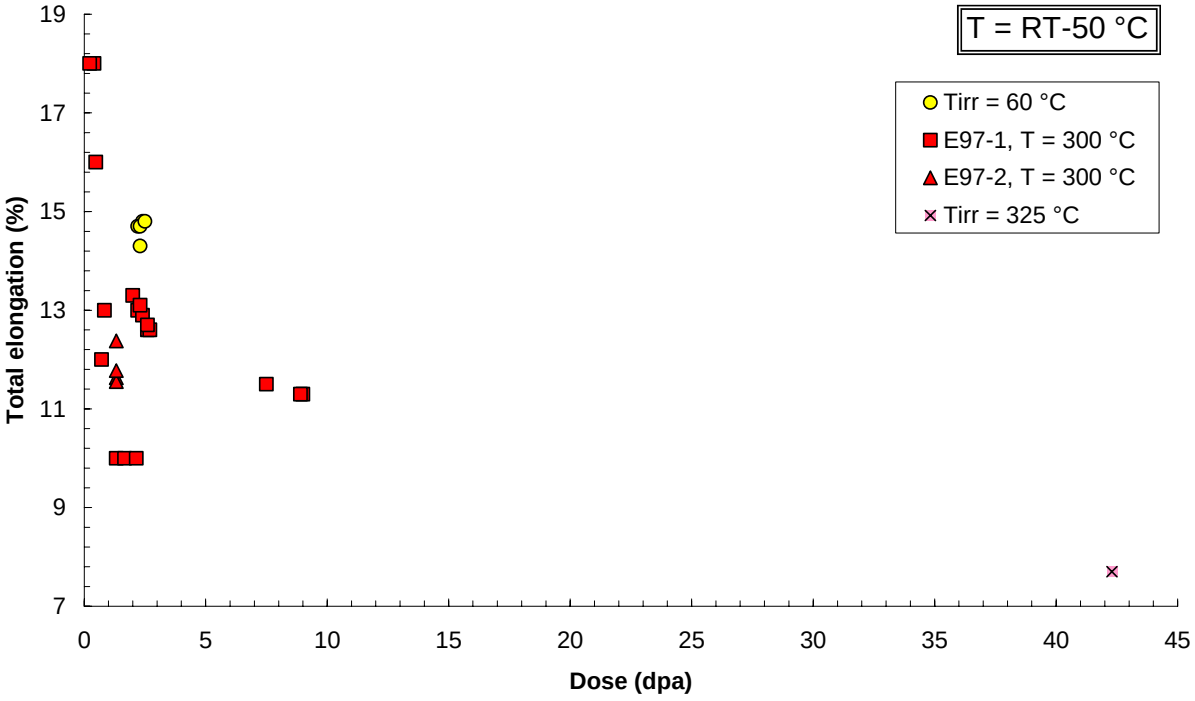

Figure 31 – Total elongation measured at RT-50 °C for irradiated EUROFER97.

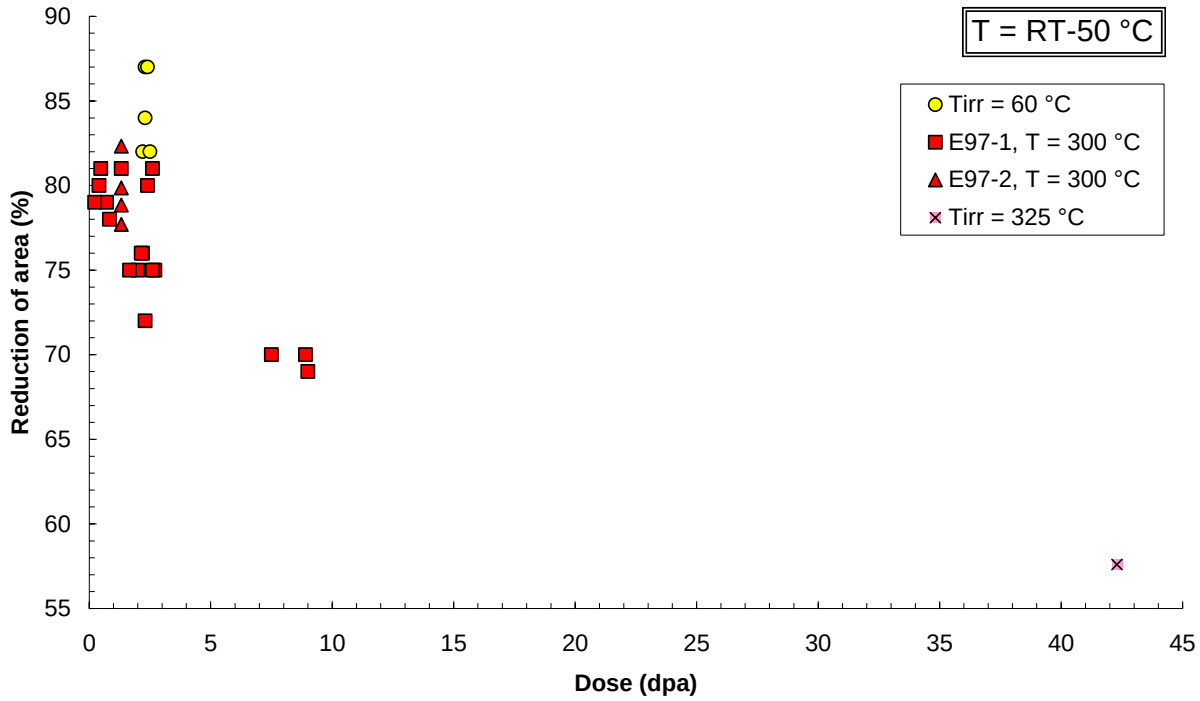

Figure 32 – Reduction of area measured at RT-50 °C for irradiated EUROFER97.

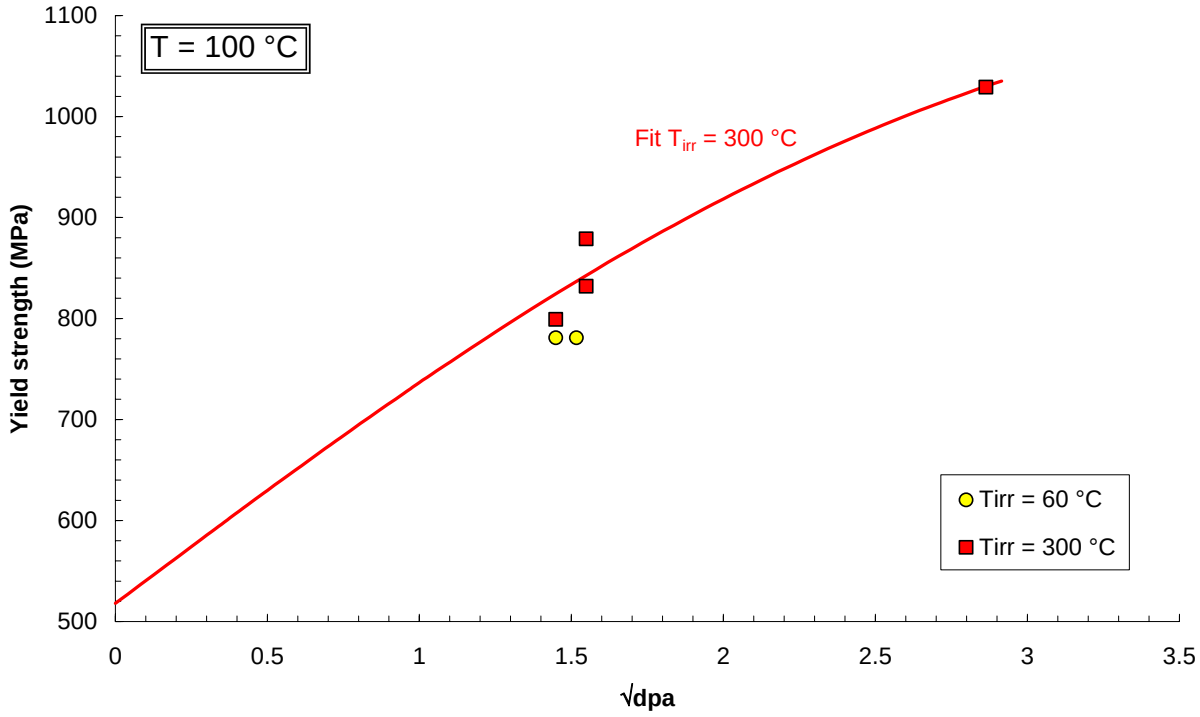

Figure 33 - Yield strength measured at 100 °C for irradiated EUROFER97.

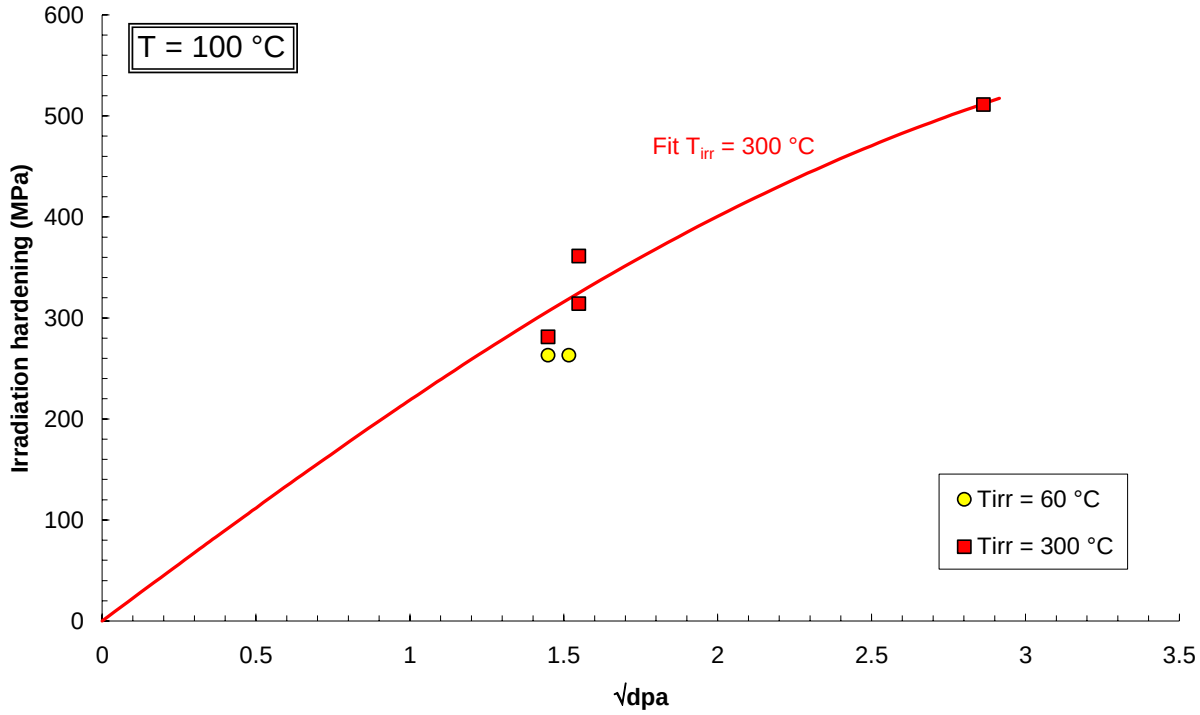

Figure 34 – Irradiation hardening measured at 100 °C for irradiated EUROFER97.

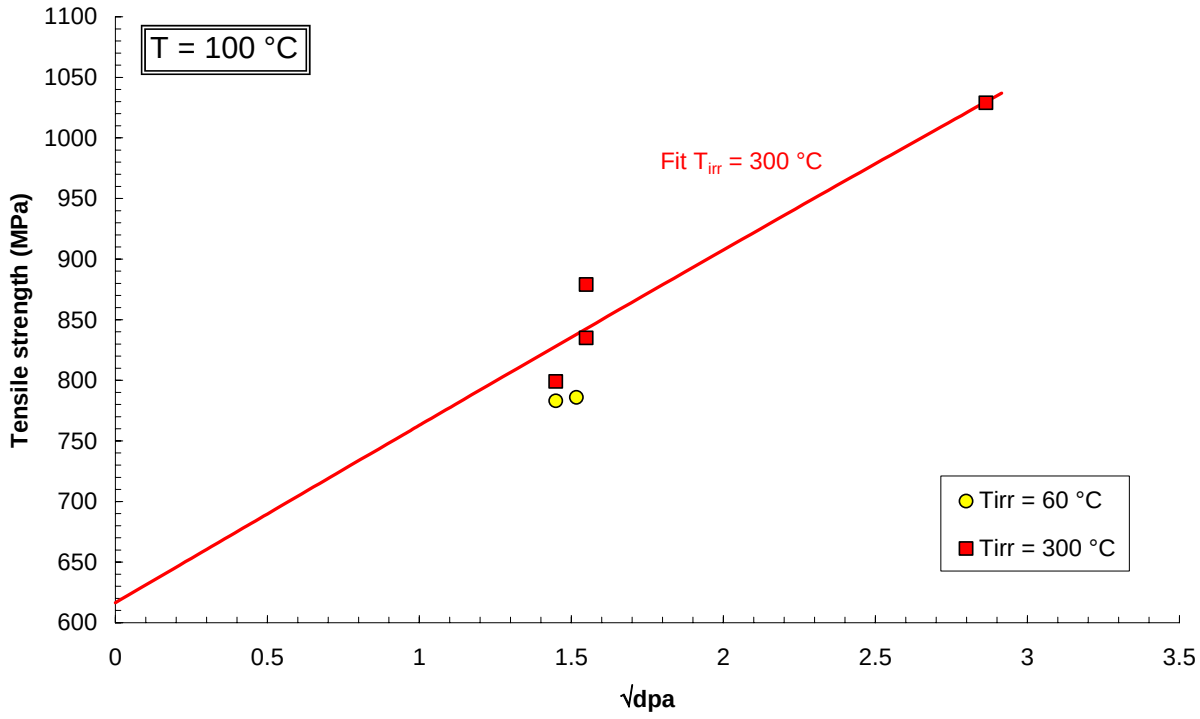

Figure 35 – Tensile strength measured at 100 °C for irradiated EUROFER97.

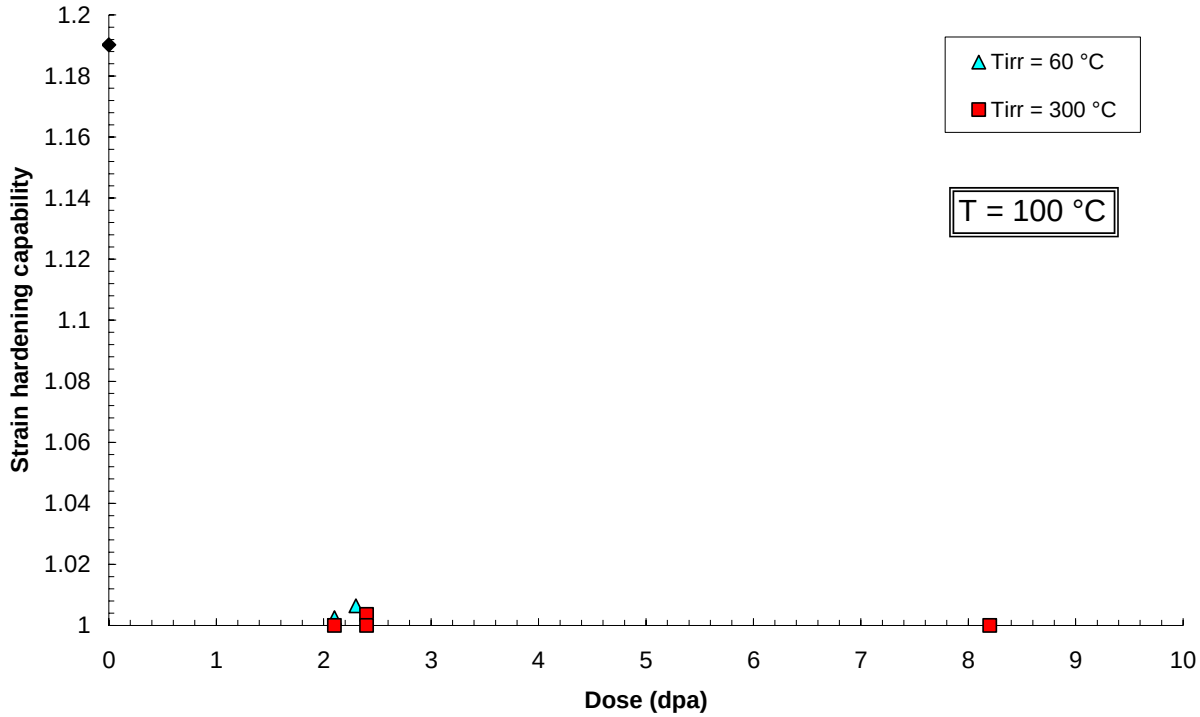

Figure 36 – Strain hardening capability at 100 °C for irradiated EUROFER97.

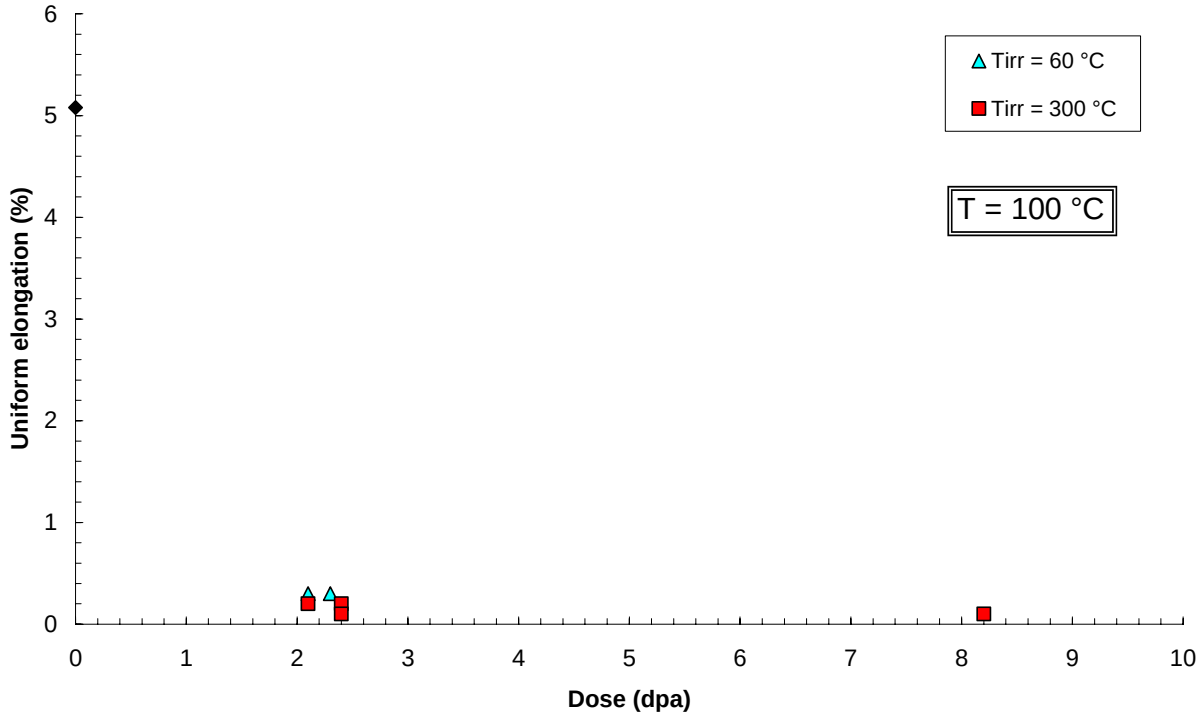

Figure 37 – Uniform elongation measured at 100 °C for irradiated EUROFER97.

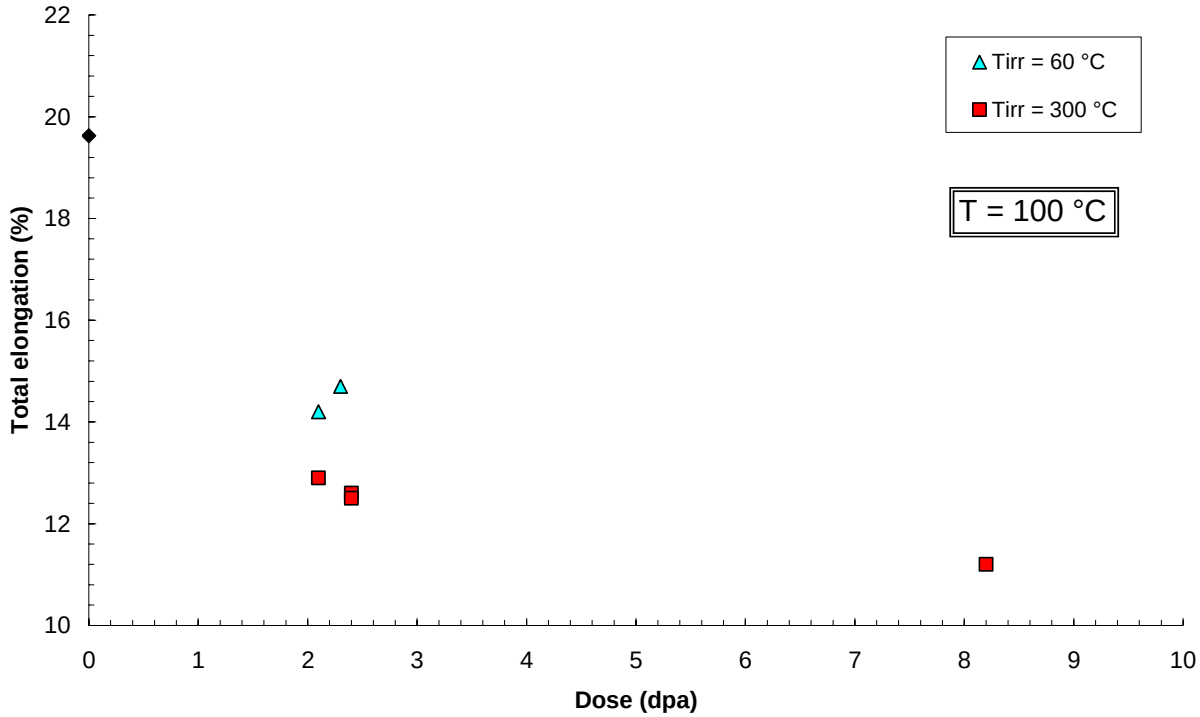

Figure 38 – Total elongation measured at 100 °C for irradiated EUROFER97.

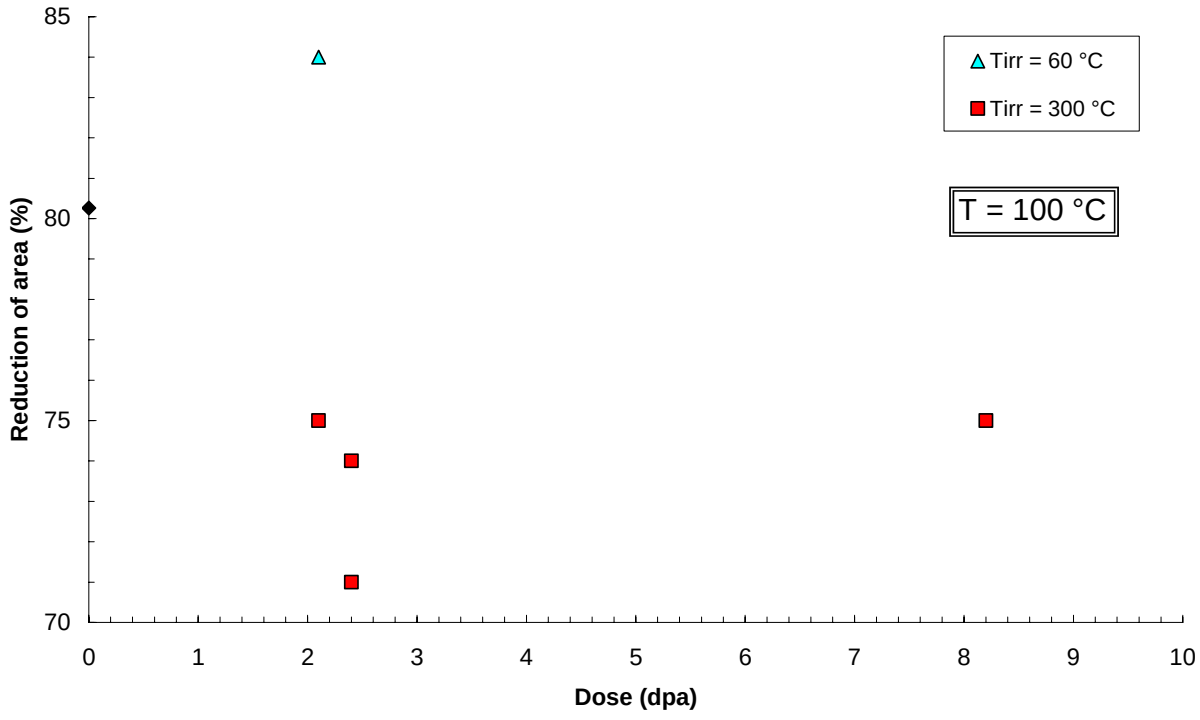

Figure 39 – Reduction of area measured at 100 °C for irradiated EUROFER97.

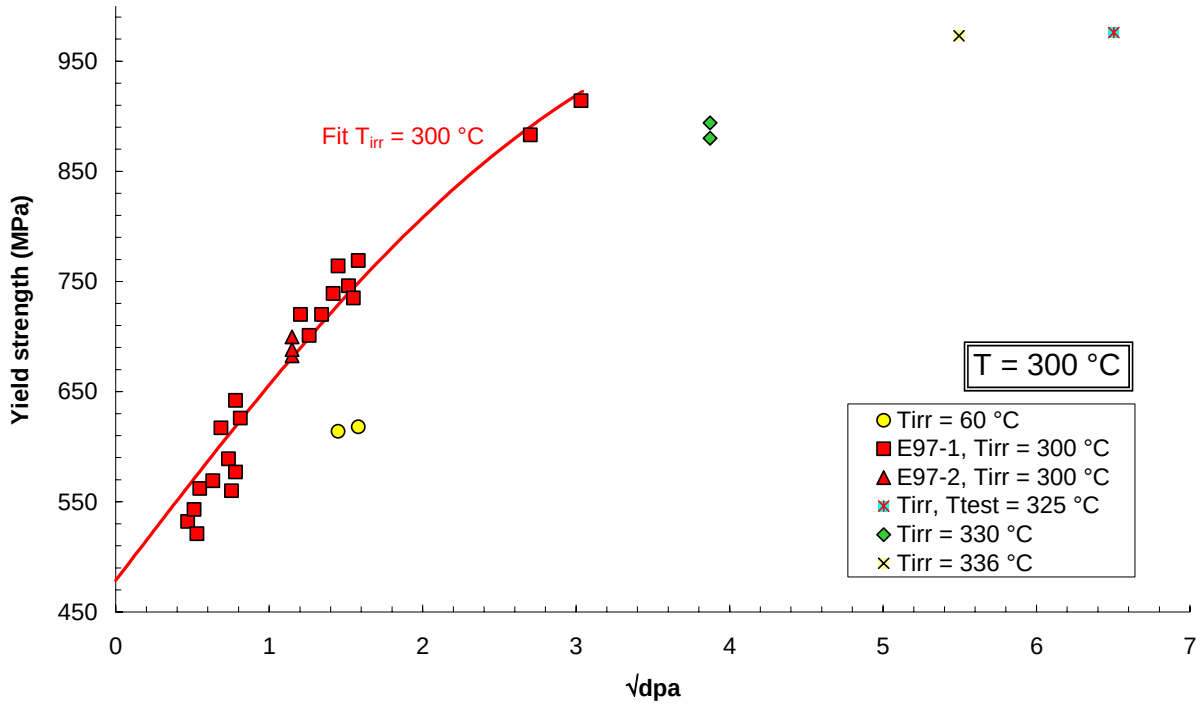

Figure 40 - Yield strength measured at 300 °C for irradiated EUROFER97.

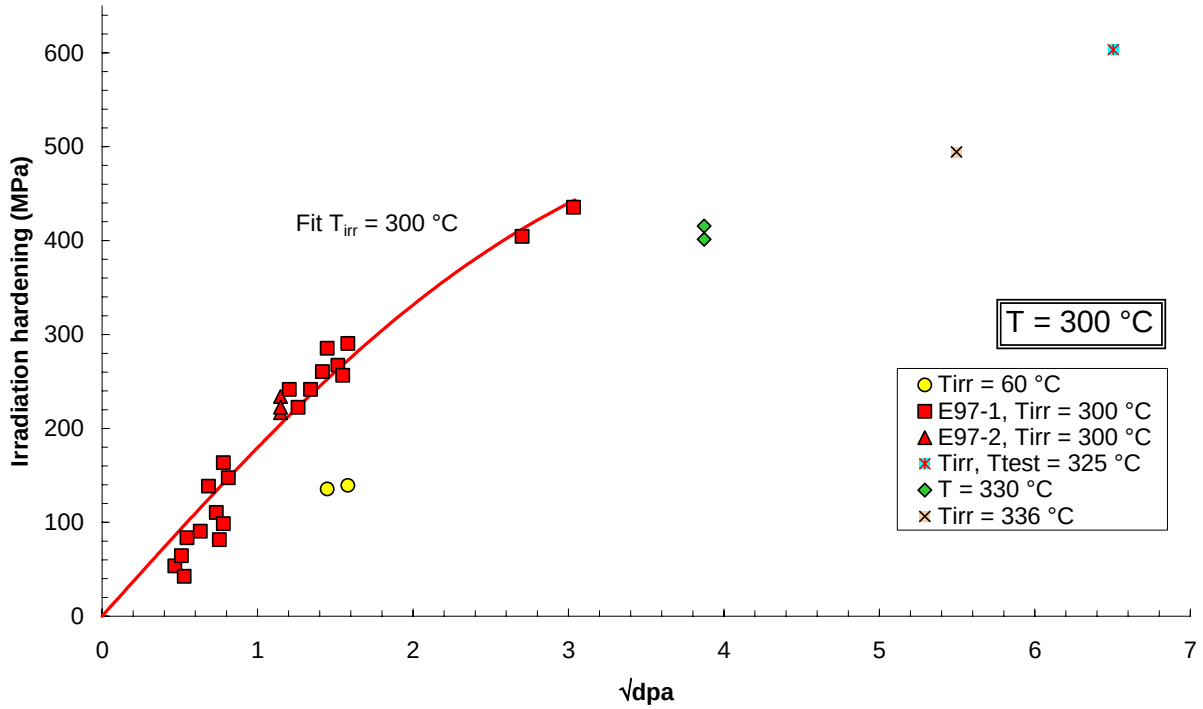

Figure 41 – Irradiation hardening measured at 300 °C for irradiated EUROFER97.

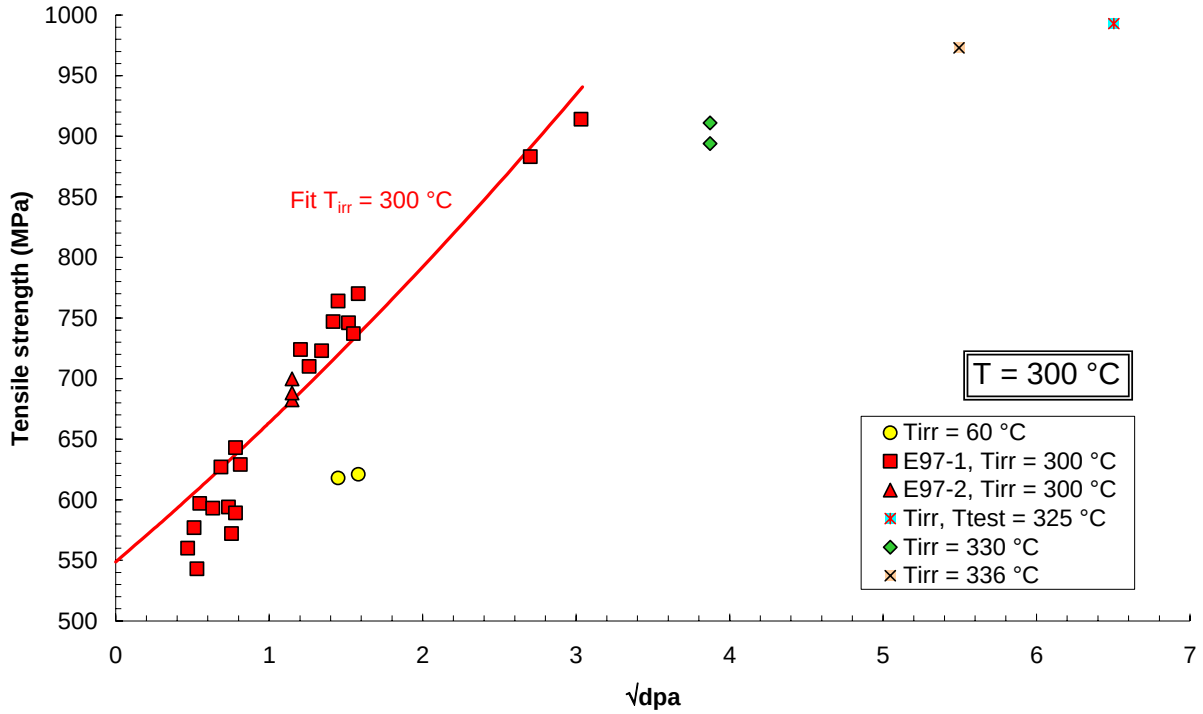

Figure 42 – Tensile strength measured at 300 °C for irradiated EUROFER97.

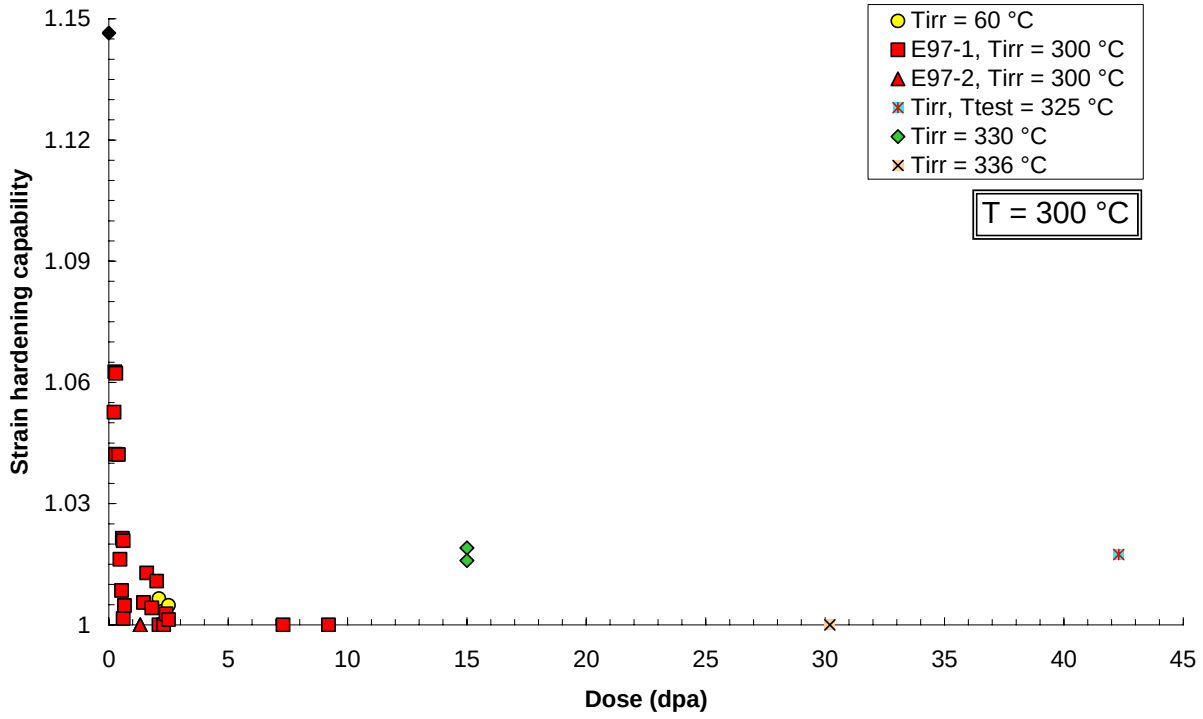

Figure 43 – Strain hardening capability at 300 °C for irradiated EUROFER97.

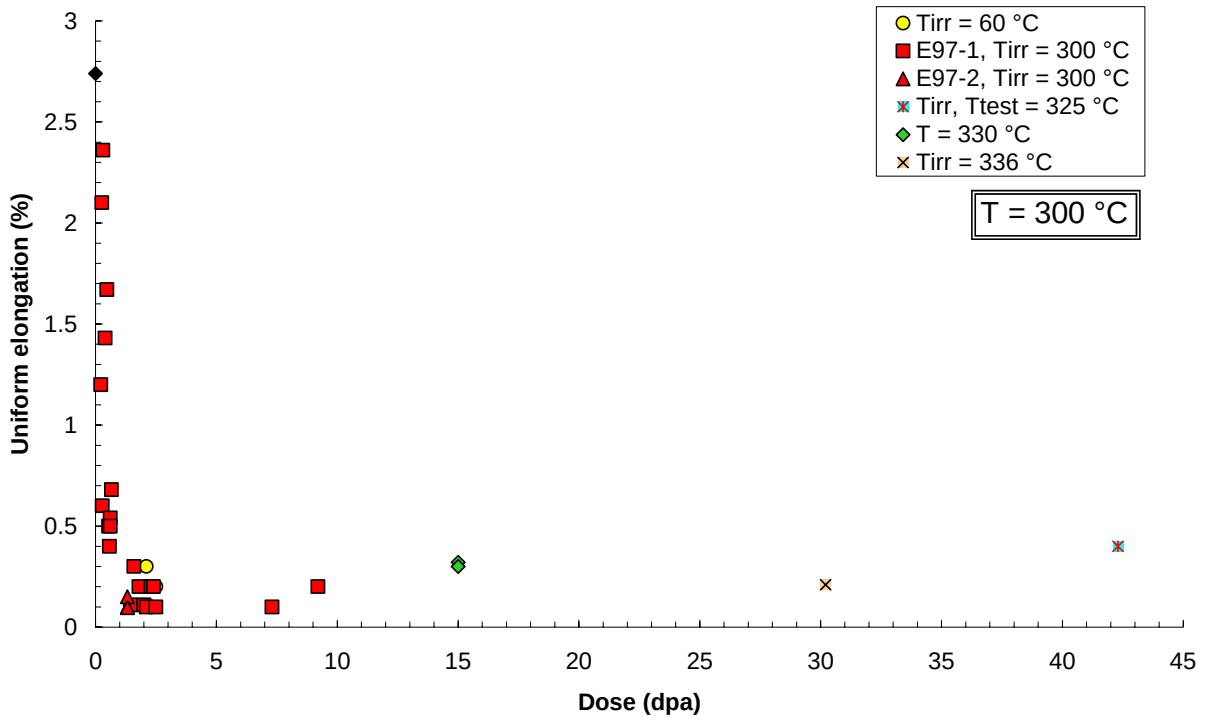

Figure 44 – Uniform elongation measured at 300 °C for irradiated EUROFER97.

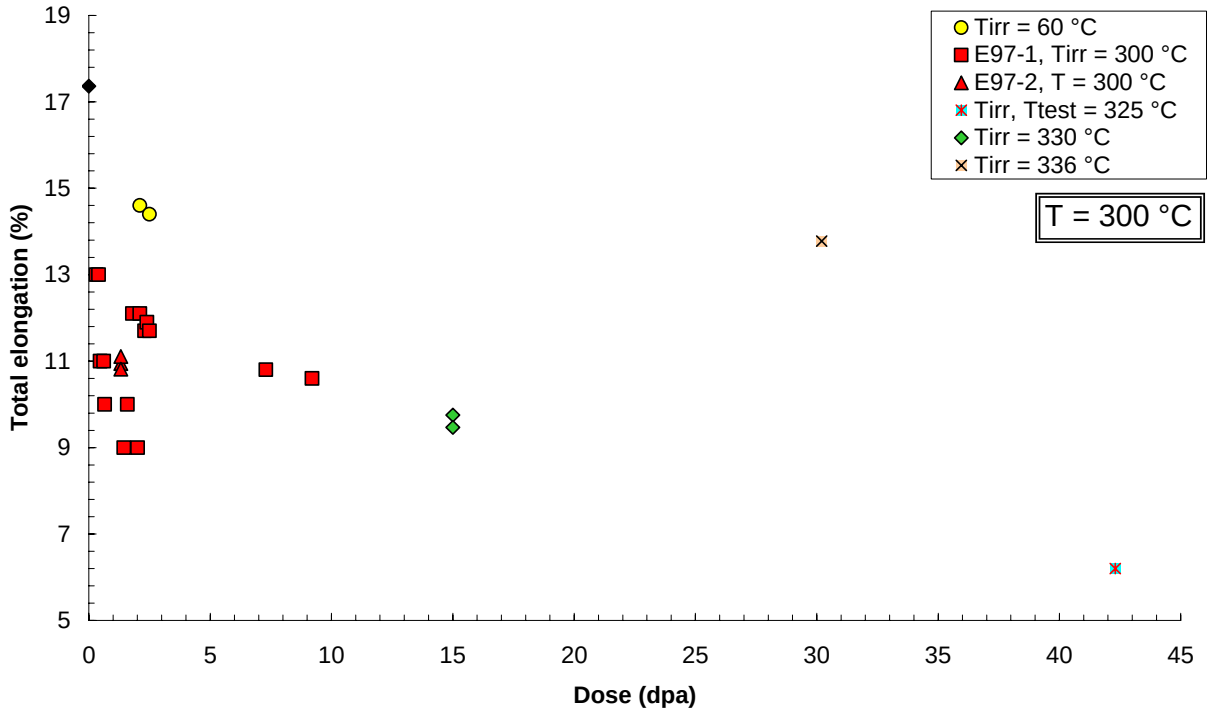

Figure 45 – Total elongation measured at 300 °C for irradiated EUROFER97.

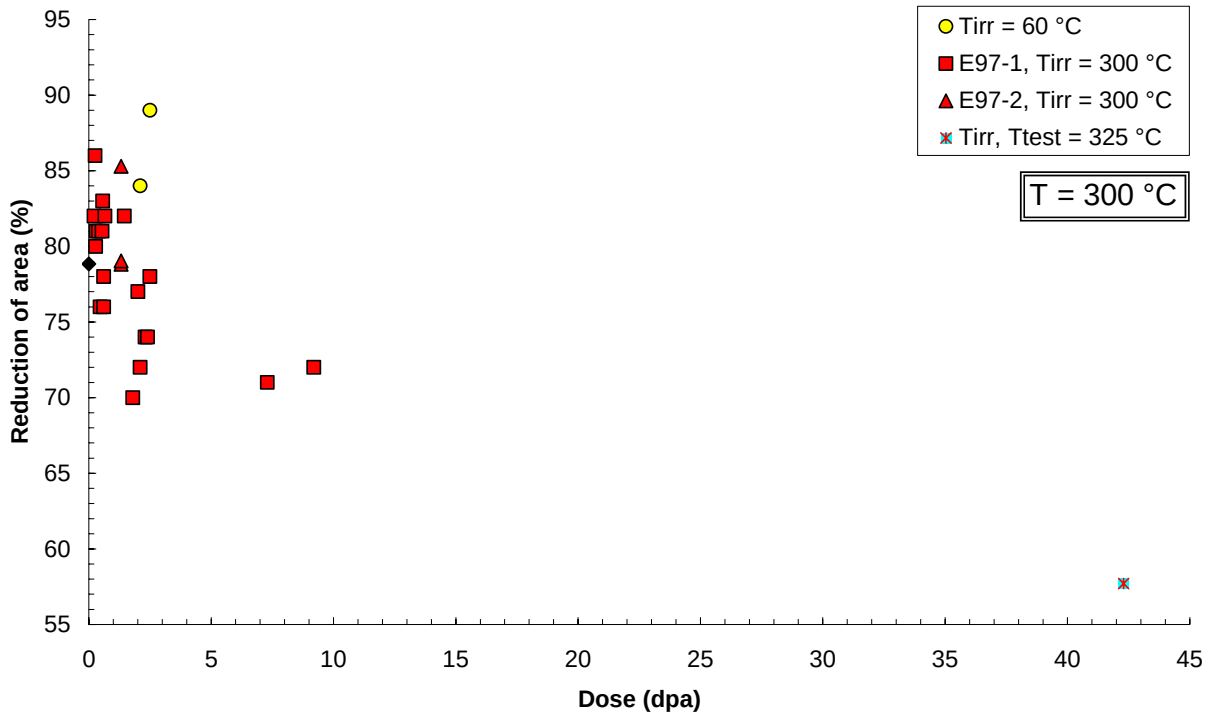

Figure 46 – Reduction of area measured at 300 °C for irradiated EUROFER97.

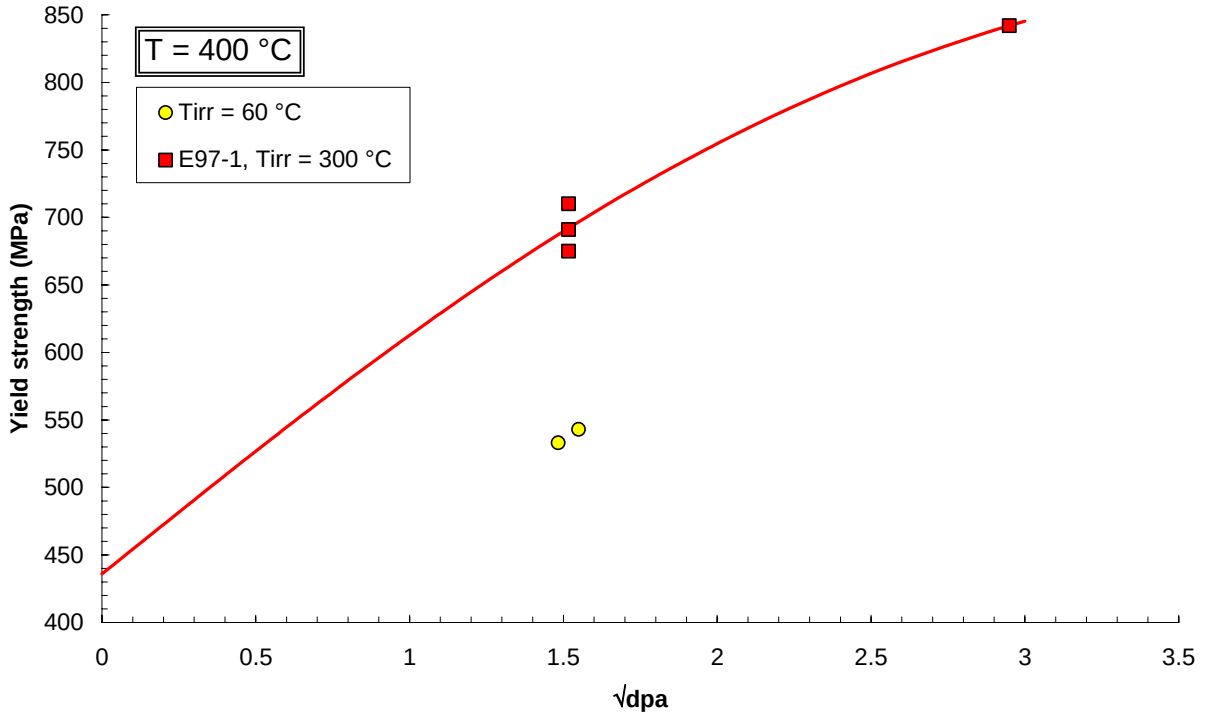

Figure 47 - Yield strength measured at 400 °C for irradiated EUROFER97.

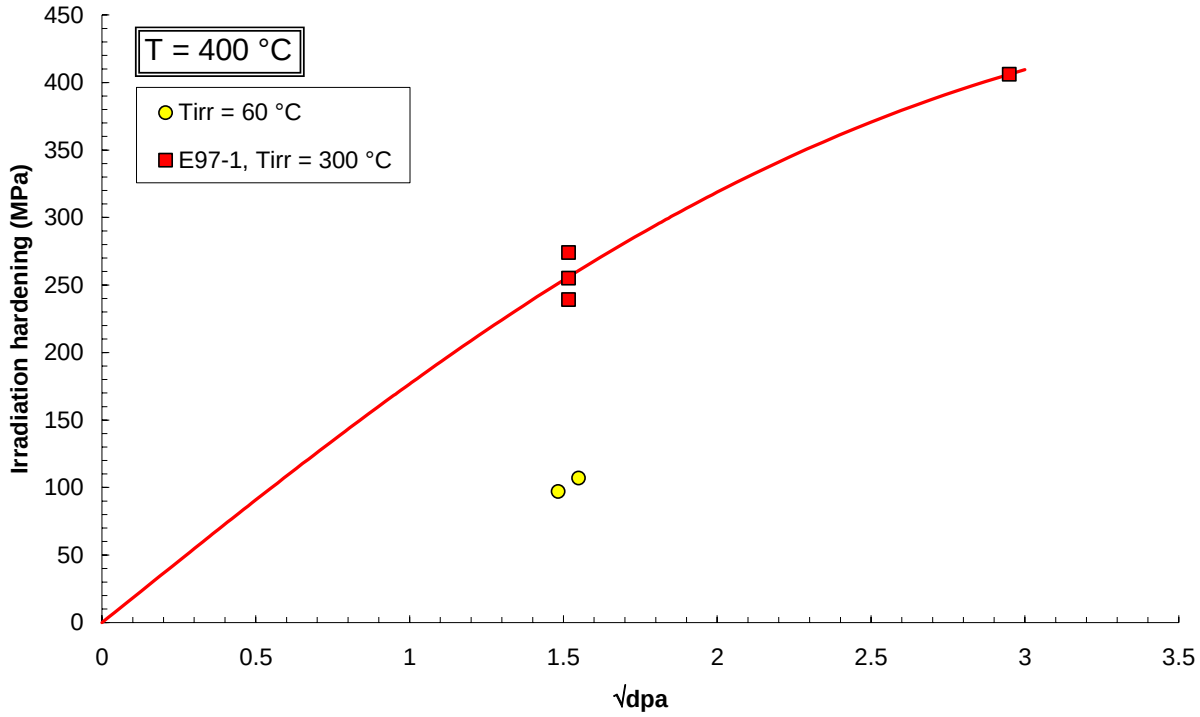

Figure 48 – Irradiation hardening measured at 400 °C for irradiated EUROFER97.

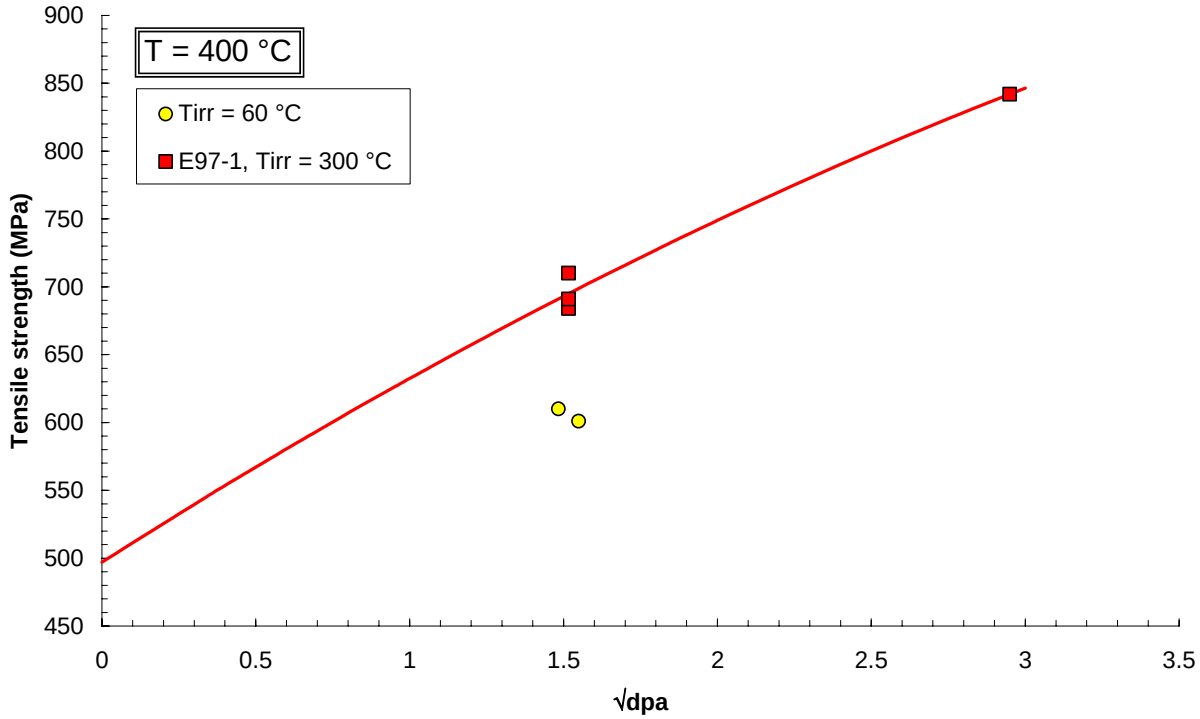

Figure 49 – Tensile strength measured at 400 °C for irradiated EUROFER97.

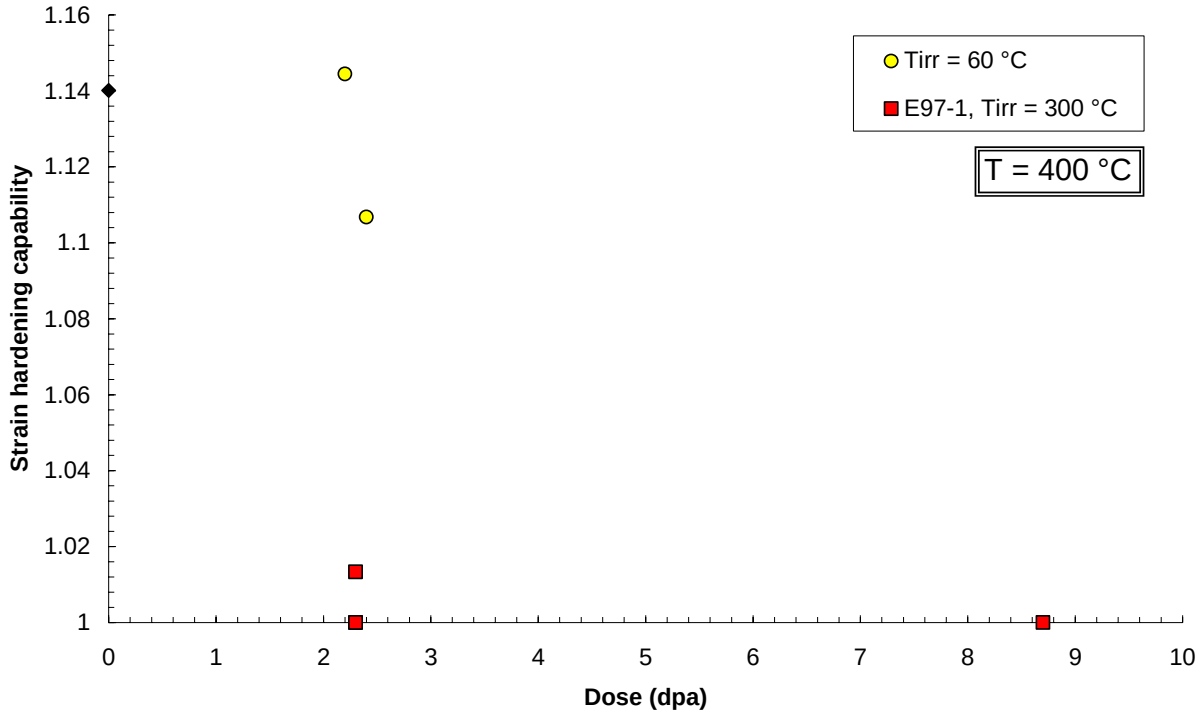

Figure 50 – Strain hardening capability at 400 °C for irradiated EUROFER97.

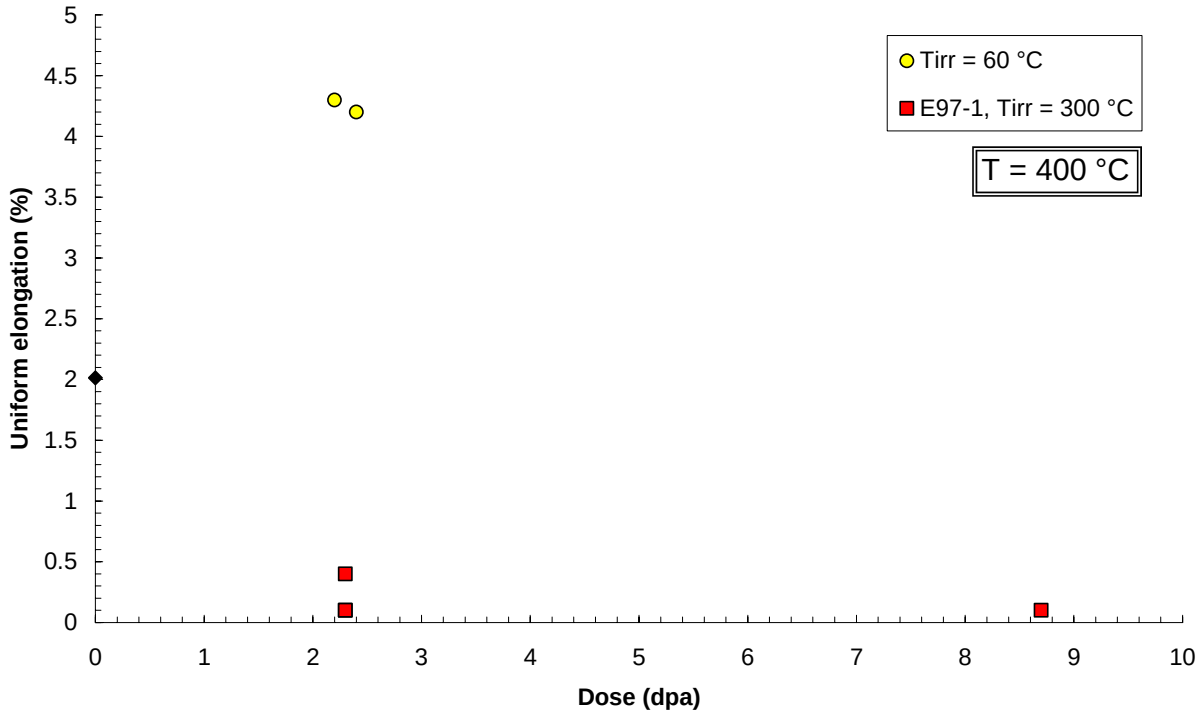

Figure 51 – Uniform elongation measured at 400 °C for irradiated EUROFER97.

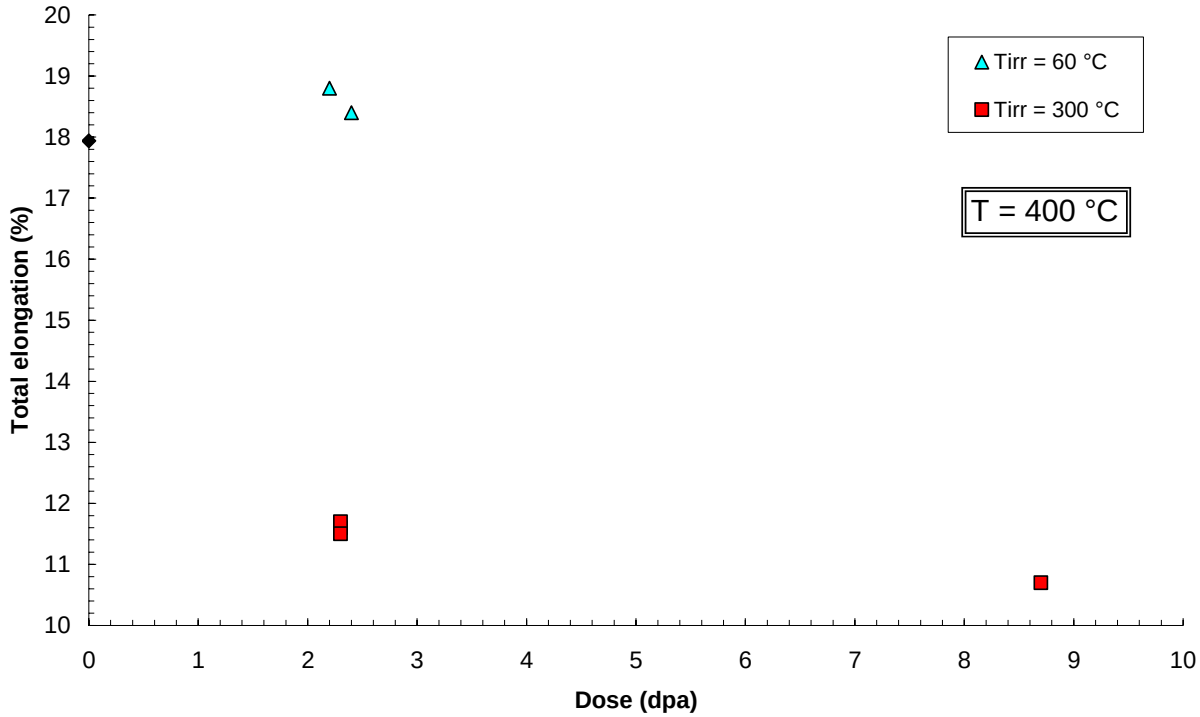

Figure 52 – Total elongation measured at 400 °C for irradiated EUROFER97.

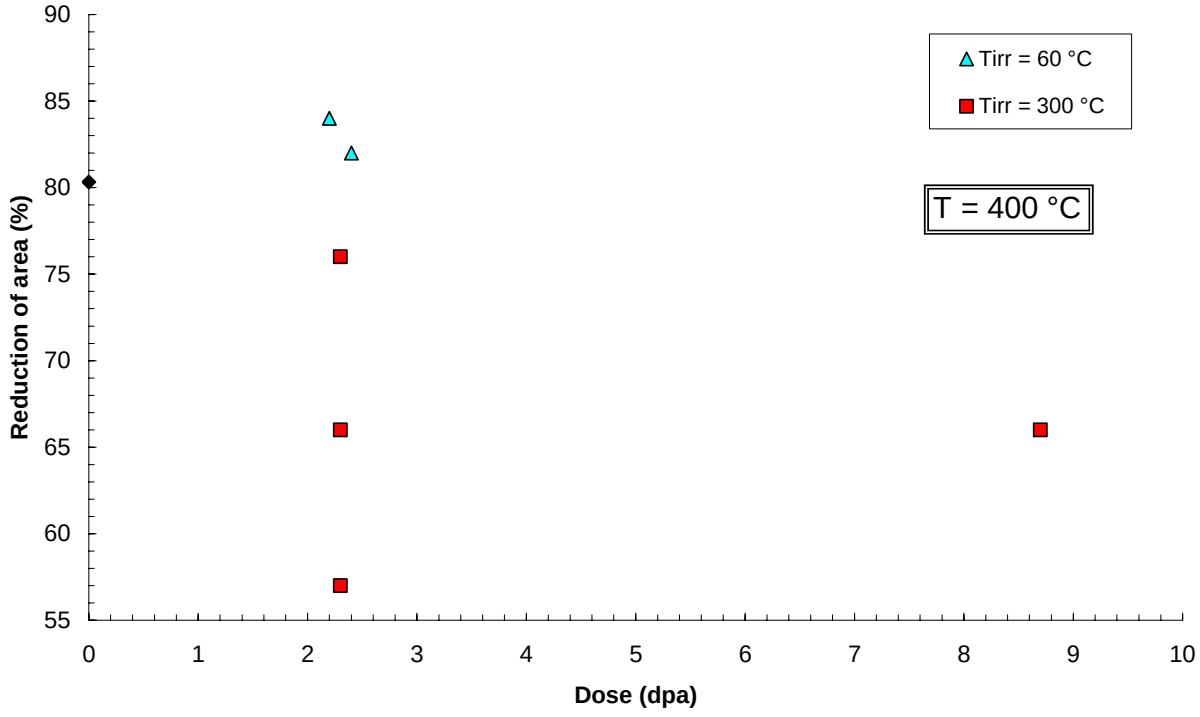

Figure 53 – Reduction of area measured at 400 °C for irradiated EUROFER97.

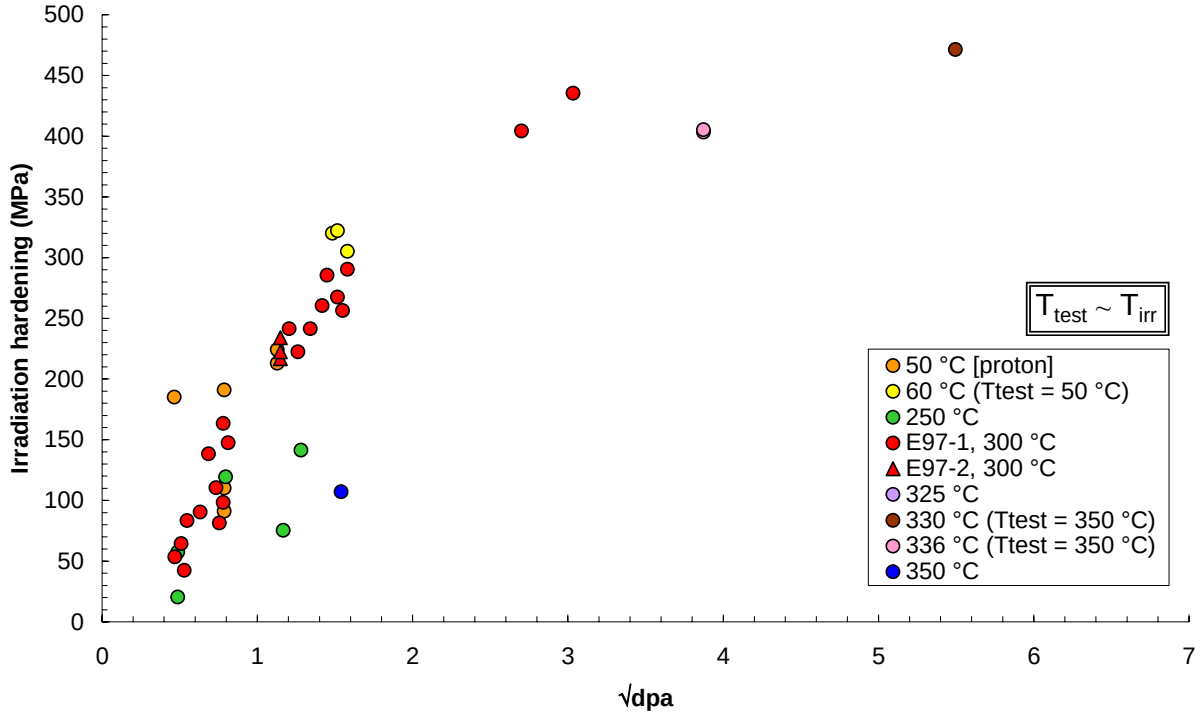

Figure 54 – Irradiation hardening measured at $T_{test} \sim T_{irr}$ for irradiated EUROFER97.

5.1.1 Discussion

The most numerous available data for investigating the dose dependence of EUROFER97 are from irradiations conducted at 300 °C and from tests performed at RT and 300 °C.

- Irradiation hardening increases steeply with dose up to approximately 10 dpa and appears to level off at higher doses (results from irradiation campaigns conducted at 300 °C up to 16-20 dpa, yet unavailable, are needed to confirm this statement); the information presently available does not allow defining neither the dose corresponding to hardening saturation nor the actual saturation level.
- Data measured from irradiations conducted in the range 325-336 °C seem to provide slightly less hardening than for T_{irr} = 300 °C, thus indicating that 300 °C represents the most critical irradiation temperature.
- Above 0.7 dpa, the ductility of EUROFER97 is seriously degraded; namely:
  - strain hardening capability vanishes ($R_y \approx R_m$);
  - uniform and total elongation drop below 0.5% and 15% respectively;
  - reduction of area sharply decreases, albeit with a large dispersion of results.
- For $T_{test} \leq$ 100 °C, results from irradiations at 60 °C and 300 °C are in general agreement; however, earlier studies [19] have clearly shown that hardening at 60 °C increases and saturates much faster at relatively low doses than at 300 °C. Therefore the observed agreement is coincidental, and depends on the limited results available for T_{irr} = 60 °C. Above 100 °C, a predictable annealing effect of the test temperature causes a partial recovery of irradiation effects for T_{irr} = 60 °C.
- Considering hardening values measured at or close to irradiation temperature ($T_{test} \sim T_{irr}$), we observe that available results for T_{irr} = 50 – 336 °C fall within a reasonably narrow scatter band (Figure 54).
- The post-irradiation tensile behaviour of EUROFER97-2 is fully comparable to that of EUROFER97-1.

5.1.2 Comparison with other RAFM steels

Relatively few data are available in our database for comparing the dose dependence of EUROFER97 with other RAFM steels. They correspond to F82H-mod and JLF-1 irradiated at 300 °C in HFIR up to approximately 5 dpa and tested at RT and 300 °C, and F82H mod. irradiated at 336 °C in BOR-60 (ARBOR-1 experiment) up to 30.2 dpa. Therefore, any conclusion should be corroborated in the future by a more extensive experimental basis.

Hardening for EUROFER97 irradiated at 300 °C (fitted by simple logarithmic curves), is compared in Figure 55 (RT) and Figure 56 (300 °C) to F82H-mod and JLF-1.

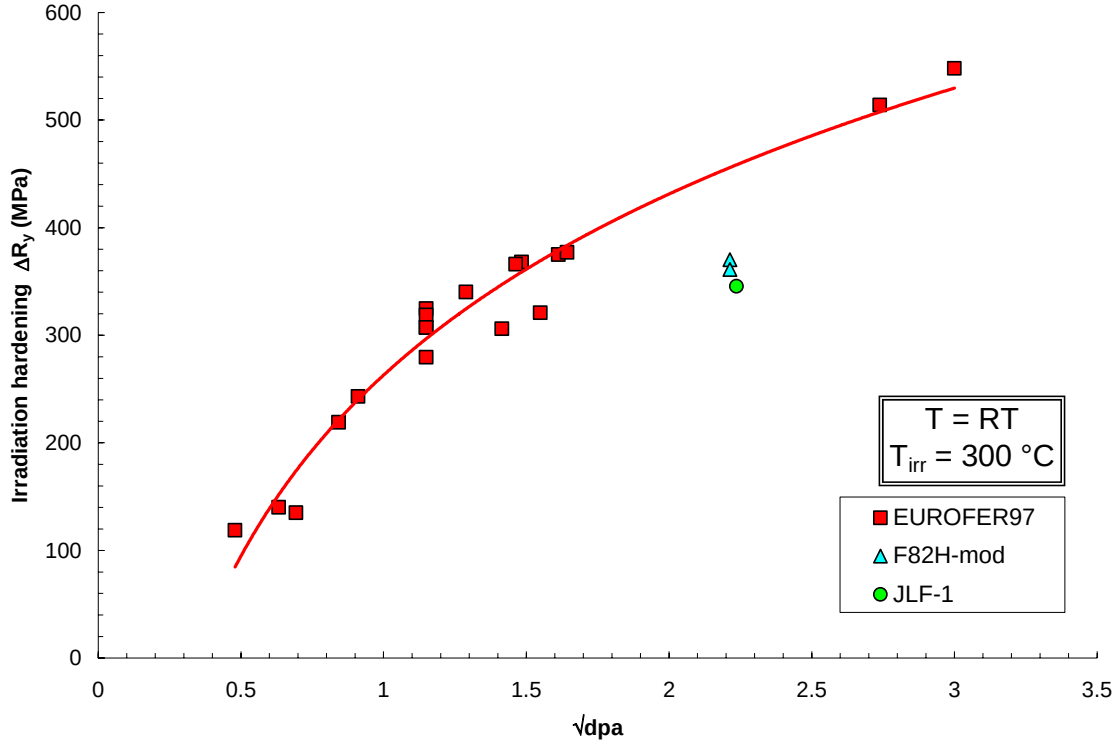

Figure 55 - Irradiation hardening of EUROFER97 tested at RT compared to F82H-mod and JLF-1.

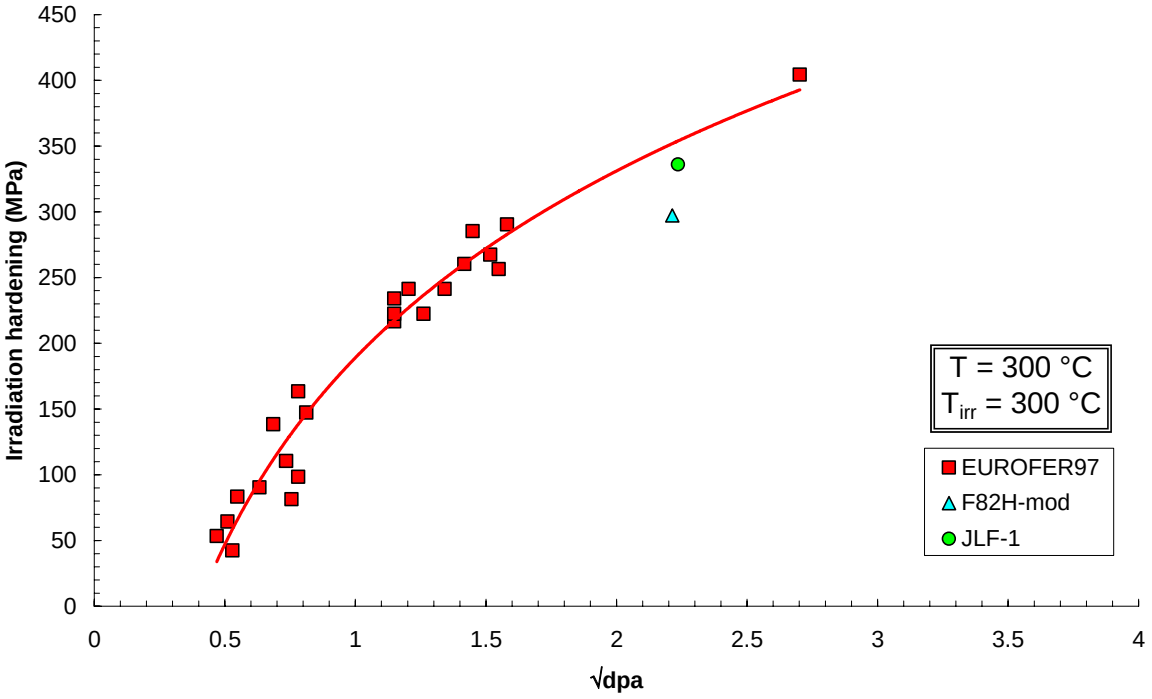

Figure 56 - Irradiation hardening of EUROFER97 tested at 300 °C compared to F82H-mod and JLF-1.

The data presented show that, at both test temperatures and around 5 dpa, EUROFER97 exhibits larger irradiation hardening than F82H-mod and JLF-1. In terms of ductility, uniform elongation is lower for EUROFER97 and total elongation is higher; however, differences in terms of elongation might be primarily caused by different specimen configurations (mostly cylindrical with round cross section for EUROFER97, flat with rectangular cross section for F82H-mod and JLF-1).

5.2 Irradiation temperature dependence

In order to investigate the dependence of the tensile properties of EUROFER97 from irradiation temperature, the following approach has been followed:

- accumulated doses have been fixed within narrow ranges;
- data sets corresponding to different test temperatures have been considered.

The first group of tensile data which can be analyzed corresponds to irradiations conducted at 60 °C (SIWAS-09) and 300 °C (SUMO-04 and SOSIA-02), within the dose range 2.10-2.60 dpa. Results obtained at RT/50 °C, 100 °C, 200 °C, 300 °C and 400 °C are available.

Values of irradiation hardening, tensile strength and total elongation are plotted in Figure 57 to Figure 59.

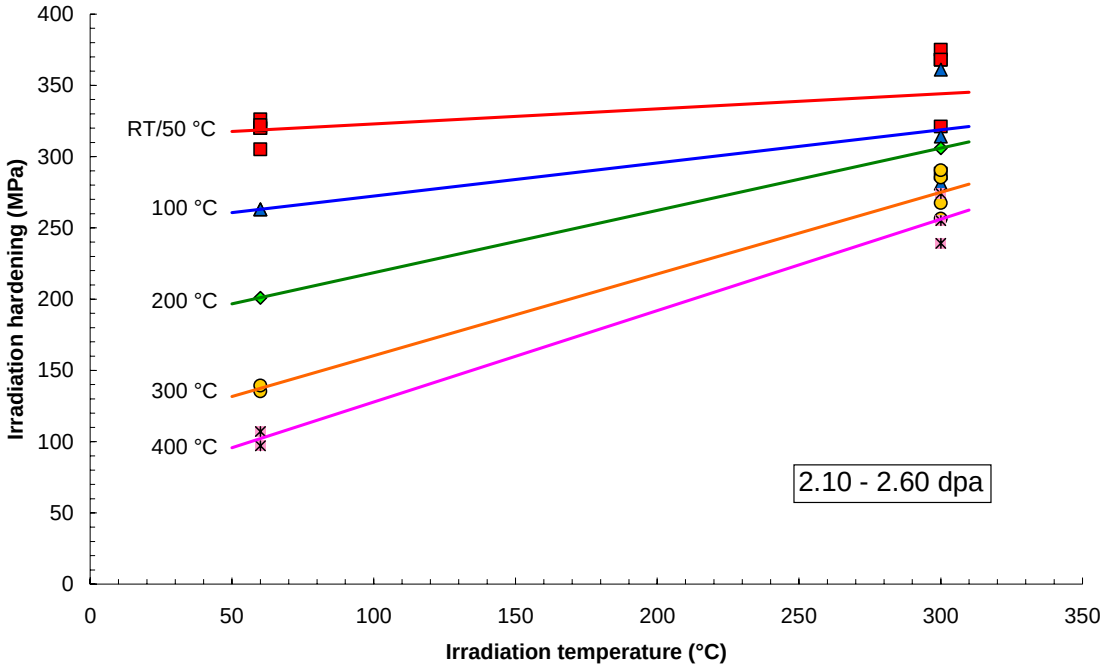

Figure 57 - Irradiation hardening of EUROFER97 irradiated at 60 and 300 °C.

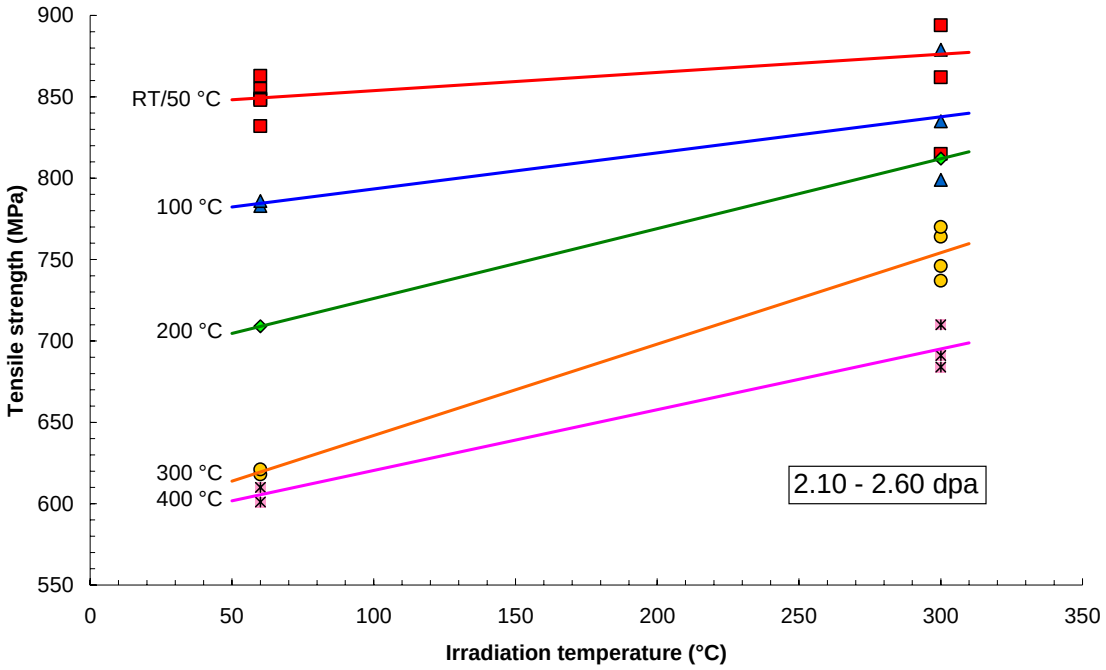

Figure 58 – Tensile strength of EUROFER97 irradiated at 60 and 300 °C.

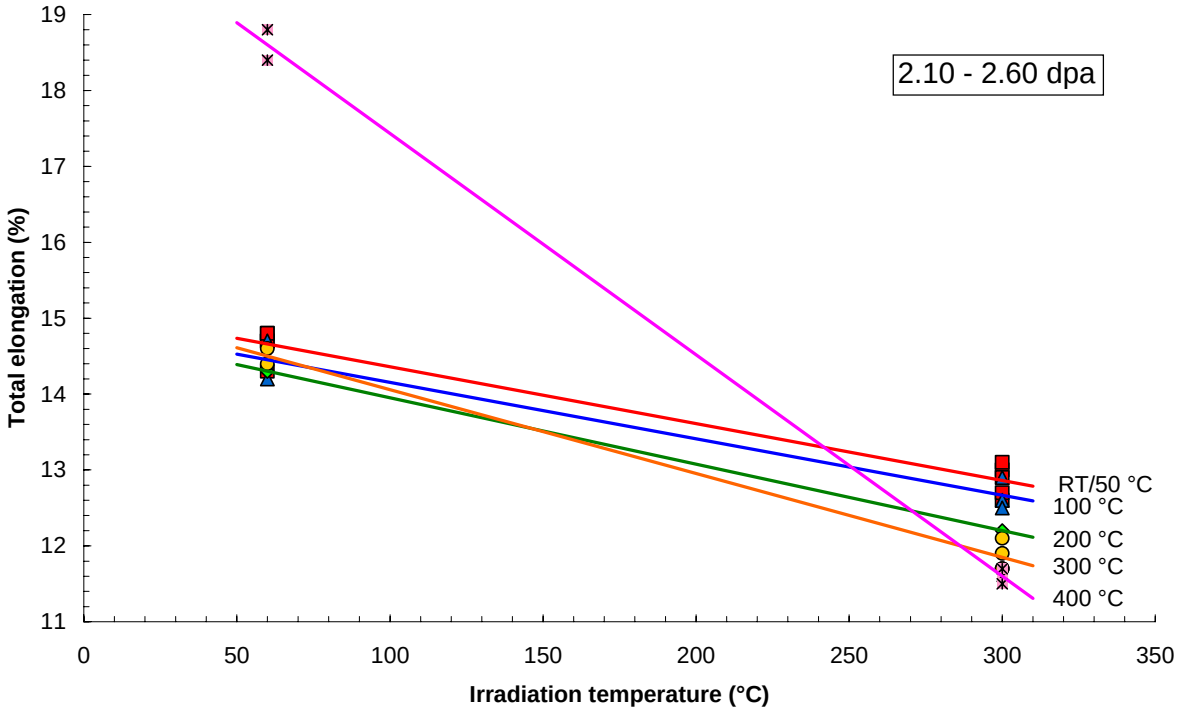

Figure 59 – Total elongation of EUROFER97 irradiated at 60 and 300 °C.

For the irradiation at 60 °C, test temperature plays an important role. A fully meaningful assessment can only be made for the tests performed at RT/50 °C, where a slight increase in hardening and tensile strenght and a slight decrease of total elongation is noticeable when passing from 60 to 300 °C. Above 50 °C, we observe progressively larger annealing effects of irradiation damage with increasing test temperature.

Within the SUMO-09 experiment [25], tensile specimens of EUROFER97 and VS3104 (a 9Cr2WVTa experimental alloy produced by NRG, with properties very similar to EUROFER97) were irradiated at 250, 300 and 343 °C up to doses ranging from 1.59 to 2.45 dpa. EUROFER97 was tested at -90 °C and at irradiation temperature; VS3104 at room temperature. The effect of irradiation temperature on irradiation hardening, tensile strength, uniform and total elongation is illustrated in Figure 60 to Figure 63.

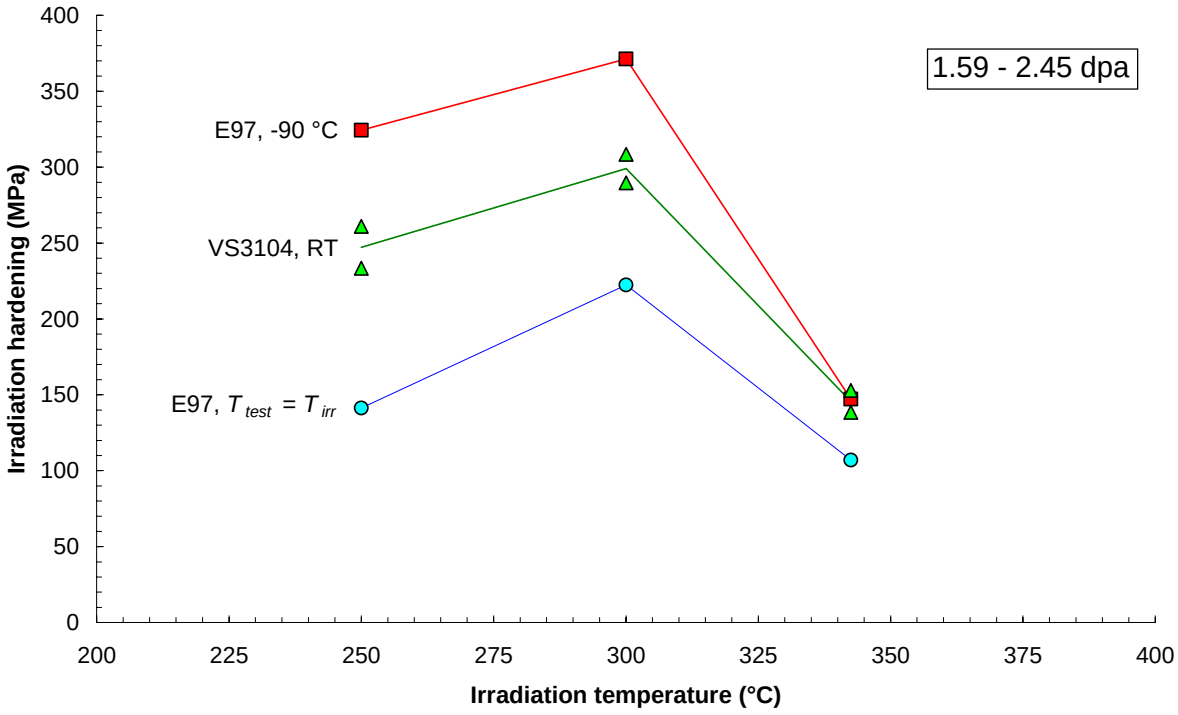

Figure 60 - Irradiation hardening of EUROFER97 and VS3104 irradiated at 250, 300 and 343 °C.

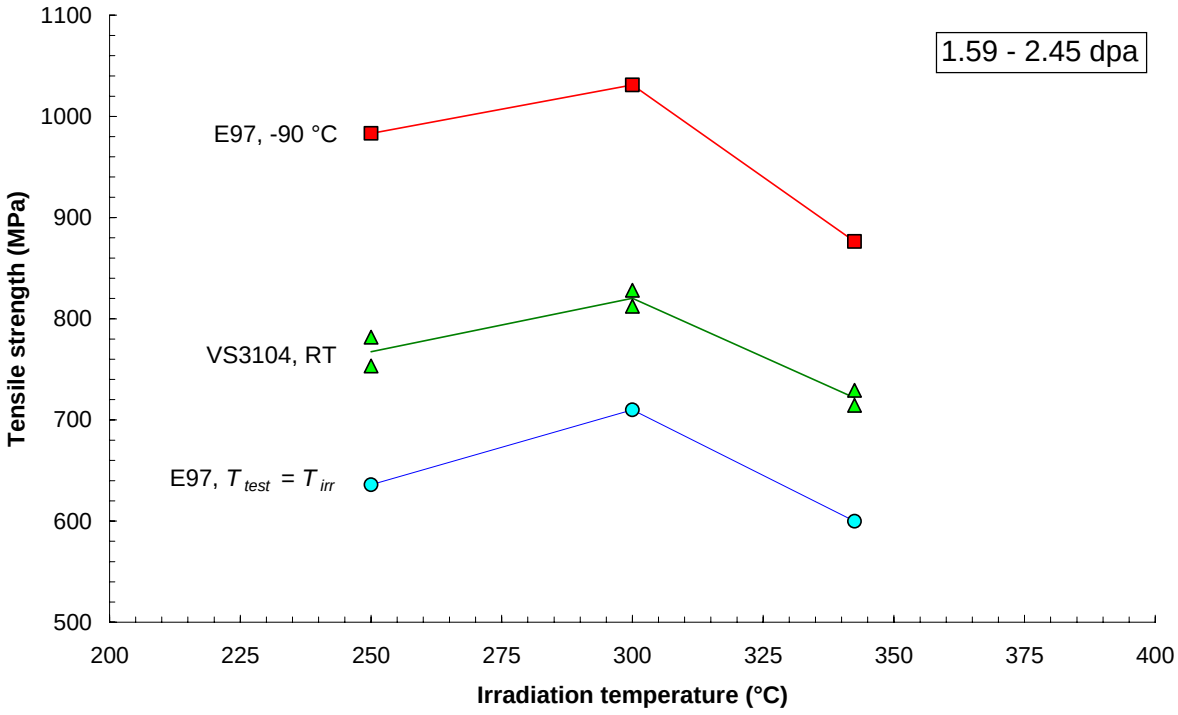

Figure 61 – Tensile strength of EUROFER97 and VS3104 irradiated at 250, 300 and 343 °C.

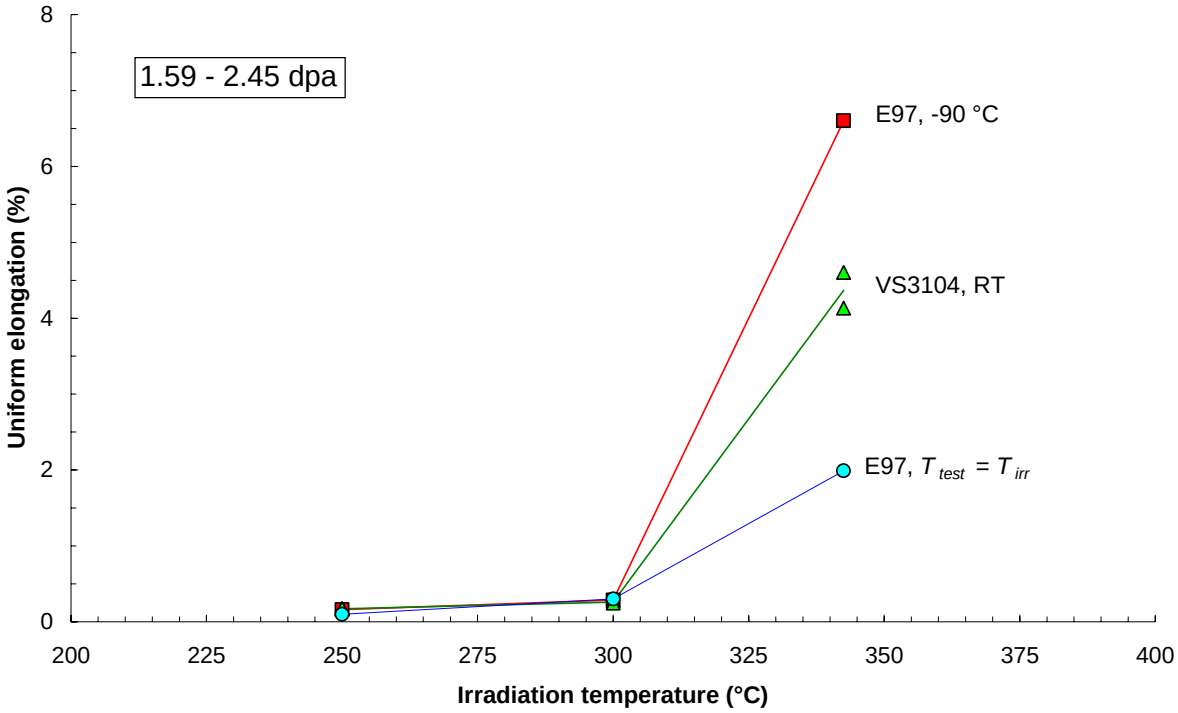

Figure 62 – Uniform elongation of EUROFER97 and VS3104 irradiated at 250, 300 and 343 °C.

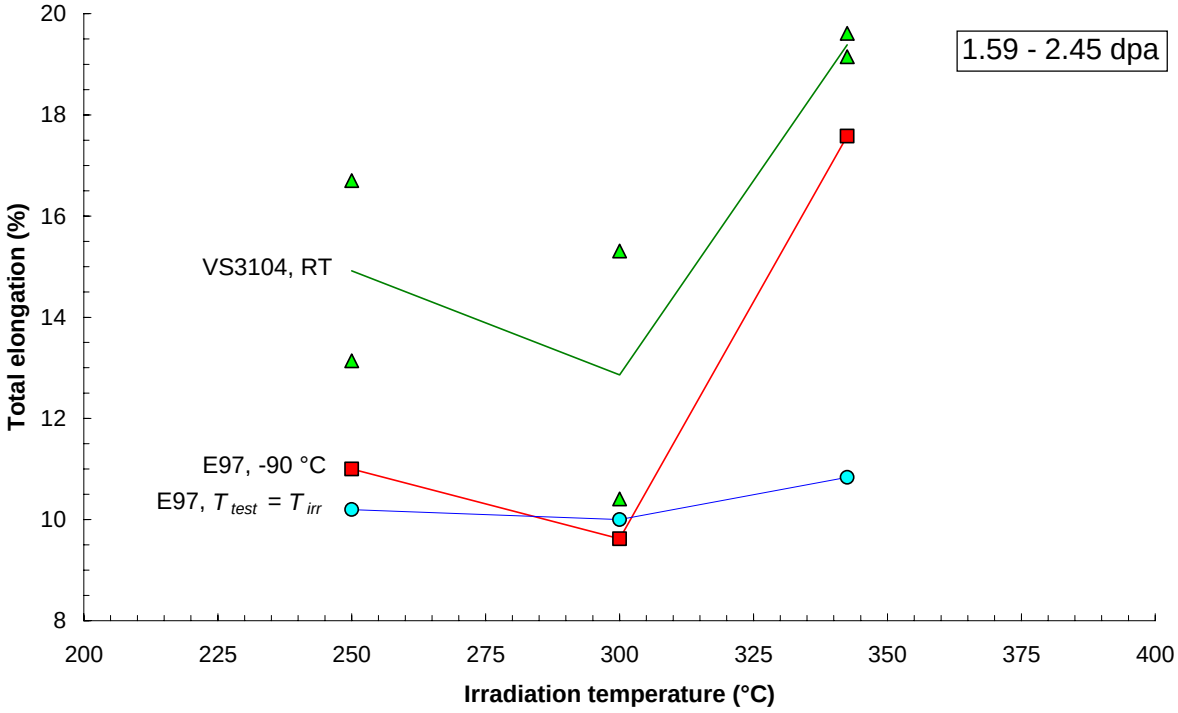

Figure 63 – Total elongation of EUROFER97 and VS3104 irradiated at 250, 300 and 343 °C.

The results of the SUMO-09 experiment show that:

- 300 °C is indeed the most critical irradiation temperature in terms of hardening and loss of ductility;
- with respect to $T_{irr} \leq 300$ °C, samples irradiated at 343 °C exhibit less hardening and retain considerable ductility, due to a partial recovery of irradiation-induced damage.

5.3 Test temperature dependence

The tensile properties of unirradiated and irradiated EUROFER97 are shown in Figure 64 to Figure 68 as a function of test temperature for various dpa ranges, assuming within each range a moderate dose effect. Data plotted include specimens irradiated at temperatures between 50 and 336 °C. In the diagrams, the colour of a data point identifies its irradiation temperature and the shape indicates its dose range.

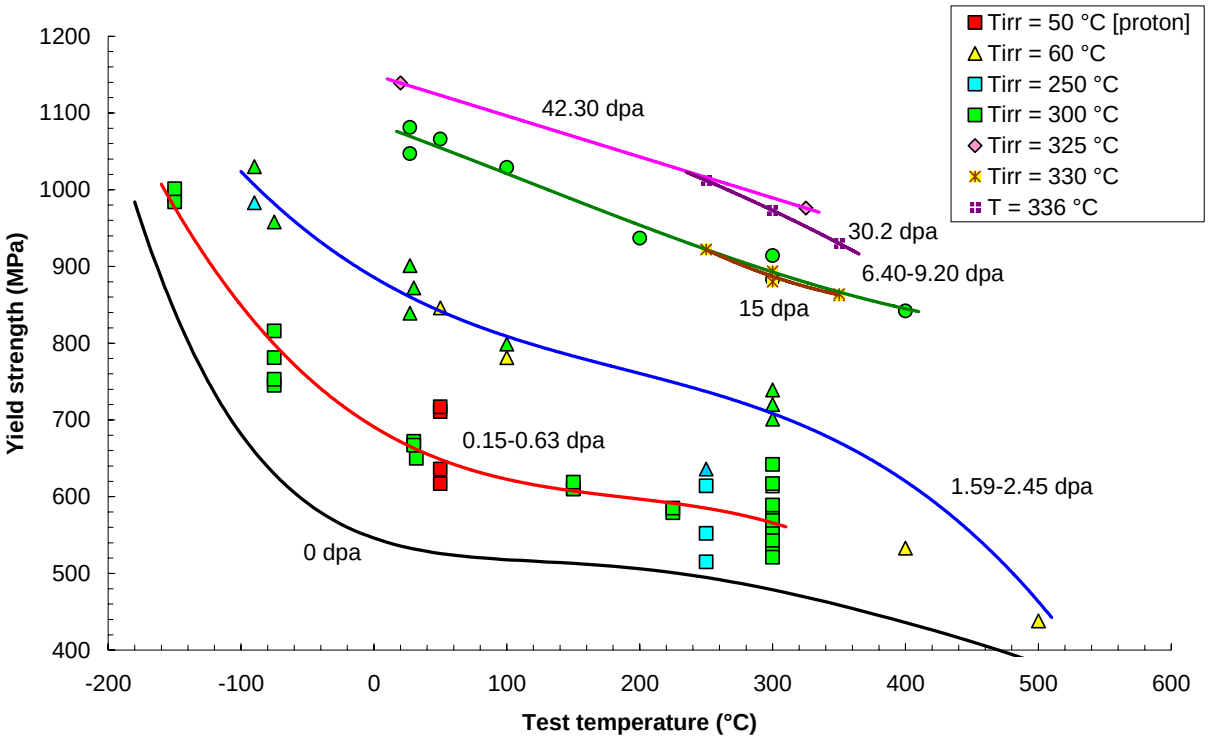

Figure 64 - Yield strength of unirradiated and irradiated EUROFER97.

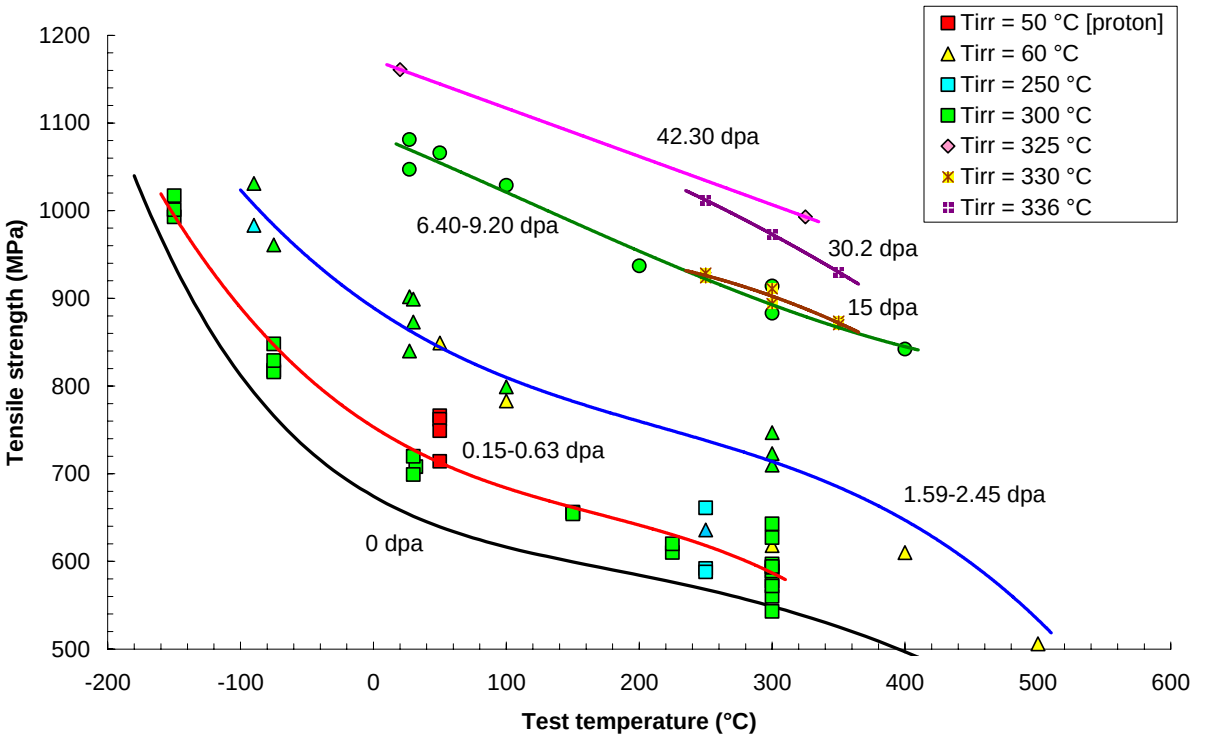

Figure 65 - Tensile strength of unirradiated and irradiated EUROFER97.

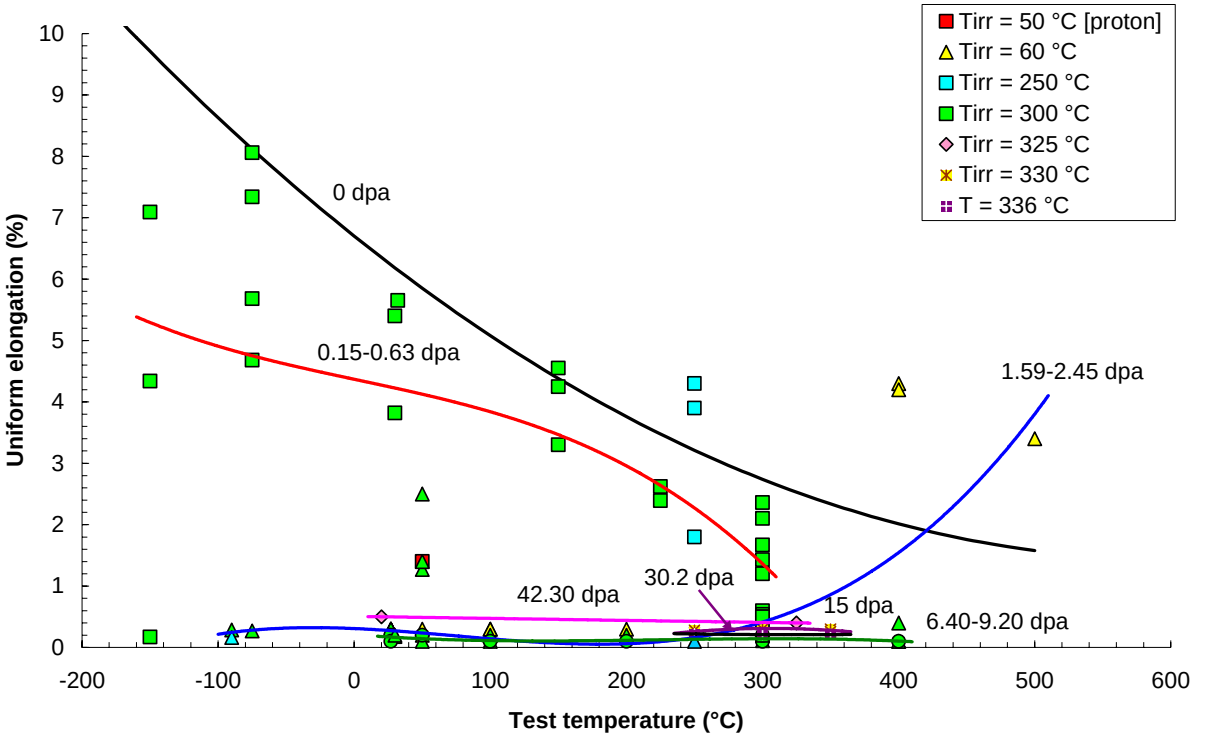

Figure 66 – Uniform elongation of unirradiated and irradiated EUROFER97.

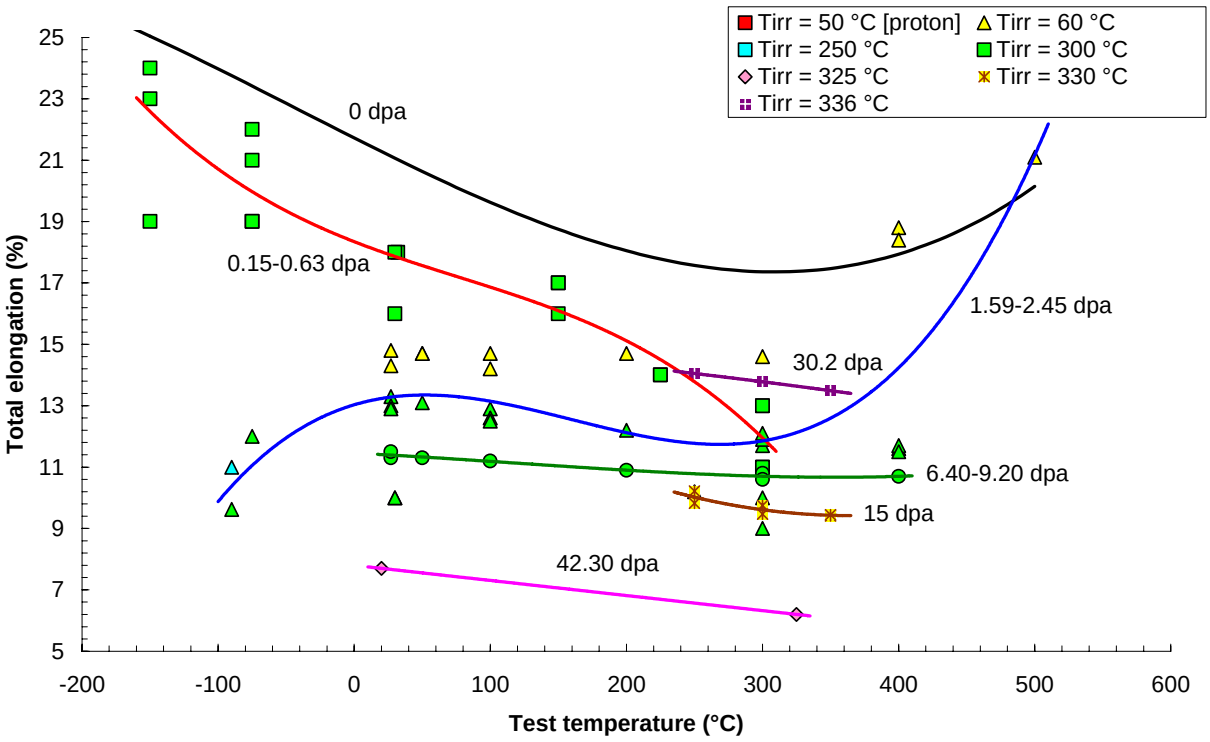

Figure 67 – Total elongation of unirradiated and irradiated EUROFER97.

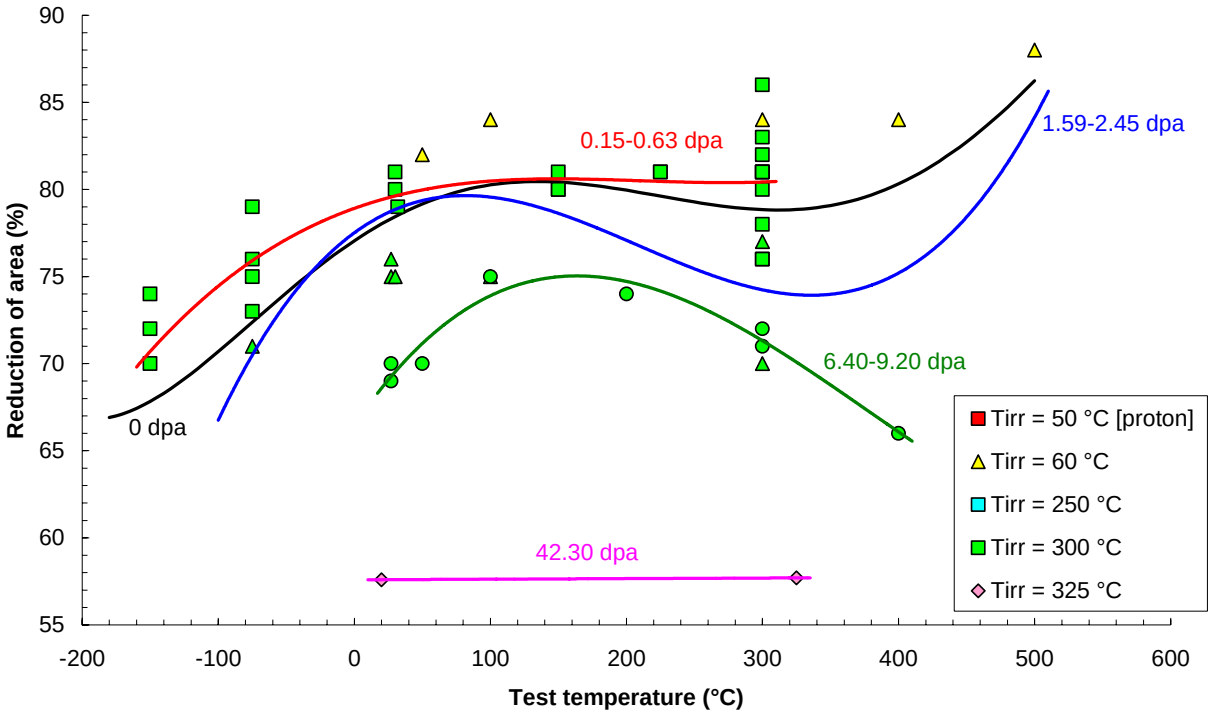

Figure 68 – Reduction of area of unirradiated and irradiated EUROFER97.

5.3.1 Discussion

- Using the approach described at the beginning of this section, reasonable trends have been obtained, particularly for the yield and tensile strength; in the case of the ductility parameters, the picture is complicated by the likely interaction of dose and irradiation temperature effects with experimental scatter enhanced by the use of different specimen configurations.
- Predictably, increase of mechanical resistance and decrease of ductility are observed at increasing dose, except at test temperatures higher than 400 °C, where considerable ductility is retained due to the partial recovery of irradiation defects.
- The relatively moderate strength increase (Figure 64 and Figure 65) and the slight increase of uniform elongation (Figure 66) which is observed above ~10 dpa seem to indicate that already above 300 °C (320-336 °C) partial annealing of irradiation effects is already taking place.
- The significant agreement between yield and tensile strength values measured at [300 °C, 6.4-9.2 dpa] and [330 °C, 15 dpa] is probably the result of dose and irradiation temperature effects which compensate each other.

5.3.2 Comparison with other RAFM steels

Figure 69 to Figure 72 compare tensile properties from EUROFER97 in the dose range 1.59-9.20 dpa with F82H-mod and JLF-1 irradiated in HFIR up to 4.90-5.00 dpa. Irradiation temperatures are in the range 300-307 °C.

In terms of yield and tensile strength, results from F82H-mod and JLF-1 are similar to those of EUROFER97 irradiated to less than half the same dose. Uniform elongation is

equivalent for F82H-mod, clearly higher for JLF-1; total elongation is consistently better for EUROFER97.

The data presented here confirm the trends already highlighted in §5.1.2.

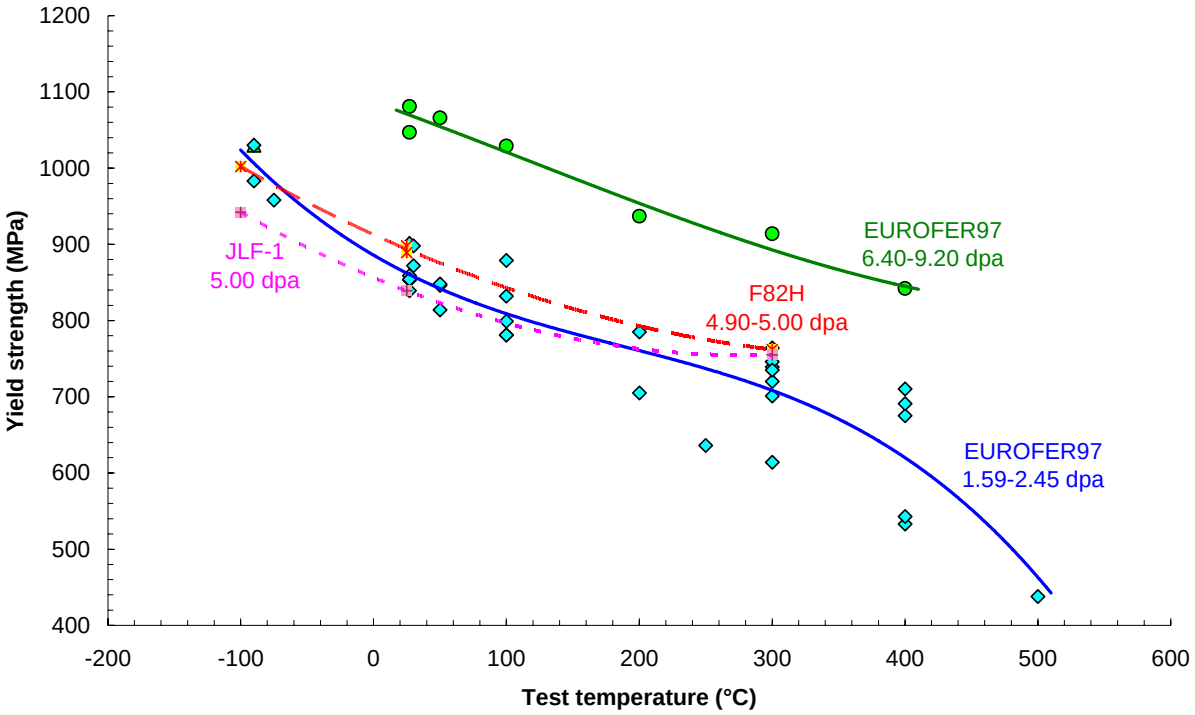

Figure 69 - Yield strength of irradiated EUROFER97, F82H-mod and JLF-1.

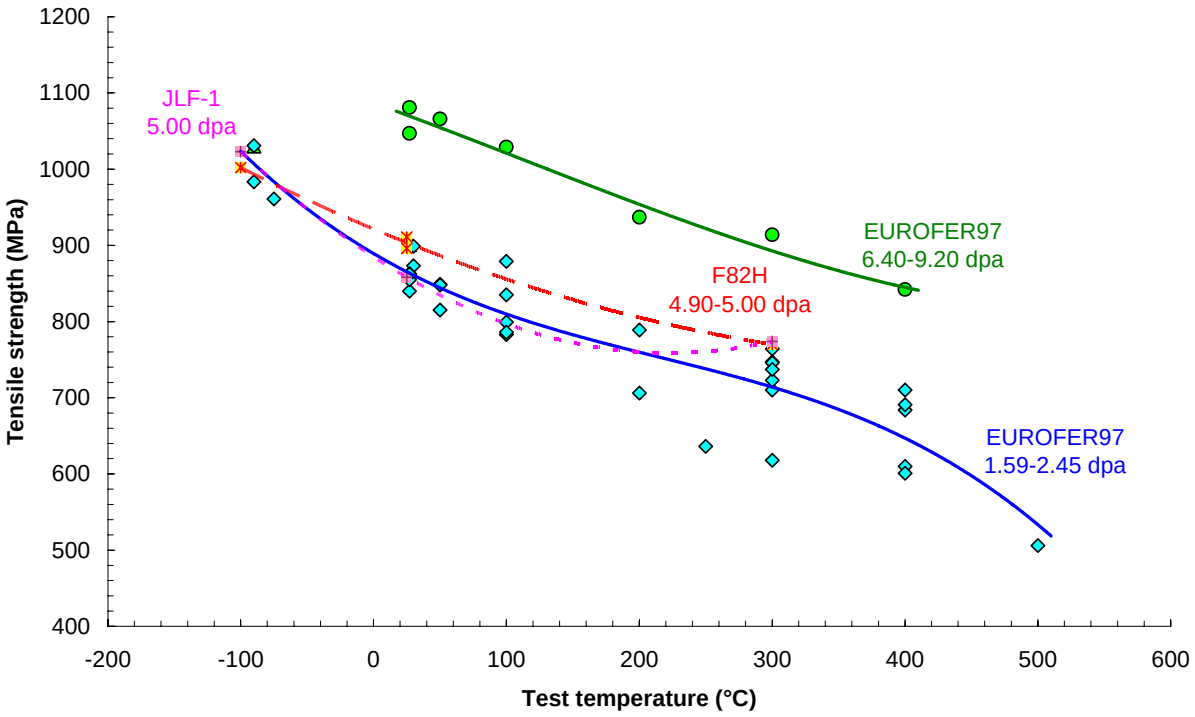

Figure 70 - Tensile strength of irradiated EUROFER97, F82H-mod and JLF-1.

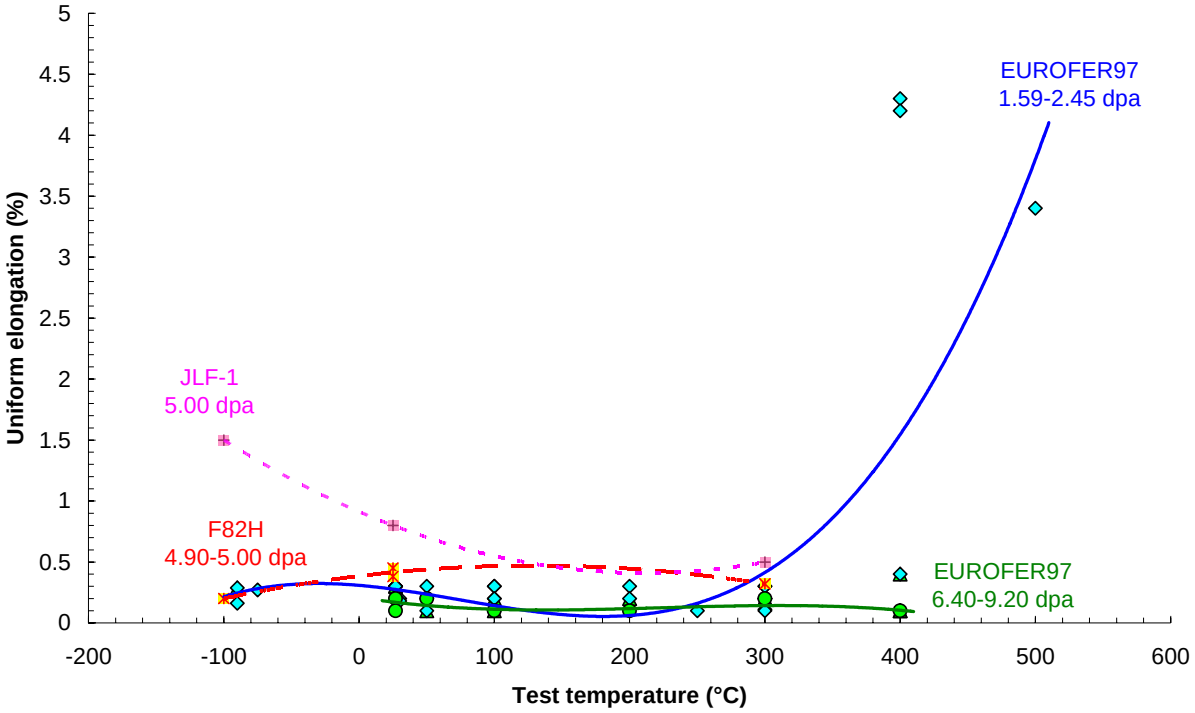

Figure 71 – Uniform elongation of irradiated EUROFER97, F82H-mod and JLF-1.

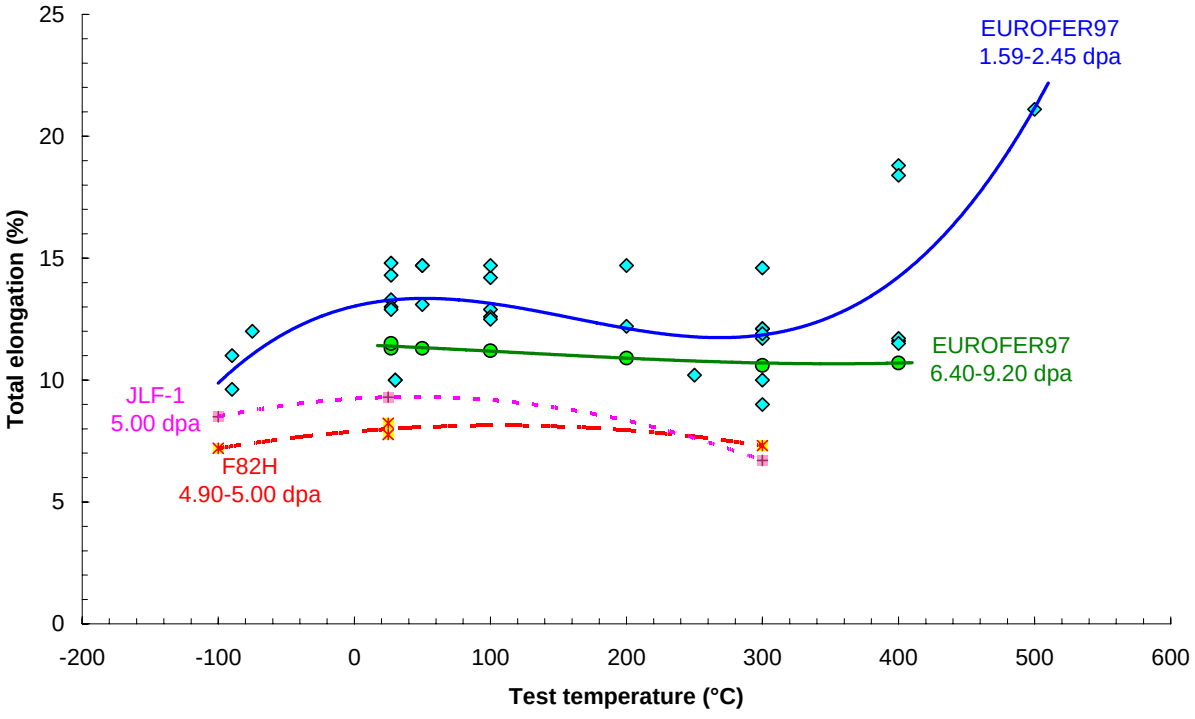

Figure 72 – Total elongation of irradiated EUROFER97, F82H-mod and JLF-1.

The results from the ARBOR-1 irradiation, conducted at 336 °C in BOR-60 up to 30.2 dpa [26], allow a direct comparison of EUROFER97 and F82H-mod tested at 250, 300 and 350 °C. Values of irradiation hardening, tensile strength, uniform elongation and total elongation are shown in Figure 73 to Figure 79.

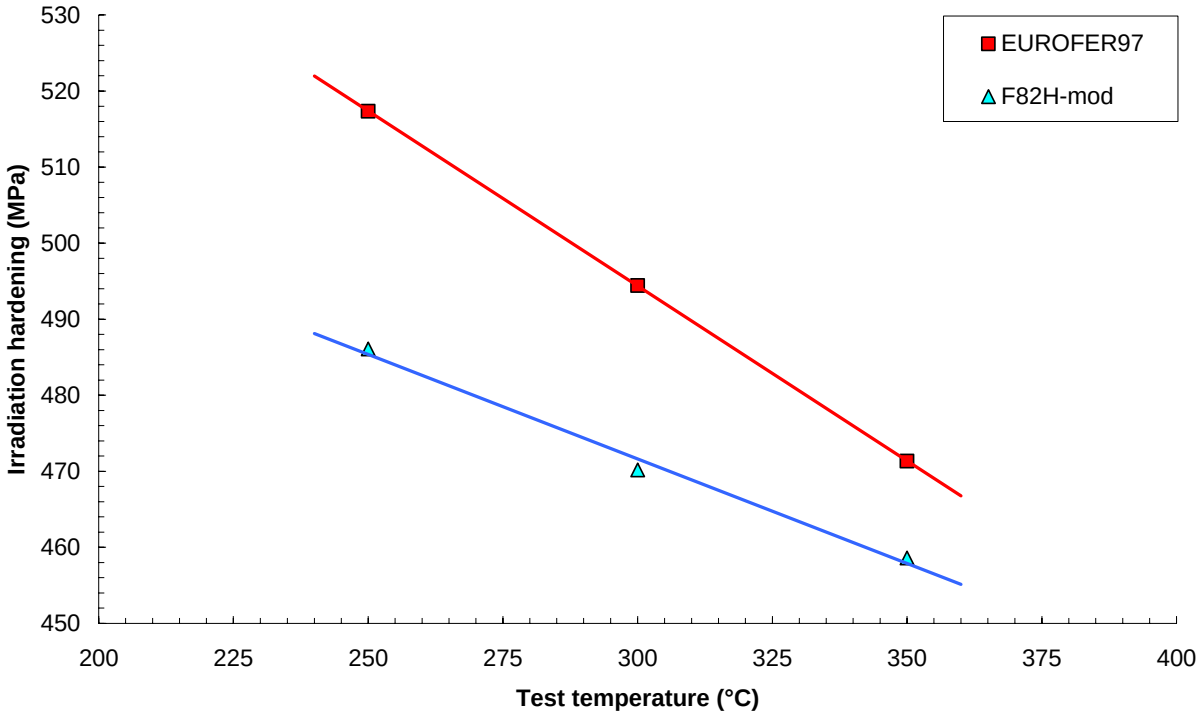

Figure 73 – Irradiation hardening measured on EUROFER97 and F82H-mod irradiated at 336 °C up to 30.2 dpa.

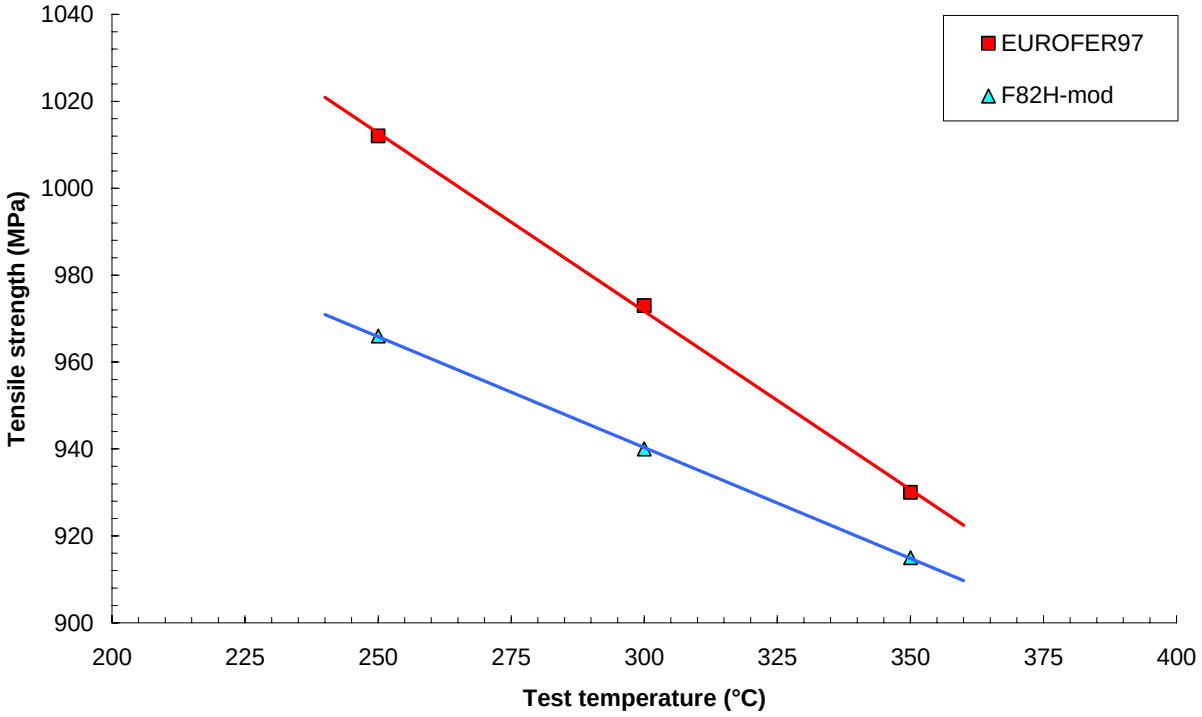

Figure 74 - Tensile strength measured on EUROFER97 and F82H-mod irradiated at 336 °C up to 30.2 dpa.

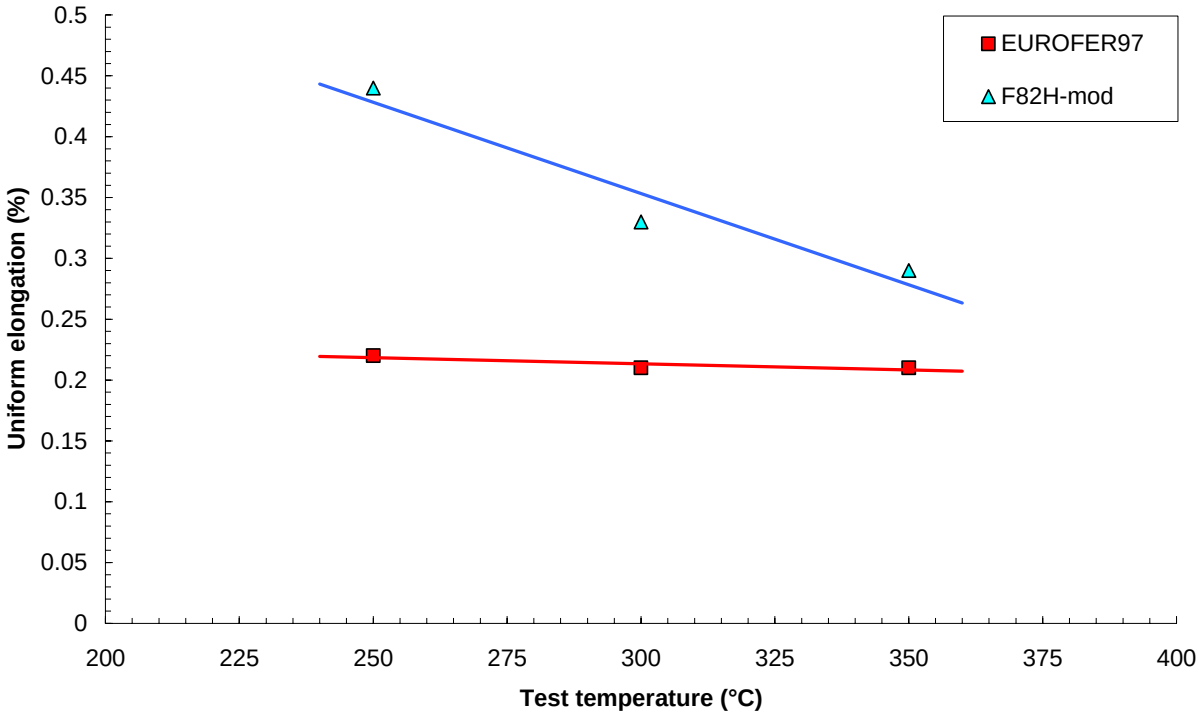

Figure 75 – Uniform elongation measured on EUROFER97 and F82H-mod irradiated at 336 °C up to 30.2 dpa.

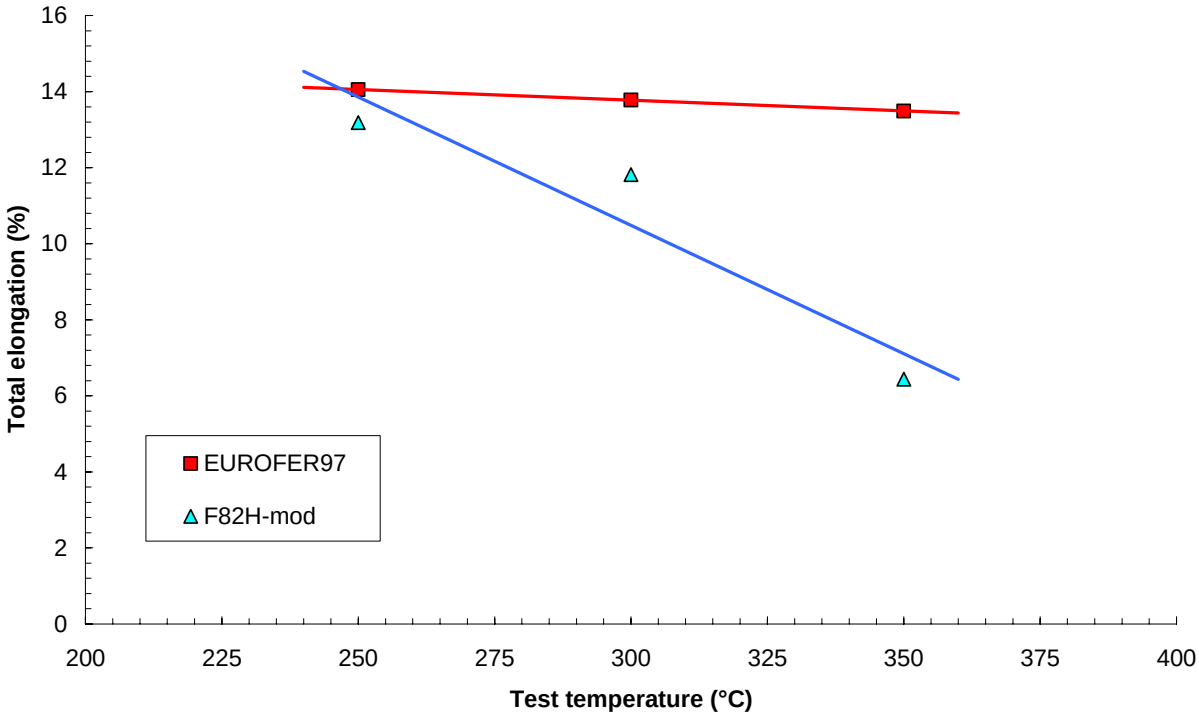

Figure 76 – Total elongation measured on EUROFER97 and F82H-mod irradiated at 336 °C up to 30.2 dpa.

The results from the ARBOR-1 irradiation show that F82H-mod exhibits less hardening and higher uniform elongation than EUROFER97. Total elongation, however, is better for EUROFER97. Strength differences remain lower than 10%. Elongation differences are more important, although the absolute values remain in all cases lower than 0.5% for both materials.

5.4 Influence of irradiation environment and dose rate

Tensile results from several irradiation campaigns conducted at 300 °C in BR2 (Mol) and in HFR (Petten) have been used for a rough assessment of the effect of two other irradiation parameters: irradiation environment and dose rate (Table 5). Besides the experiments listed in Table 5, other irradiations in HFR were conducted using He-filled sample holders (ILAS, CHARIOT, SINEXT); however, temperature control was not reliable [19] and the corresponding information has been excluded from the analyses.

In terms of irradiation environment, only water and sodium can be compared. As far as dose rate is concerned, the variation is only approixamtely one decade (from 1.93×10^{-8} to 2.20×10^{-7} dpa/s).

Table 5 - Irradiation parameters for several campaigns conducted at 300 °C in BR2 and HFR.

Reactor	Experiment	Environment	Duration (s)	Dose rate (dpa/s) min	Dose rate (dpa/s) max
BR2	IRFUMA-I	H_20	1.81×10^{6}	1.27×10^{-7}	2.20×10^{-7}
	IRFUMA-II	H_20	7.78×10^{6}	1.93×10^{-8}	1.14×10^{-7}
	IRFUMA-III	H_20	1.79×10^{7}	2.68×10^{-8}	1.20×10^{-7}
HFR	SOSIA-02	Na	2.14×10^{7}	1.08×10^{-7}	1.12×10^{-7}
	STROBO-01	Na	2.13×10^{6}	1.03×10^{-7}	1.31×10^{-7}
	SUMO-02	Na	6.24×10^{7}	1.17×10^{-7}	1.47×10^{-7}
	SUMO-04	Na	2.14×10^{7}	8.42×10^{-8}	1.26×10^{-7}
	SUMO-09	Na	2.14×10^{7}	7.42×10^{-8}	1.14×10^{-7}

Values of irradiation hardening and uniform elongation measured from samples irradiated at 300 °C and tested at RT and 300 °C are shown as a function of dose in Figure 77-Figure 78 and Figure 79-Figure 80, respectively. No clear effect of irradiation environment is observed.

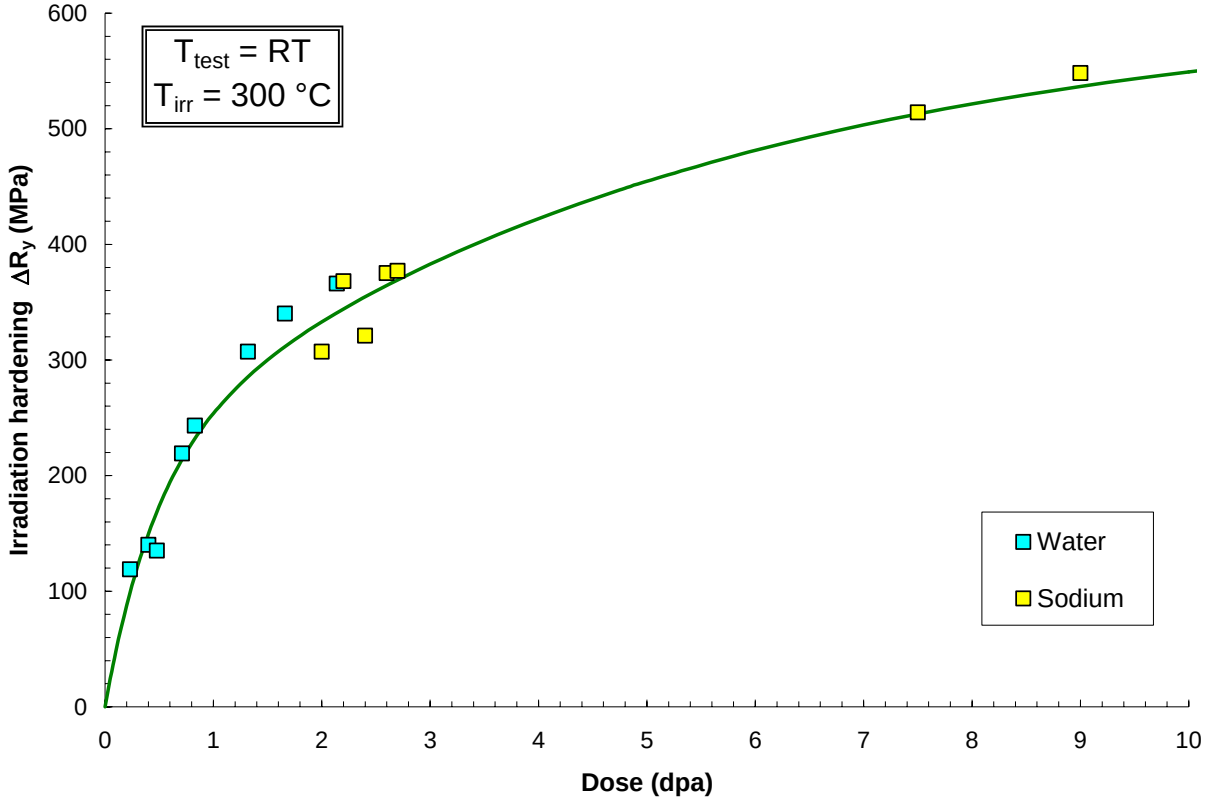

Figure 77 - Irradiation hardening measured at RT from samples irradiated in water (BR2) and in sodium (HFR). The fitting curve is the regression of the whole data set according to eq.(2).

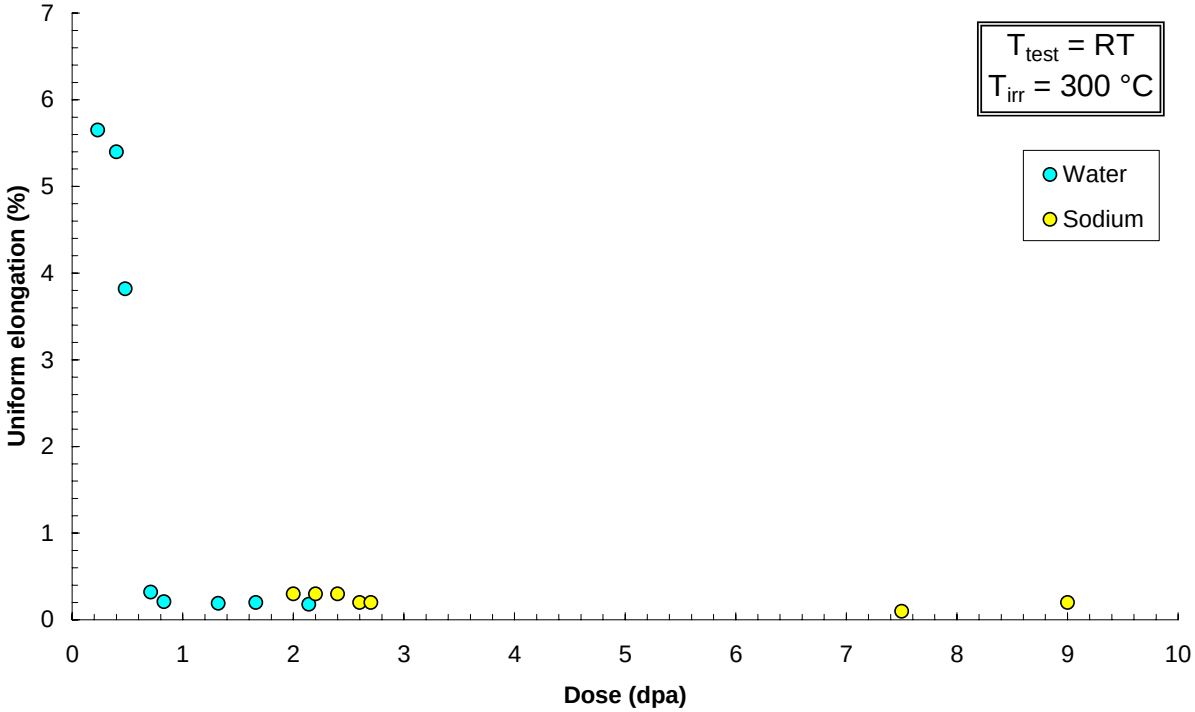

Figure 78 – Uniform elongation measured at RT from samples irradiated in water (BR2) and in sodium (HFR).

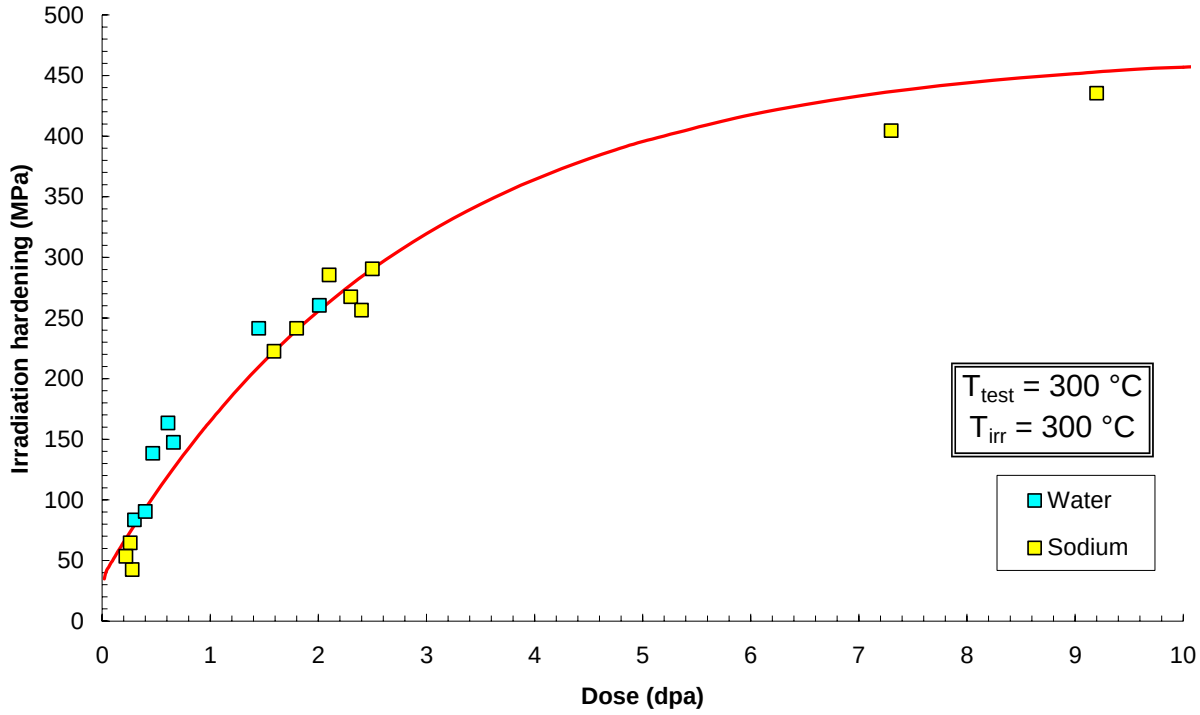

Figure 79 - Irradiation hardening measured at 300 °C from samples irradiated in water (BR2) and in sodium (HFR). The fitting curve is the regression of the whole data set according to eq.(2).

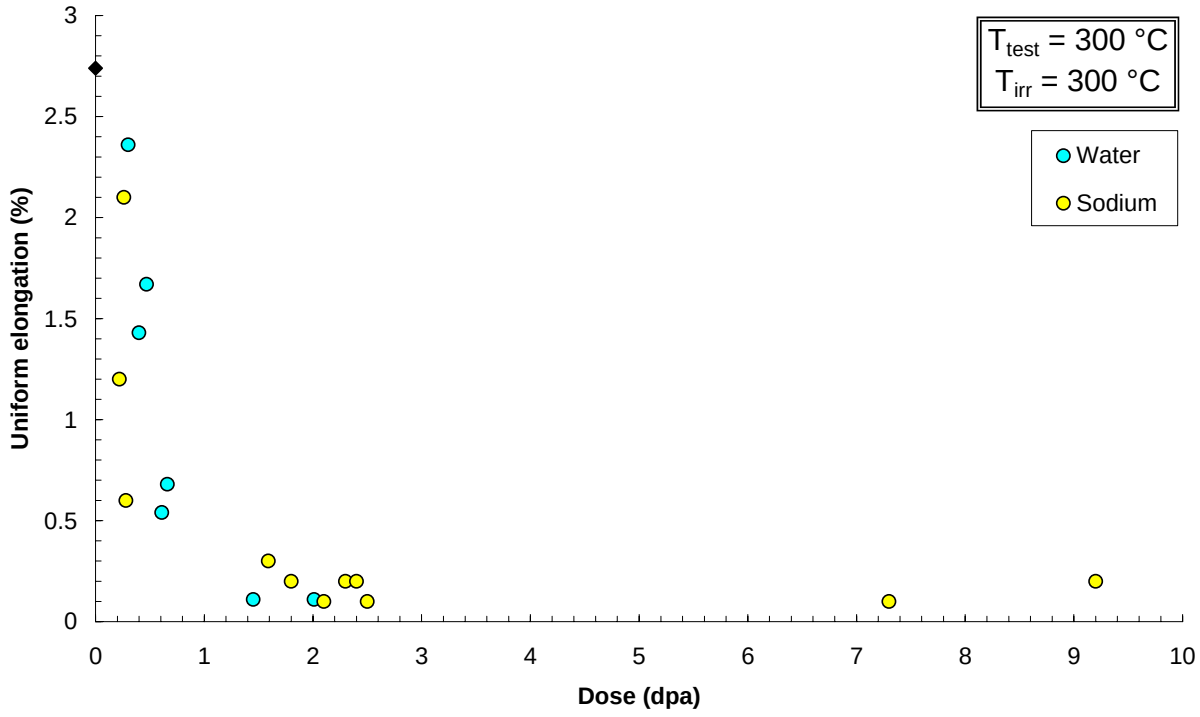

Figure 80 – Uniform elongation measured at 300 °C from samples irradiated in water (BR2) and in sodium (HFR).

A further selection of the data depicted above is made by considering only narrow dose ranges (less than 1 dpa), and plotting the results as a function of dose rate. The results, presented in Figure 81-Figure 82 (RT) and Figure 83-Figure 84 (300 °C), do not indicate any systematic trend with dose rate.

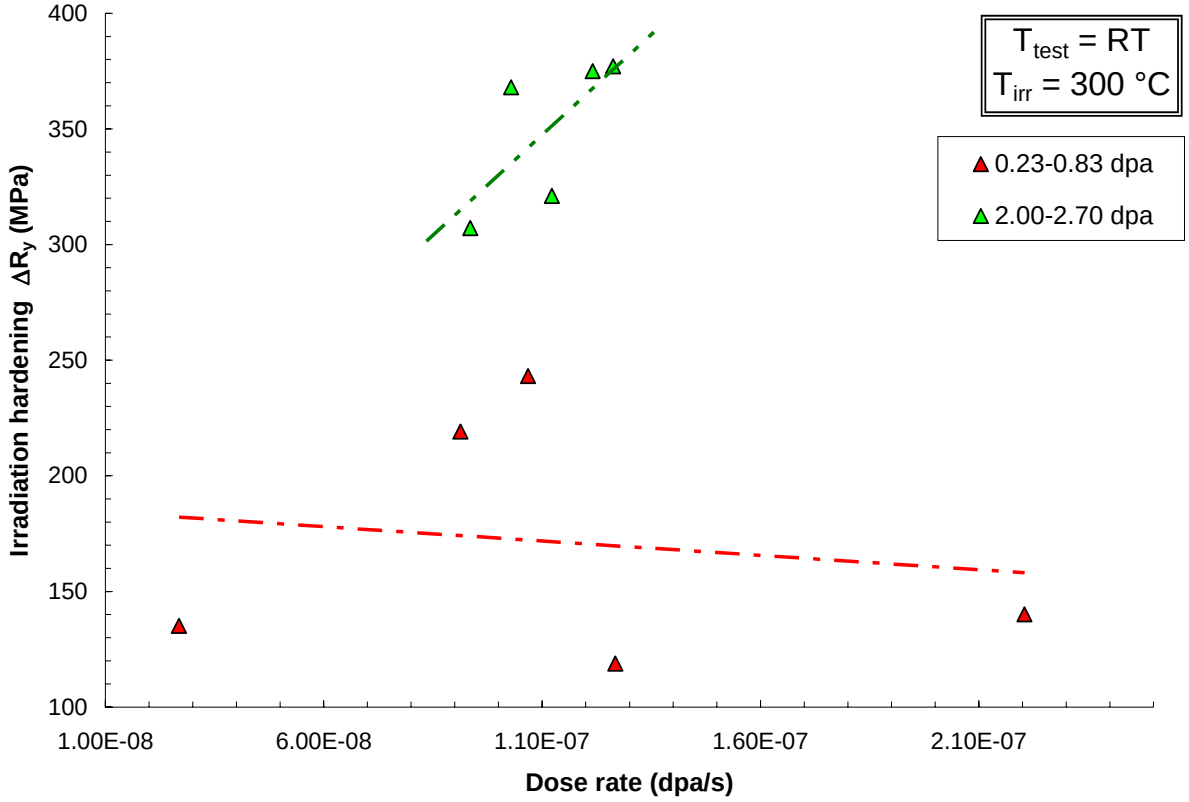

Figure 81 - Irradiation hardening measured at RT as a function of dose rate.

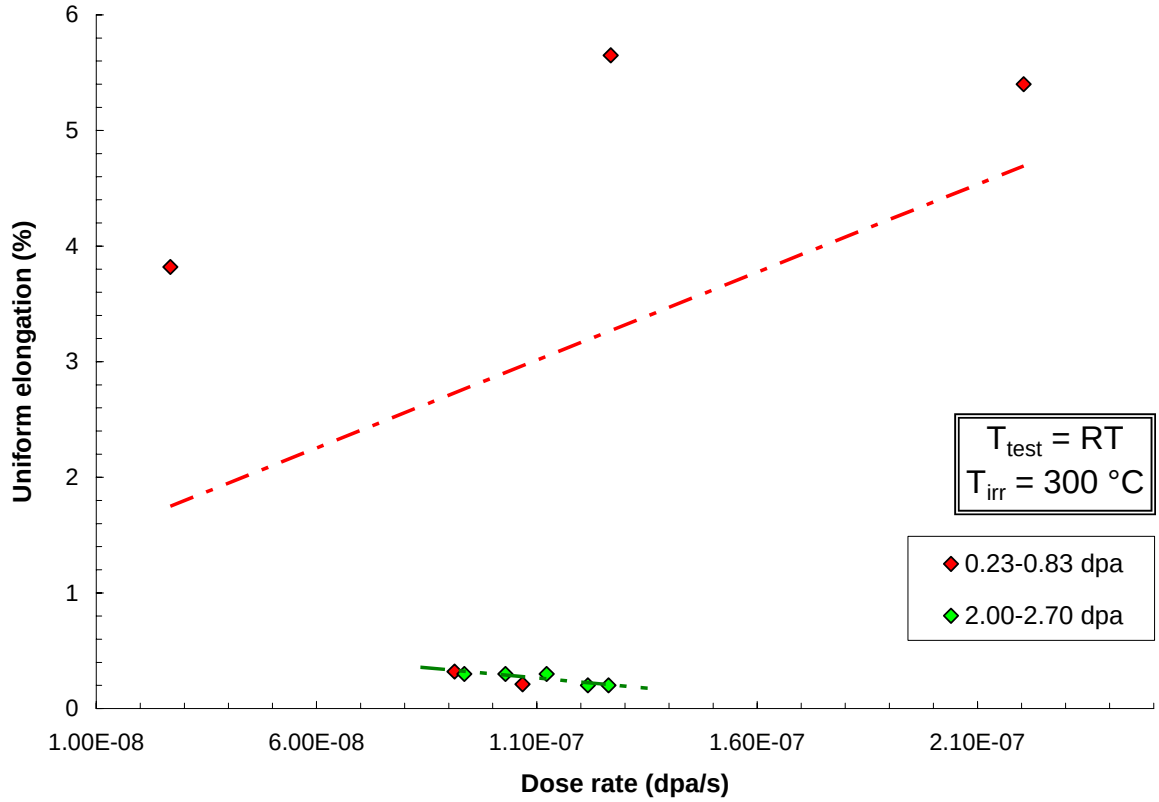

Figure 82 – Uniform elongation measured at RT as a function of dose rate.

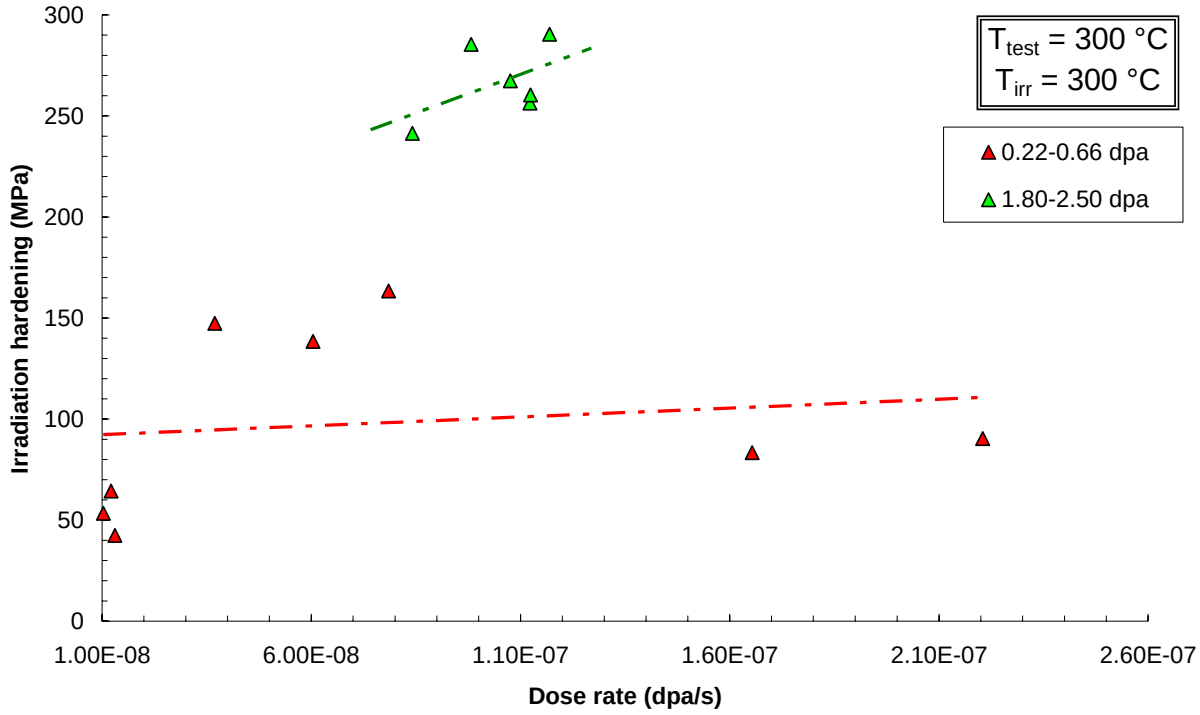

Figure 83 - Irradiation hardening measured at 300 °C as a function of dose rate.

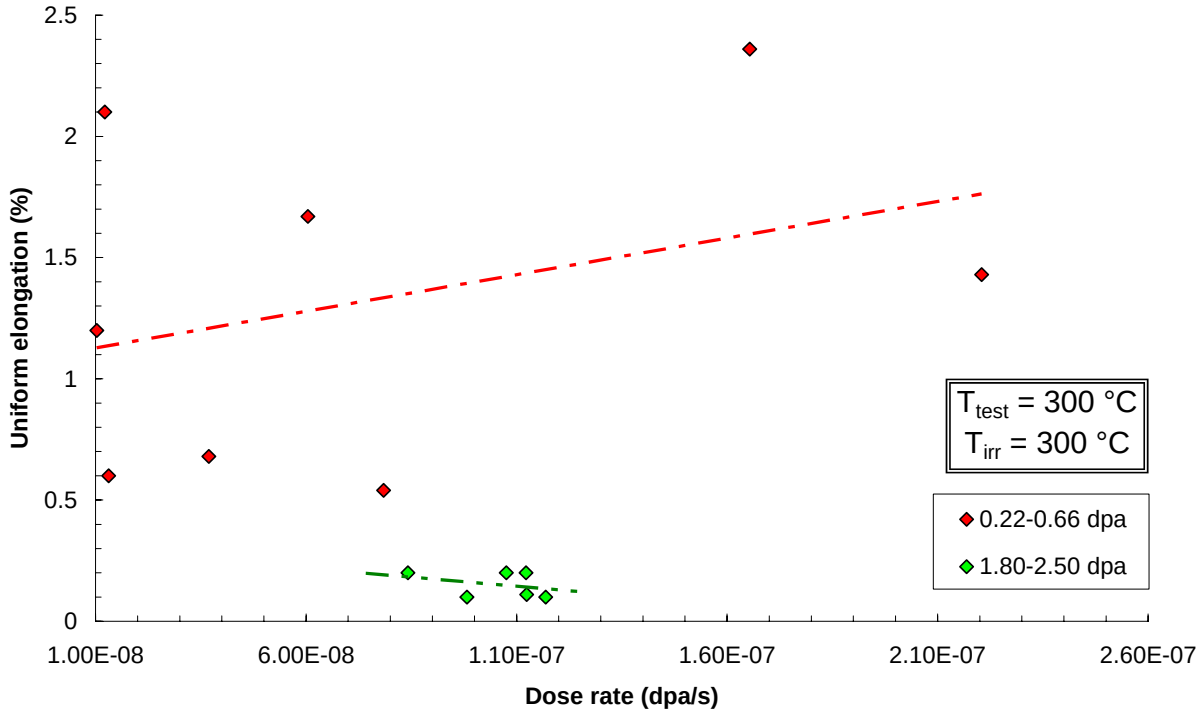

Figure 84 – Uniform elongation measured at 300 °C as a function of dose rate.

6 Tensile data which will become available in the coming months

At the time of writing, the following tensile test results from recently terminated irradiations are not yet available for inclusion in our database and should be considered in a future revision of this report.

- SPICE
  - responsible institution: FZK
  - reactor: HFR
  - materials: EUROFER97-1 and others (including F82H-mod)
  - T_{irr} = 250, 300, 350, 400, 450 °C
  - dose: 16.3 dpa
  - status: reporting in progress

- ARBOR-2
  - responsible institutions: FZK and CEA
  - reactor: BOR-60, Dmitrovgrad (Russia)
  - materials: EUROFER97-1 and others (including F82H-mod)
  - T_{irr} < 340 °C
  - dose: 70-80 dpa
  - status: testing in progress

7 Conclusions

More than 1000 tensile test results for EUROFER97 and other RAFM steels have been collected and organized in database form, in order to analyze their tensile properties in the unirradiated and irradiated conditions.

For the irradiated materials, we have assessed the influence of several irradiation parameters, such as dose, irradiation temperature, dose rate and irradiation environment.

Specific remarks have been given inside the different sections of this report; the main conclusions which have emerged from our investigations are summarized hereafter.

Unirradiated materials

- No influence of product form (plates of different thickness or bars) is observed for EUROFER97-1 (first batch), except for a slightly lower strength of the 25 mm plate at temperatures below RT.
- For EUROFER97-2 (second batch), more scatter is observed between product forms, with the bars and the 8 mm plate delivering the worst and the best tensile properties respectively.
- The two EUROFER97 batches are equivalent in terms of mechanical resistance, but EUROFER97-2 exhibits better ductility.

Effect of accumulated dose

- A steep increase with dose of irradiation hardening up to ~10 dpa is observed, followed by a tendency to saturation; based on the presently available data, it is not possible yet to exactly define the saturation dose or level.
- Above ~0.7 dpa, strain hardening capability vanishes and ductility is significantly reduced (uniform elongation < 0.5%).
- Based on the available information to date, EUROFER97-1 and EUROFER97-2 exhibit the same post-irradiation tensile behaviour.
- Results from irradiations conducted between 325 and 336 °C indicate that in this range, with respect to 300 °C, partial recovery of irradiation damage is already taking place.

Effect of irradiation temperature

- The available information confirms that 300 °C is the most critical irradiation temperature in terms of hardening and loss of ductility.
- Above 300 °C, data suggest that recombination of irradiation defects and annealing recovery start to ensue as early as 325-343 °C. The same phenomena can be observed when the test temperature is higher than 400 °C.

Other effects

- The information available in the database for several irradiations conducted at 300 °C in BR2 and HFR does not allow detecting any significant influence of either irradiation environment (water or sodium) or dose rate (in the range $2 \times 10^{-8} – 2 \times 10^{-7}$ dpa/s).

Comparisons with other RAFM steels

- In the unirradiated condition, EUROFER97 shows equivalent tensile properties (strength and ductility) to other RAFM steels, such as F82H-mod, JLF-1, CLAM and OPTIFER.
- In the irradiated condition, only very limited comparisons could be made due to the scarcity of available data under comparable irradiation conditions. Nevertheless, it appears that EUROFER97 irradiated at 300 °C exhibits more hardening and comparable ductility as compared to F82H-mod and JLF-1. Further comparisons between EUROFER97 and F82H-mod irradiated up to 30.2 dpa at 336 °C show that EUROFER97 exhibits larger irradiation hardening and lower uniform elongation, but higher total elongation.

Further insight into the tensile properties of irradiated EUROFER97 will be gained once PIE results from recently concluded irradiation experiments (namely SPICE and ARBOR-2) are made available.

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ANNEX 1

Overall database of RAFM steel tensile properties

ROW NR	REFERENCE	Specimen id.:	MAT					HEAT TREATMENT							IRRADIATION										SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	(Capitals) 2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	(minor) Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
1	1,11	74H	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	-150		869	945	1.09	1771	9.13	24.0	67
2	1,11	74G	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	-75		606	760	1.25	1553	8.07	25.0	75
3	1,11	74E	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	25		557	670	1.20	1643	5.45	20.0	80
4	1,11	89	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	80		528	629	1.19	1440	4.29	18.0	80
5	1,11	78E	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	150		507	598	1.18	1444	3.93	19.0	82
6	1,11	90	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	225		495	549	1.11	1236	3.60	18.0	81
7	1,11	78F	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	300		478	547	1.14	1272	2.94	16.0	80
8	1,11	74F	EU97		E83699		B100		980	1.8	air	720	3.7		BR2		0.00					15	3	2.10E-04	300		516	560	1.09	1284	2.32	16.0	80
9	1,11	J	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.34	1.87E-07			H2O	10	15	3	2.10E-04	-150		984	993	1.01	1960	7.09	23.0	70
10	1,11	D	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.38	2.09E-07			H2O	10	15	3	2.10E-04	-150		1001	1001	1.00	2272	0.17	24.0	74
11	1,11	C	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.36	1.98E-07			H2O	10	15	3	2.10E-04	-75		745	818	1.10	1717	8.06	22.0	75
12	1,11	I	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.37	2.04E-07			H2O	10	15	3	2.10E-04	-75		753	816	1.08	1775	7.34	21.0	76
13	1,11	F	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.40	2.20E-07			H2O	10	15	3	2.10E-04	30		672	720	1.07	1737	5.40	18.0	80
14	1,11	L	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.23	1.27E-07			H2O	10	15	3	2.10E-04	32		650	708	1.09	1663	5.65	18.0	79
15	1,11	B	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.33	1.82E-07			H2O	10	15	3	2.10E-04	150		610	656	1.08	1483	4.55	17.0	80
16	1,11	H	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.39	2.15E-07			H2O	10	15	3	2.10E-04	150		619	654	1.06	1554	4.25	16.0	81
17	1,11	A	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.27	1.49E-07			H2O	10	15	3	2.10E-04	225		579	610	1.05	1485	2.39	14.0	81
18	1,11	G	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.40	2.20E-07			H2O	10	15	3	2.10E-04	225		585	620	1.06	1562	2.62	14.0	81
19	1,11	K	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.30	1.65E-07			H2O	10	15	3	2.10E-04	300		562	597	1.06	1551	2.36	13.0	81
20	1,11	E	EU97		E83699		B100		980	1.8	air	720	3.7	IRF I	BR2	300	0.40	2.20E-07			H2O	10	15	3	2.10E-04	300		569	593	1.04	1605	1.43	13.0	81
21	1,11	R	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.15	1.93E-08			H2O	10	15	3	2.10E-04	-150		972	1000	1.03	1816	6.78	24.0	67
22	1,11	S	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.31	3.99E-08			H2O	10	15	3	2.10E-04	-150		993	1017	1.02	2233	4.34	19.0	72
23	1,11	T	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.44	5.66E-08			H2O	10	15	3	2.10E-04	-75		781	829	1.06	1618	5.68	19.0	73
24	1,11	U	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.57	7.33E-08			H2O	10	15	3	2.10E-04	-75		816	848	1.04	1798	4.68	19.0	79
25	1,11	W	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.83	1.07E-07			H2O	10	15	3	2.10E-04	30		775	775	1.00	1617	0.21	13.0	78
26	1,11	V	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.71	9.13E-08			H2O	10	15	3	2.10E-04	30		751	751	1.00	1698	0.32	12.0	79
27	1,11	X	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.16	2.06E-08			H2O	10	15	3	2.10E-04	150		600	655	1.09	1521	4.95	16.0	80
28	1,11	Y	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.33	4.24E-08			H2O	10	15	3	2.10E-04	150		610	656	1.08	1451	3.30	17.0	80
29	1,11	B1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.75	9.65E-08			H2O	10	15	3	2.10E-04	225		681	681	1.00	1496	0.22	11.0	79
30	1,11	C1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.89	1.14E-07			H2O	10	15	3	2.10E-04	225		691	691	1.00	1339	0.22	10.0	75
31	1,11	Z	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.47	6.04E-08			H2O	10	15	3	2.10E-04	300		617	627	1.02	1243	1.67	11.0	76
32	1,11	A1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF II	BR2	300	0.61	7.84E-08			H2O	10	15	3	2.10E-04	300		642	643	1.00	1309	0.54	11.0	76
33	1,11	P	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	0.99	5.54E-08			H2O	10	15	3	2.10E-04	-75		882	882	1.00	1678	1.87	13.0	72
34	1,11	H1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	1.73	9.67E-08			H2O	10	15	3	2.10E-04	-75		958	961	1.00	1610	0.27	12.0	71
35	1,11	D1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	0.48	2.68E-08			H2O	10	15	3	2.10E-04	30		667	699	1.05	1718	3.82	16.0	81
36	1,11	O	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	1.32	7.38E-08			H2O	10	15	3	2.10E-04	30		839	840	1.00	2063	0.19	10.0	81
37	1,11	N	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	1.66	9.28E-08			H2O	10	15	3	2.10E-04	30		872	873	1.00	1585	0.20	10.0	75
38	1,11	M	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	2.14	1.20E-07			H2O	10	15	3	2.10E-04	30		898	899	1.00	1617	0.18	10.0	76
39	1,11	E1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	0.89	4.98E-08			H2O	10	15	3	2.10E-04	150		714	716	1.00	1703	0.12	11.0	81
40	1,11	F1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	1.17	6.54E-08			H2O	10	15	3	2.10E-04	150		748	750	1.00	1762	0.16	10.0	81
41	1,11	Q	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	0.66	3.69E-08			H2O	10	15	3	2.10E-04	300		626	629	1.00	1684	0.68	10.0	82
42	1,11	G1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	1.45	8.11E-08			H2O	10	15	3	2.10E-04	300		720	724	1.01	1967	0.11	9.0	82
43	1,11	I1	EU97		E83699		B100		980	1.8	air	720	3.7	IRF III	BR2	300	2.01	1.12E-07			H2O	10	15	3	2.10E-04	300		739	747	1.01	1610	0.11	9.0	77
44	2	B894	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	27		549	664	1.21		5.80	23.9	76
45	2	C252	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	27		528	665	1.26		6.70	23.1	75
46	2	C256	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	27		537	667	1.24		6.60	24.7	75
47	2	C257	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	27		537	668	1.24		6.00	23.4	74
48	2	B895	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	200		492	581	1.18		3.90	20.2	80
49	2	C253	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	200		470	580	1.23		4.50	19.7	79
50	2	B896	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	300		481	546	1.14		3.30	17.4	81
51	2	C254	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	300		450	542	1.20		3.30	17.4	78
52	2	C258	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	300		462	546	1.18		3.30	17.1	75
53	2	C259	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	300		458	543	1.19		3.40	16.6	75
54	2	B897	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	400		450	507	1.13		2.90	16.8	75
55	2	B898	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	400		431	508	1.18		2.80	17.9	78
56	2	B899	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	500		409	435	1.06		1.20	24.0	85
57	2	C255	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5		HFR		0.00					20	4	5.00E-04	500		390	436	1.12		2.00	24.6	86
58	2	B884	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.40	1.87E-07			H2O		20	4	5.00E-04	27		859	863	1.00		0.30	14.8	87
59	2	B885	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.50	1.95E-07			H2O		20	4	5.00E-04	50		831	832	1.00		0.20	14.8	82
60	2	B886	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.30	1.79E-07			H2O		20	4	5.00E-04	100		781	786	1.01		0.30	14.7	0
61	2	B887	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.30	1.79E-07			H2O		20	4	5.00E-04	200		705	706	1.00		0.30	14.7	87
62	2	B888	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.10	1.64E-07			H2O		20	4	5.00E-04	300		614	618	1.01		0.30	14.6	84
63	2	B889	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.20	1.72E-07			H2O		20	4	5.00E-04	400		533	610	1.14		4.30	18.8	84
64	2	B890	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.10	1.64E-07			H2O		20	4	5.00E-04	500		438	506	1.16		3.40	21.1	88
65	2	C274	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SOSIA-02	HFR	300	2.40	1.12E-07			Na	12	20	4	5.00E-04	27		854	862	1.01		0.30	12.9	80
66	2	C275	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SOSIA-02	HFR	300	2.40	1.12E-07			Na	12	20	4	5.00E-04	100		832	835	1.00		0.20	12.6	74
67	2	C276	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SOSIA-02	HFR	300	2.30	1.08E-07			Na	12	20	4	5.00E-04	200		785	789	1.01		0.20	12.2	78
68	2	C277	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SOSIA-02	HFR	300	2.30	1.08E-07			Na	12	20	4	5.00E-04	300		746	746	1.00		0.20	11.7	74
69	2	C278	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SOSIA-02	HFR	300	2.30	1.08E-07			Na	12	20	4	5.00E-04	400		675	684	1.01		0.40	11.6	57
70	2	B900	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.00	9.35E-08			Na	11	20	4	5.00E-04	27		839	840	1.00		0.30	13.3	75

ROW NR	REFERENCE	Specimen id.:	MAT					HEAT TREATMENT						IRRADIATION											SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	(Capitals) 2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
71	2	B906	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.60	1.22E-07			Na	11	20	4	5.00E-04	27		908	908	1.00		0.20	12.6	81
72	2	B902	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.30	1.08E-07			Na	11	20	4	5.00E-04	50		814	815	1.00		0.10	13.1	72
73	2	B903	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.10	9.82E-08			Na	11	20	4	5.00E-04	100		799	799	1.00		0.20	12.9	75
74	2	B904	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.50	1.17E-07			Na	11	20	4	5.00E-04	200		799	799	1.00		0.20	12.1	76
75	2	B901	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	1.80	8.42E-08			Na	11	20	4	5.00E-04	300		720	723	1.00		0.20	12.1	70
76	2	B907	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.40	1.12E-07			Na	11	20	4	5.00E-04	300		735	737	1.00		0.20	11.9	74
77	2	B905	EU97	66/3 66/4	E83698		P8		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.30	1.08E-07			Na	11	20	4	5.00E-04	400		691	691	1.00		0.10	11.7	76
78	2	C292	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	-164		919	1003	1.09		9.60	22.4	n.a.
79	2	C291	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	-134		789	911	1.15		9.60	22.5	n.a.
80	2	C294	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	-106		673	828	1.23		10.00	26.6	n.a.
81	2	C289	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	-79		608	775	1.27		9.40	21.4	n.a.
82	2	C285	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	-53		576	746	1.30		10.70	23.0	n.a.
83	2	C288	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	-53		577	736	1.28		8.00	28.5	n.a.
84	2	C280	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	0		550	692	1.26		8.00	20.6	n.a.
85	2	C284	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	0		545	690	1.27		8.10	20.1	n.a.
86	2	B748	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	27		532	658	1.24		5.90	24.0	79
87	2	B749	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	27		525	663	1.26		7.00	23.6	78
88	2	C248	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	27		560	662	1.18		4.50	22.4	76
89	2	C249	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	27		532	665	1.25		6.50	23.0	76
90	2	B750	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	200		484	580	1.20		3.80	19.6	82
91	2	B751	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	200		488	582	1.19		4.10	20.5	81
92	2	B752	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	300		454	543	1.20		3.20	17.6	82
93	2	B753	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	300		457	542	1.19		3.00	17.2	80
94	2	C250	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	300		466	544	1.17		3.20	16.5	76
95	2	C251	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	300		469	544	1.16		3.20	16.7	75
96	2	B754	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	400		432	506	1.17		2.90	16.9	76
97	2	B755	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	400		438	507	1.16		2.80	17.1	81
98	2	B756	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	500		404	438	1.08		1.60	22.8	87
99	2	B757	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	500		389	438	1.13		1.60	22.4	88
100	2	B767	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	600		298	315	1.06		0.60	34.2	93
101	2	B768	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-04	600		304	324	1.07		0.70	28.4	93
102	2	B769	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-06	600		170	211	1.24		2.50	29.4	92
103	2	B770	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO	HFR		0.00	0.00E+00			Na		20	4	5.00E-06	600		171	216	1.26		3.00	25.8	90
104	2	H861	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO-01	HFR	300	0.26	1.22E-08			Na		20	4	5.00E-04	300		543	577	1.06		2.10	n.a.	86
105	2	H865	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO-01	HFR	300	0.28	1.31E-08			Na		20	4	5.00E-04	300		521	543	1.04		0.60	n.a.	80
106	2	H867	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO-01	HFR	300	0.22	1.03E-08			Na		20	4	5.00E-04	300		532	560	1.05		1.20	n.a.	82
107	2	H862	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO-02	HFR	300	0.54	2.53E-08			Na		20	4	5.00E-04	300		589	594	1.01		0.50	n.a.	81
108	2	H866	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO-02	HFR	300	0.57	2.67E-08			Na		20	4	5.00E-04	300		560	572	1.02		0.40	n.a.	83
109	2	H868	EU97	3/7 4/14	E83698		P14		980	0.5	air	760	1.5	STROBO-02	HFR	300	0.61	2.85E-08			Na		20	4	5.00E-04	300		577	589	1.02		0.50	n.a.	78
110	2	B606	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	27		547	648	1.18		5.10	21.2	77
111	2	B607	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	27		558	653	1.17		5.10	21.5	79
112	2	C244	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	27		558	660	1.18		4.70	21.6	81
113	2	C245	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	27		559	667	1.19		5.30	22.0	76
114	2	B608	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	200		483	565	1.17		3.50	18.7	79
115	2	B609	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	200		502	574	1.14		3.10	18.5	79
116	2	B610	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	300		466	535	1.15		2.80	17.7	81
117	2	B611	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	300		487	540	1.11		2.20	17.4	0
118	2	C246	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	300		454	541	1.19		3.40	17.0	78
119	2	C247	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	300		489	548	1.12		2.80	17.1	79
120	2	B612	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	400		446	498	1.12		2.00	17.0	79
121	2	B613	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	400		465	507	1.09		1.90	16.8	77
122	2	B614	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	500		396	431	1.09		1.30	21.2	88
123	2	B615	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS	HFR		0.00	0.00E+00			H2O		20	4	5.00E-04	500		424	434	1.02		1.10	20.8	88
124	2	B596	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.30	1.08E-07			H2O		20	4	5.00E-04	27		853	855	1.00		0.30	14.3	87
125	2	B597	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.30	1.08E-07			H2O		20	4	5.00E-04	50		848	848	1.00		0.20	14.7	84
126	2	B603	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.20	1.03E-07			H2O		20	4	5.00E-04	50		846	849	1.00		0.30	14.7	82
127	2	B598	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.10	9.82E-08			H2O		20	4	5.00E-04	100		781	783	1.00		0.30	14.2	84
128	2	B599	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.50	1.17E-07			H2O		20	4	5.00E-04	200		707	709	1.00		0.30	14.3	84
129	2	B600	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.50	1.17E-07			H2O		20	4	5.00E-04	300		618	621	1.00		0.20	14.4	89
130	2	B601	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.40	1.12E-07			H2O		20	4	5.00E-04	400		543	601	1.11		4.20	18.4	82
131	2	B602	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SIWAS-09	HFR	60	2.50	1.17E-07			H2O		20	4	5.00E-04	500		433	484	1.12		2.40	21.3	87
132	2	B616	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.70	1.26E-07			Na	11	20	4	5.00E-04	27		910	910	1.00		0.20	12.6	75
133	2	C299	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.20	1.03E-07			Na	11	20	4	5.00E-04	27		901	902	1.00		0.30	13.0	76
134	2	C295	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.60	1.22E-07			Na	11	20	4	5.00E-04	50		894	894	1.00		0.20	12.7	75
135	2	C296	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.40	1.12E-07			Na	11	20	4	5.00E-04	100		879	879	1.00		0.10	12.5	71
136	2	C297	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.50	1.17E-07			Na	11	20	4	5.00E-04	200		812	812	1.00		0.20	12.2	69
137	2	B617	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.50	1.17E-07			Na	11	20	4	5.00E-04	300		769	770	1.00		0.10	11.7	78
138	2	C301	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.10	9.82E-08			Na	11	20	4	5.00E-04	300		764	764	1.00		0.10	12.1	72
139	2	C298	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-04	HFR	300	2.30	1.08E-07			Na	11	20	4	5.00E-04	400		710	710	1.00		0.10	11.5	66

ROW NR	REFERENCE	Specimen id.:	MAT					HEAT TREATMENT							IRRADIATION											SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	(Capitals) 2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	(minor) Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
140	2	B588	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	9.20	1.47E-07			Na	11	20	4	5.00E-04	300		914	914	1.00		0.20	10.6	72
141	2	B589	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	9.00	1.44E-07			Na	11	20	4	5.00E-04	27		1081	1081	1.00		0.20	11.3	69
142	2	B590	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	8.90	1.43E-07			Na	11	20	4	5.00E-04	50		1066	1066	1.00		0.20	11.3	70
143	2	B591	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	8.70	1.39E-07			Na	11	20	4	5.00E-04	400		842	842	1.00		0.10	10.7	66
144	2	B592	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	8.40	1.35E-07			Na	11	20	4	5.00E-04	200		937	937	1.00		0.10	10.9	74
145	2	B593	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	8.20	1.31E-07			Na	11	20	4	5.00E-04	100		1029	1029	1.00		0.10	11.2	75
146	2	B594	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	7.50	1.20E-07			Na	11	20	4	5.00E-04	27		1047	1047	1.00		0.10	11.5	70
147	2	B595	EU97	2/10 2/11	E83697		P25		980	0.5	air	760	1.5	SUMO-02	HFR	300	7.30	1.17E-07			Na	11	20	4	5.00E-04	300		883	883	1.00		0.10	10.8	71
148	2	B436	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	27		546	675	1.24		5.90	23.1	78
149	2	B437	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	27		546	675	1.24		4.50	18.7	79
150	2	C260	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	27		543	673	1.24		5.80	21.5	73
151	2	C261	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	27		545	671	1.23		6.30	20.8	73
152	2	B438	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	200		495	590	1.19		3.80	20.0	81
153	2	B439	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	200		493	592	1.20		3.70	19.8	80
154	2	B440	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	300		471	555	1.18		3.20	16.9	78
155	2	B441	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	300		468	555	1.19		3.30	17.4	79
156	2	C262	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	300		473	549	1.16		3.00	15.7	74
157	2	C263	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	300		474	551	1.16		3.00	15.9	73
158	2	B442	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	400		447	513	1.15		2.40	16.9	77
159	2	B443	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	400		456	513	1.13		2.70	16.3	78
160	2	B444	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	500		407	443	1.09		1.30	21.4	86
161	2	B445	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	500		431	445	1.03		1.10	22.4	88
162	2	B446	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	600		307	319	1.04		0.60	33.1	94
163	2	B447	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	600		310	323	1.04		0.70	31.8	95
164	2	B454	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	600		303	318	1.05		0.80	43.7	92
165	2	B455	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-04	600		304	320	1.05		1.00	33.0	93
166	2	B449	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-06	600		173	214	1.24		2.30	32.9	91
167	2	B450	EU97	M/5	E83699		B100		980	0.5	air	740	3.7		HFR								20	4	5.00E-06	600		173	212	1.23		2.60	35.7	93
168	3	K 14D	EU97	66/5	E83698		P8		980	0.5	air	760	1.5	Altair	BOR-56		0.00			??		12	2	1.40E-03	20		517	644	1.25		5.70	18.2	84
169	3	K 15D	EU97	66/5	E83698		P8		980	0.5	air	760	1.5	Altair	BOR-57		0.00			??		12	2	1.40E-03	20		513	636	1.24		5.80	17.9	84
170	3	K 16D	EU97	66/5	E83698		P8		980	0.5	air	760	1.5	Altair	BOR-58		0.00			??		12	2	1.40E-03	325		458	531	1.16		3.00	13.8	87
171	3	K 34D	EU97	66/5	E83698		P8		980	0.5	air	760	1.5	Altair	BOR-59		0.00			??		12	2	1.40E-03	325		454	536	1.18		3.50	14.4	85
172	3	K 9D	EU97	66/5	E83698		P8		980	0.5	air	760	1.5	Altair	BOR-60	325	42.30			??		12	2	1.40E-03	20		1139	1161	1.02		0.50	7.7	58
173	3	K10D	EU97	66/5	E83698		P8		980	0.5	air	760	1.5	Altair	BOR-60	325	42.30			??		12	2	1.40E-03	325		976	993	1.02		0.40	6.2	58
173.5																						**3**						**1**						
174	4	31	F82H				P		1040	0.5	q	750	2	Teseo	HFR	250	0.80				He	18	3	1.60E-04	250		625	632	1.01		0.50	11.9	80
175	4	32	F82H				P		1040	0.5	q	750	2	Teseo	HFR	250	0.80				He	18	3	1.60E-04	250		627	630	1.00		0.50	11.7	79
176	4	33	F82H				P		1040	0.5	q	750	2	Teseo	HFR	300	0.80				He	18	3	1.60E-04	300		658	661	1.00		0.30	10.8	82
177	4	34	F82H				P		1040	0.5	q	750	2	Teseo	HFR	300	0.80				He	18	3	1.60E-04	300		646	649	1.00		0.40	11.1	82
178	4	35	F82H				P		1040	0.5	q	750	2	Teseo	HFR	350	0.80				He	18	3	1.60E-04	350		641	648	1.01		0.70	11.1	76
179	4	36	F82H				P		1040	0.5	q	750	2	Teseo	HFR	350	0.80				He	18	3	1.60E-04	350		634	640	1.01		0.70	10.7	77
180	4	37	F82H				P		1040	0.5	q	750	2	Teseo	HFR	400	0.80				He	18	3	1.60E-04	400		515	542	1.05		1.20	12.1	77
181	4	38	F82H				P		1040	0.5	q	750	2	Teseo	HFR	400	0.80				He	18	3	1.60E-04	400		508	539	1.06		1.40	12.0	82
182	4	39	F82H				P		1040	0.5	q	750	2	Teseo	HFR	450	0.80				He	18	3	1.60E-04	450		466	493	1.06		1.30	13.9	82
183	4	40	F82H				P		1040	0.5	q	750	2	Teseo	HFR	450	0.80				He	18	3	1.60E-04	450		463	491	1.06		1.50	14.6	81
184	4	85	F82H				P	ann	1040	0.5	q	750	2	Teseo	HFR		0.00				He	18	3	1.60E-04	20		587	665	1.13		4.10	19.3	83
185	4	91	F82H				P	ann	1040	0.5	q	750	2	Teseo	HFR		0.00				He	18	3	1.60E-04	20		593	669	1.13		4.10	17.3	84
186	4	99	F82H				P	ann	1040	0.5	q	750	2	Teseo	HFR		0.00				He	18	3	1.60E-04	20		581	665	1.14		4.50	17.3	84
187	4	95	F82H				P	ann	1040	0.5	q	750	2	Teseo	HFR		0.00				He	18	3	1.60E-04	300		511	566	1.11		2.40	14.3	80
188	4	A0	F82H				P	ann	1040	0.5	q	750	2	Teseo	HFR		0.00				He	18	3	1.60E-04	300		502	554	1.10		2.50	14.7	86
189	4	96	F82H				P	ann	1040	0.5	q	750	2	Teseo	HFR		0.00				He	18	3	1.60E-04	450		371	496	1.34		1.90	13.7	77
190	4	A1	F82H				P	ann	1040	0.5	q	750	2	Teseo	HFR		0.00				He	18	3	1.60E-04	450		471	503	1.07		1.70	13.8	76
190.5	4						P	**4**														**5**												
191	4	52	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	250	0.80				He	18	3	1.60E-04	250		632	636	1.01		0.80	11.1	74
192	4	53	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	300	0.80				He	18	3	1.60E-04	300		633	633	1.00		0.20	10.5	76
193	4	54	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	300	0.80				He	18	3	1.60E-04	300		653	655	1.00		0.30	11.5	76
194	4	55	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	350	0.80				He	18	3	1.60E-04	350		623	623	1.00		0.40	10.0	73
195	4	56	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	350	0.80				He	18	3	1.60E-04	350		583	587	1.01		0.60	10.8	67
196	4	57	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	400	0.80				He	18	3	1.60E-04	400		493	540	1.10		2.50	12.3	70
197	4	58	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	400	0.80				He	18	3	1.60E-04	400		499	539	1.08		1.90	11.5	74
198	4	59	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	450	0.80				He	18	3	1.60E-04	450		429	476	1.11		3.30	14.9	74
199	4	61	OPTIV			5	P		900	0.5	q	750	2	Teseo	HFR	450	0.80				He	18	3	1.60E-04	450		435	483	1.11		3.50	16.5	68
200	5	x	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR		0.00				He	18	3	1.60E-04	20		514	651	1.27		7.00	19.3	
201	5	x	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR		0.00				He	18	3	1.60E-04	250		445	540	1.21		4.20	15.6	
202	5	x	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR		0.00				He	18	3	1.60E-04	500		394	428	1.09		1.70	19.0	
203	5	x	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR		0.00				He	18	3	1.60E-04	500		386	423	1.10		2.00	20.9	
203.5								**6**																										
204	5	U1	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	250	2.40				He	18	3	1.60E-04	250		734	737	1.00		0.27	9.9	77
205	5	U2	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	250	2.40				He	18	3	1.60E-04	250		714	714	1.00		0.23	9.8	61
206	5	U3	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	300	2.40				He	18	3	1.60E-04	300		711	716	1.01		0.30	7.8	52

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)				HEAT TREATMENT		(minor)					IRRADIATION													SPECIMEN			TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
207	5	U4	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	300	2.40				He		18	3	1.60E-04	300		765	765	1.00	0.23	7.4	54					
208	5	U5	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	350	2.40				He		18	3	1.60E-04	350		496	555	1.12	3.40	13.5	61					
209	5	U6	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	350	2.40				He		18	3	1.60E-04	350		603	636	1.05	1.10	8.3	42					
210	5	U7	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	400	2.40				He		18	3	1.60E-04	400		478	520	1.09	2.60	12.2	61					
211	5	U8	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	400	2.40				He		18	3	1.60E-04	400		491	540	1.10	2.90	13.1	60					
212	5	U9	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	450	2.40				He		18	3	1.60E-04	450		548	580	1.06	0.90	8.4	53					
213	5	U0	OPTIV			5	P		900	0.5	q	750	2	Phase Ia	HFR	450	2.40				He		18	3	1.60E-04	450		457	510	1.12	3.80	14.5	55					
214	5	8.1	JLF1						1050			780		Phase Ib	HFR		0.00				He		18	3	1.60E-04	25		516	637	1.23	6.50	19.8	82					
215	5	8.2	JLF1						1050			780		Phase Ib	HFR		0.00				He		18	3	1.60E-04	450		422	479	1.14	3.10	15.8	78					
216	5	81	JLF1						1050			780		Phase Ib	HFR	250	2.40				He		18	3	1.60E-04	250		608	628	1.03	2.50	13.5	79					
217	5	82	JLF1						1050			780		Phase Ib	HFR	250	2.40				He		18	3	1.60E-04	250		610	621	1.02	1.80	13.1	79					
218	5	83	JLF1						1050			780		Phase Ib	HFR	300	2.40				He		18	3	1.60E-04	300		652	652	1.00	0.26	8.9	70					
219	5	84	JLF1						1050			780		Phase Ib	HFR	300	2.40				He		18	3	1.60E-04	300		659	665	1.01	0.36	8.7	70					
220	5	85	JLF1						1050			780		Phase Ib	HFR	350	2.40				He		18	3	1.60E-04	350		535	571	1.07	1.60	10.8	74					
221	5	86	JLF1						1050			780		Phase Ib	HFR	350	2.40				He		18	3	1.60E-04	350		530	570	1.08	1.50	11.1	73					
222	5	87	JLF1						1050			780		Phase Ib	HFR	400	2.40				He		18	3	1.60E-04	400		464	544	1.17	2.40	9.5	63					
223	5	88	JLF1						1050			780		Phase Ib	HFR	400	2.40				He		18	3	1.60E-04	400		463	527	1.14	3.00	10.3	63					
224	5	89	JLF1						?			?		Phase Ib	HFR	450	2.40				He		18	3	1.60E-04	450		619	627	1.01	0.46	8.7	71					
225	5	80	JLF1						1050			780		Phase Ib	HFR	450	2.40				He		18	3	1.60E-04	450		428	478	1.12	2.50	13.3	61					
225.5								7																														
226	7	na	2,25CrV		ORNL	8	P0,76	0/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		649	723	1.11	4.70	12.0						
227	7	na	2,25CrV		ORNL	8	P0,76	5000/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		658	731	1.11	5.00	12.7						
228	7	na	2,25CrV		ORNL	8	P0,76	10000/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		640	718	1.12	5.00	13.0						
229	7	na	2,25CrV		ORNL	8	P0,76	20000/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		638	715	1.12	5.30	13.3						
230	7	na	2,25CrV		ORNL	8	P0,76		1050	1	ac	700	1		FFTF	365	7.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		950	980	1.03	1.10	6.4						
231	7	na	2,25CrV		ORNL	8	P0,76		1050	1	ac	700	1		FFTF	365	16.20		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		937	968	1.03	0.90	7.0						
232	7	na	2,25CrV		ORNL	8	P0,76		1050	1	ac	700	1		FFTF	365	26.00		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		883	920	1.04	1.20	7.0						
233	7	na	2,25Cr1WV		ORNL	8	P0,76	0/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		643	733	1.14	5.30	12.3						
234	7	na	2,25Cr1WV		ORNL	8	P0,76	5000/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		680	763	1.12	5.70	13.7						
235	7	na	2,25Cr1WV		ORNL	8	P0,76	10000/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		687	771	1.12	5.00	13.0						
236	7	na	2,25Cr1WV		ORNL	8	P0,76	20000/365	1050	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		679	766	1.13	5.70	13.7						
237	7	na	2,25Cr1WV		ORNL	8	P0,76		1050	1	ac	700	1		FFTF	365	7.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		924	959	1.04	1.30	7.5						
238	7	na	2,25Cr1WV		ORNL	8	P0,76		1050	1	ac	700	1		FFTF	365	16.20		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		976	1026	1.05	1.00	7.5						
239	7	na	2,25Cr1WV		ORNL	8	P0,76		1050	1	ac	700	1		FFTF	365	25.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		924	963	1.04	1.40	7.7						
240	7	na	2,25Cr2W		ORNL	8	P0,76	0/365	900	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		509	618	1.21	6.30	13.7						
241	7	na	2,25Cr2W		ORNL	8	P0,76	5000/365	900	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		515	633	1.23	6.70	15.3						
242	7	na	2,25Cr2W		ORNL	8	P0,76	10000/365	900	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		516	635	1.23	7.00	15.3						
243	7	na	2,25Cr2W		ORNL	8	P0,76	20000/365	900	1	ac	700	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		519	633	1.22	7.30	15.3						
244	7	na	2,25Cr2W		ORNL	8	P0,76		900	1	ac	700	1		FFTF	365	7.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		754	799	1.06	2.20	8.8						
245	7	na	2,25Cr2W		ORNL	8	P0,76		900	1	ac	700	1		FFTF	365	16.20		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		796	830	1.04	1.70	7.5						
246	7	na	2,25Cr2W		ORNL	8	P0,76		900	1	ac	700	1		FFTF	365	28.60		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		747	787	1.05	2.00	10.0						
247	7	na	2,25Cr2WV		ORNL	8	P0,76	0/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		606	693	1.14	5.00	12.7						
248	7	na	2,25Cr2WV		ORNL	8	P0,76	5000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		614	705	1.15	6.00	14.0						
249	7	na	2,25Cr2WV		ORNL	8	P0,76	10000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		606	708	1.17	6.00	14.3						
250	7	na	2,25Cr2WV		ORNL	8	P0,76	20000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		605	702	1.16	6.30	13.0						
251	7	na	2,25Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	7.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		788	810	1.03	1.40	7.8						
252	7	na	2,25Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	16.20		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		909	939	1.03	1.10	5.3						
253	7	na	2,25Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	28.60		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		910	940	1.03	1.20	5.9						
254	7	na	5Cr2WV		ORNL	8	P0,76	0/365	1050	1	ac	750	1		FFTF						Na	7.62	1,52x0,76	1.00E-03	365		537	645	1.20	4.70	13.0						
255	7	na	5Cr2WV		ORNL	8	P0,76	5000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		522	655	1.25	6.00	15.0						
256	7	na	5Cr2WV		ORNL	8	P0,76	10000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		541	646	1.19	5.00	14.0						
257	7	na	5Cr2WV		ORNL	8	P0,76	20000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		527	642	1.22	5.30	14.0						
258	7	na	5Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	7.70		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		729	771	1.06	2.40	9.1						
259	7	na	5Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	16.70		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		757	793	1.05	1.70	7.8						
260	7	na	5Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	27.60		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		739	766	1.04	1.40	11.2						
261	7	na	9Cr2WV		ORNL	8	P0,76	0/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		549	659	1.20	4.70	12.3						
262	7	na	9Cr2WV		ORNL	8	P0,76	5000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		576	692	1.20	5.30	13.3						
263	7	na	9Cr2WV		ORNL	8	P0,76	10000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		576	700	1.22	5.00	13.7						
264	7	na	9Cr2WV		ORNL	8	P0,76	20000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		563	689	1.22	5.30	13.7						
265	7	na	9Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	7.70		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		710	764	1.08	3.50	10.2						
266	7	na	9Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	16.70		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		697	745	1.07	2.30	9.0						
267	7	na	9Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	26.60		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		705	756	1.07	2.30	8.7						
268	7	na	9Cr2WVTa		ORNL3791	8	P0,76	0/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		544	652	1.20	4.30	12.3						
269	7	na	9Cr2WVTa		ORNL3791	8	P0,76	5000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		579	695	1.20	5.00	14.0						
270	7	na	9Cr2WVTa		ORNL3791	8	P0,76	10000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		584	696	1.19	5.00	13.7						
271	7	na	9Cr2WVTa		ORNL3791	8	P0,76	20000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		584	701	1.20	4.70	13.3						
272	7	na	9Cr2WVTa		ORNL3791	8	P0,76		1050	1	ac	750	1		FFTF	365	6.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		669	734	1.10	3.90	11.1						
273	7	na	9Cr2WVTa		ORNL3791	8	P0,76		1050	1	ac	750	1		FFTF	365	15.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		699	765	1.09	2.90	9.7						
274	7	na	9Cr2WVTa		ORNL3791	8	P0,76		1050	1	ac	750	1		FFTF	365	27.20		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		710	769	1.08	3.50	12.0						
275	7	na	12Cr2WV		ORNL	8	P0,76	0/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		522	657	1.26	5.70	13.0						

ROW NR	REFERENCE		Specimen id.:	MAT					HEAT TREATMENT							IRRADIATION													SPECIMEN		TEST CONDITIONS			TEST RESULTS								
				Name	(Capitals) 2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	(minor) Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
276	7	na		12Cr2WV		ORNL	8	P0,76	5000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		561	700	1.25		6.70	14.3	
277	7	na		12Cr2WV		ORNL	8	P0,76	10000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		560	695	1.24		6.30	14.0	
278	7	na		12Cr2WV		ORNL	8	P0,76	20000/365	1050	1	ac	750	1		FFTF		0.00				Na	7.62	1,52x0,76	1.00E-03	365		553	688	1.24		6.00	14.0	
279	7	na		12Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	6.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		857	890	1.04		1.70	8.0	
280	7	na		12Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	15.40		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		866	902	1.04		1.20	7.1	
281	7	na		12Cr2WV		ORNL	8	P0,76		1050	1	ac	750	1		FFTF	365	27.20		<1	??	Na	7.62	1,52x0,76	1.00E-03	365		900	932	1.04		1.30	8.0	
281.5																													8	8			8.00	8	
282	9	I29T09_E15		EU97		E83697										PIREX	50	0.22			??					50		711	766	1.08		1.40		
283	9	I29T01_E1		EU97		E83697		P25		980	0.5	air	760	90		PIREX	50	0.62			??		5.6	2.5	5.00E-04	50	Ar	617	714	1.16		1.27		
284	9	I29T02_E4		EU97		E83697		P25		980	0.5	air	760	90		PIREX	50	0.62			??		5.6	2.5	5.00E-04	50	Ar	717	762	1.06		2.50		
285	9	I29T01_2		EU97		E83697		P25		980	0.5	air	760	90		PIREX	50	0.62			??		5.6	2.5	5.00E-04	50	Ar	636	749	1.18		1.40		
286	9	I29T18		EU97		E83697		P25		980	0.5	air	760	90		PIREX	50	1.27			??		5.6	2.5	5.00E-04	50	Ar	739	772	1.04		1.10		
287	9	I29T17		EU97		E83697		P25		980	0.5	air	760	90		PIREX	50	1.27			??		5.6	2.5	5.00E-04	50	Ar	750	823	1.10		1.75		
288	9	I29T12		EU97		E83697		P25		980	0.5	air	760	90		PIREX	250	0.24			??		5.6	2.5	5.00E-04	250	Ar	515	592	1.15		4.30		
289	9	I29T13		EU97		E83697		P25		980	0.5	air	760	90		PIREX	250	0.24			??		5.6	2.5	5.00E-04	250	Ar	552	588	1.07		3.90		
290	9	I29T04		EU97		E83697		P25		980	0.5	air	760	90		PIREX	250	0.63			??		5.6	2.5	5.00E-04	250	Ar	614	661	1.08		1.80		
291	9	I29T20		EU97		E83697		P25		980	0.5	air	760	90		PIREX	250	1.36			??		5.6	2.5	5.00E-04	250	Ar	570	638	1.12		1.00		
292	9	I29T15		EU97		E83697		P25		980	0.5	air	760	90		PIREX	350	0.16			??		5.6	2.5	5.00E-04	350	Ar	470	557	1.19		6.50		
293	9	I29T16		EU97		E83697		P25		980	0.5	air	760	90		PIREX	350	0.16			??		5.6	2.5	5.00E-04	350	Ar	475	555	1.17		8.20		
294	9	I29T06E8		EU97		E83697		P25		980	0.5	air	760	90		PIREX	350	0.68			??		5.6	2.5	5.00E-04	350	Ar	475	529	1.11		2.60		
295	9	I29T7		EU97		E83697		P25		980	0.5	air	760	90		PIREX	350	0.68			??		5.6	2.5	5.00E-04	350	Ar	476	549	1.15		3.50		
295.5																		9																							
296	10	7101		F82H		9741	10	7,5mm P6-5		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		495	622	1.26		5.20	21.8	79
297	10	7102		F82H		9741	10	7,5mm P6-5		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		508	625	1.23		5.30	20.2	82
298	10	7104		F82H		9741	10	7,5mm P6-10		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		509	638	1.25		4.60		
299	10	7105		F82H		9741	10	7,5mm P6-10		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		518	638	1.23		4.20		
300	10	7141		F82H		9741	10	7,5mmP6-18		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		492	610	1.24		5.00		
301	10	7142		F82H		9741	10	7,5mmP6-18		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		497	618	1.24		5.10		
302	10	7143		F82H		9741	10	7,5mmP6-18		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		490	617	1.26		4.90		
303	10	7106		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		509	625	1.23		5.20		
304	10	7107		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		489	625	1.28		4.90		
305	10	7112		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		512	631	1.23		4.90		
306	10	9270		F82H		9741	10	7,5mmP6-10		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		508	636	1.25		4.30		
307	10	9274		F82H		9741	10	7,5mmP6-10		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	27		499	645	1.29		3.90		
308	10	7113		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	80		499	601	1.20		3.90		
309	10	7120		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	80		499	601	1.20		3.90	18.6	81
310	10	7114		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	200		474	554	1.17		2.80	15.9	81
311	10	7121		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	200		473	563	1.19		2.70		
312	10	7115		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	300		446	518	1.16		2.50	14.2	82
313	10	7122		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	300		454	520	1.15		1.90		
314	10	9271		F82H		9741	10	7,5mmP6-10		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	300		474	539	1.14		2.10		
315	10	9272		F82H		9741	10	7,5mmP6-10		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	300		445	537	1.21		2.00		
316	10	9273		F82H		9741	10	7,5mmP6-10		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	300		454	538	1.19		2.40		
317	10	7116		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	400		431	489	1.13		1.60	12.5	77
318	10	7123		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	400		436	493	1.13		2.00		
319	10	7117		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	450		419	469	1.12		1.70	13.6	81
320	10	7124		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	450		423	474	1.12		1.70		
321	10	7118		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	500		403	442	1.10		1.50	14.7	82
322	10	7125		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	500		403	443	1.10		1.40		
323	10	7160		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	502		403	421	1.04		1.20	20.1	87
324	10	7212		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	502		405	427	1.05		0.90	16.3	87
325	10	7119		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	550		370	390	1.05		0.80	15.3	89
326	10	7126		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	550		368	398	1.08		0.70		
327	10	7165		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	552		365	376	1.03		0.50	18.3	90
328	10	7167		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1		HFR		0.00				L	20	4	5.00E-04	552		360	377	1.05		0.80	19.8	90
329	10	7213		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.34	2.62		He	L	20	4	5.00E-04	27		728	770	1.06		1.80	11.8	80
330	10	7162		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.54	2.68		He	L	20	4	5.00E-04	27		700	745	1.06		2.20	12.3	79
331	10	7192		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.92	2.77		He	L	20	4	5.00E-04	27		711	758	1.07		2.10	12.8	78
332	10	7196		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	3.01	2.79		He	L	20	4	5.00E-04	27		717	762	1.06		2.30	12.6	81
333	10	7201		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.87	2.76		He	L	20	4	5.00E-04	80		676	722	1.07		2.00	12.5	79
334	10	7176		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.88	2.76		He	L	20	4	5.00E-04	80		679	723	1.06		2.10	11.9	77
335	10	7202		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.70	2.72		He	L	20	4	5.00E-04	200		698	709	1.02		0.60	9.5	76
336	10	7177		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.71	2.72		He	L	20	4	5.00E-04	200		653	680	1.04		1.20	10.4	80
337	10	7166		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.37	2.63		He	L	20	4	5.00E-04	300		653	662	1.01		0.50		
338	10	7211		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.51	2.67		He	L	20	4	5.00E-04	300		590	618	1.05		0.90	10.1	76
339	10	7197		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.84	2.75		He	L	20	4	5.00E-04	300		629	644	1.02		0.70	9.1	71
340	10	7181		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.96	2.78		He	L	20	4	5.00E-04	300		604	629	1.04		1.00	10.5	77
341	10	7179		F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	3.00	2.79		He	L	20	4	5.00E-04	300		618	640	1.04		1.10	10.0	74

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)	Heat id.	Chem.comp. See Ref	Product form	HEAT TREATMENT	(minor)				IRRADIATION								SPECIMEN		TEST CONDITIONS			TEST RESULTS				
			Name	2nd Name				Final treatment h/°C	Normalizing temp (°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
342	10	7191	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	3.09		2.81		He	L	20	4	5.00E-04	300		647	662	1.02		0.80	9.4	73
343	10	7205	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.69		2.71		He	L	20	4	5.00E-04	400		594	614	1.03		0.90	7.4	70
344	10	7187	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	3.06		2.80		He	L	20	4	5.00E-04	400		577	598	1.04		0.80	9.8	65
345	10	7206	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.52		2.67		He	L	20	4	5.00E-04	500		473	485	1.03		0.50	12.4	82
346	10	7188	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.89		2.76		He	L	20	4	5.00E-04	500		498	506	1.02		0.40	11.5	79
347	10	7168	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.17		2.59		He	L	20	4	5.00E-04	550		383	396	1.03		0.60	15.8	88
348	10	7198	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	ILAS-4	HFR	300	2.64		2.70		He	L	20	4	5.00E-04	550		396	405	1.02		0.40	13.8	90
349	10	7161	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	SIWAS-6	HFR	80	1.67		2.24		H2O	L	20	4	5.00E-04	150		722	722	1.00		0.20	12.4	87
350	10	7164	F82H		9741	10	7,5mmP6-14		1040	0.66	ac	750	1	SIWAS-6	HFR	80	1.95		2.29		H2O	L	20	4	5.00E-04	150		726	726	1.00		0.20	12.6	87
351	10	7144	F82H		9741	10	15mmP3-6		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		528	633	1.20		4.00		
352	10	7145	F82H		9741	10	15mmP3-6		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		524	638	1.22		4.10		
353	10	7146	F82H		9741	10	15mmP3-6		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		528	637	1.21		4.80		
354	10	7155	F82H		9741	10	15mmP3-16		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		533	638	1.20		3.80		
355	10	7156	F82H		9741	10	15mmP3-16		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		521	638	1.22		4.50		
356	10	7157	F82H		9741	10	15mmP3-16		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		528	636	1.20		4.90		
357	10	7148	F82H		9741	10	15mmP3-6		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		524	632	1.21		4.00	19.8	84
358	10	7153	F82H		9741	10	15mmP3-11		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		526	633	1.20		5.30	20.2	82
359	10	7154	F82H		9741	10	15mmP3-11		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		520	633	1.22		4.20	19.8	82
360	10	7150	F82H		9741	10	15mmP3-11		1040	0.66	ac	750	1		HFR		0.00					T	20	4	5.00E-04	27		503	635	1.26		4.30		
361	10	7151	F82H		9741	10	15mmP3-11		1040	0.66	ac	750	1		HFR		0.00					T	20	4	5.00E-04	27		524	637	1.22		4.20		
362	10	7152	F82H		9741	10	15mmP3-11		1040	0.66	ac	750	1		HFR		0.00					T	20	4	5.00E-04	27		524	635	1.21		4.90		
363	10	8820	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		547	650	1.19		4.10	18.2	81
364	10	8833	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	27		561	657	1.17		3.40		
365	10	8821	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	80		539	628	1.17		3.00	18.6	83
366	10	8822	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	80		536	625	1.17		3.00	18	82
367	10	8823	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	225		496	568	1.15		2.10	15.7	82
368	10	8824	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	325		471	536	1.14		2.10	15.9	82
369	10	8825	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	325		481	540	1.12		1.80		
370	10	8826	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	375		466	521	1.12		1.60	13.3	79
371	10	8827	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1		HFR		0.00					L	20	4	5.00E-04	425		457	503	1.10		1.90	13.9	80
372	10	8845	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.08		2.58		He	13,L	20	4	5.00E-04	27		840	851	1.01		0.2	11	81
373	10	8838	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.55		2.63		He	13,L	20	4	5.00E-04	27		874	898	1.03		0.4	10.3	70
374	10	8842	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.49		2.62		He	13,L	20	4	5.00E-04	80		867	873	1.01		0.3	10.1	80
375	10	8844	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.06		2.53		He	13,L	20	4	5.00E-04	325		722	727	1.01		0.2	9.2	77
376	10	8837	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.48		2.62		He	13,L	20	4	5.00E-04	325		801	801	1.00		0.2	10.1	78
377	10	8849	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.36		2.65		He	13,L	20	4	5.00E-04	425		674	686	1.02		0.4	8.7	75
378	10	8839	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.57		2.64		He	13,L	20	4	5.00E-04	425		750	762	1.02		0.2	9	78
379	10	8848	F82H		9753	10	25mmP31W-20		1040	0.66	ac	750	1	ILAS-6	HFR	275	2.28		2.62		He	13,L	20	4	5.00E-04	500		524	541	1.03		0.5	13	81
380	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	22	vac	547	697	1.27		7.30	11.9	
381	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	400	vac	474	553	1.17		2.50	5.9	
382	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	500	vac	438	517	1.18		3.60	7.2	
383	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	550	vac	440	497	1.13		3.60	10.3	
384	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm	5000/400	1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	400	vac	460	555	1.21		3.30	6.0	
385	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm	5000/450	1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	450	vac	473	570	1.21		3.00	5.6	
386	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm	5000/500	1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	500	vac	451	522	1.16		2.90	6.1	
387	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm	5000/550	1038	1	ac	760	1		EBRII		0.00					T	20.3	1.5x0.76	4.20E-04	550	vac	414	467	1.13		2.90	7.8	
388	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII	390	10.00			2.E+22	??	T	20.3	1.5x0.76	4.20E-04	22	vac	881	933	1.06		3.60	7.0	
389	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII	390	10.00			2.E+22	??	T	20.3	1.5x0.76	4.20E-04	400	vac	781	808	1.03		1.40	4.1	
390	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII	450	10.00			2.E+22	??	T	20.3	1.5x0.76	4.20E-04	450	vac	480	575	1.20		3.60	6.9	
391	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII	500	10.00			2.E+22	??	T	20.3	1.5x0.76	4.20E-04	22	vac	558	712	1.28		7.90	12.4	
392	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII	500	10.00			2.E+22	??	T	20.3	1.5x0.76	4.20E-04	500	vac	445	536	1.20		3.30	6.8	
393	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII	550	10.00			2.E+22	??	T	20.3	1.5x0.76	4.20E-04	22	vac	544	697	1.28		6.10	10.0	
394	12		9Cr1MoVNb		30182	12	Sheet 0.76 mm		1038	1	ac	760	1		EBRII	550	10.00			2.E+22	??	T	20.3	1.5x0.76	4.20E-04	550	vac	429	495	1.15		3.10	9.9	
395	13		9Cr1MoVNb		XA-3590	13	rod 6.35 mm		1040	0.5	He c	760	1		HFIR		0.00					L	18.3	2	4.50E-04	50	vac	541	656	1.21		5.10	9.6	
396	13		9Cr1MoVNb		XA-3590	13	Sheet 0.76 mm		1040	0.5	He c	760	1		HFIR		0.00					L	20.3	1.5x0.76	4.50E-04	50	vac	528	659	1.25		5.20	12.9	
397	13		9Cr1MoVNb		XA-3590	13	Sheet 0.76 mm		1040	0.5	He c	760	1	CTR-T2	HFIR	50	4.30		3		??	L	20.3	1.5x0.76	4.50E-04	50	vac	907	921	1.02		0.60	4.0	
398	13		9Cr1MoVNb		XA-3590	13	Sheet 0.76 mm		1040	0.5	He c	760	1	CTR-T2	HFIR	50	4.70		4		??	L	20.3	1.5x0.76	4.50E-04	50	vac	932	935	1.00		0.30	2.8	
399	13		9Cr1MoVNb		XA-3590	13	rod 6.35 mm		1040	0.5	He c	760	1	CTR-RB2	HFIR	50	7.10		7		??	L	18.3	2	4.50E-04	50	vac	990	990	1.00		0.30	2.4	
400	13		9Cr1MoVNb		XA-3590	13	Sheet 0.76 mm		1040	0.5	He c	760	1	CTR-33	HFIR	50	9.30		11		??	L	20.3	1.5x0.76	4.50E-04	50	vac	878	878	1.00		0.20	3.2	
401	13		9Cr1MoVNb		XA-3590	13	Sheet 0.76 mm		1040	0.5	He c	760	1	CTR-T1	HFIR	50	20.20		20		??	L	20.3	1.5x0.76	4.50E-04	50	vac	1009	1022	1.01		0.40	5.4	
402	13		9Cr1MoVNb		XA-3590	13	Sheet 0.76 mm		1040	0.5	He c	760	1	CTR-T1	HFIR	50	22.30		22		??	L	20.3	1.5x0.76	4.50E-04	50	vac	1010	1014	1.00		0.40	5.5	
403	13		9Cr1MoVNb		30176	13	rod 6.35 mm		1040	0.5	He c	760	1	CTR-RB1	HFIR	50	5.30		5		??	L	18.3	2	4.50E-04	50	vac	879	881	1.00		0.30	2.0	
404	13		9Cr1MoVNb2Ni		XA-3591	13	rod 6.35 mm		1040	0.5	He c	700	5		HFIR		0.00					L	18.3	2	4.50E-04	50	vac	734	851	1.16		3.70	7.5	
405	13		9Cr1MoVNb2Ni		XA-3591	13	Sheet 0.76 mm		1040	0.5	He c	700	5		HFIR		0.00					L	20.3	1.5x0.76	4.50E-04	50	vac	750	856	1.14		2.70	8.4	
406	13		9Cr1MoVNb2Ni		XA-3591	13	Sheet 0.76 mm		1040	0.5	He c	700	5	CTR-T2	HFIR	50	4.50		37		??	L	20.3	1.5x0.76	4.50E-04	50	vac	1230	1264	1.03		0.60	2.8	
407	13		9Cr1MoVNb2Ni		XA-3591	13	rod 6.35 mm		1040	0.5	He c	700	5	CTR-RB2	HFIR	50	5.00		80		??	L	18.3	2	4.50E-04	50	vac	1255	1258	1.00		0.30	1.5	
408	13		9Cr1MoVNb2Ni		XA-3591	13	Sheet 0.76 mm		1040	0.5	He c	700	5	CTR-33	HFIR	50	9.30		80		??	L	20.3	1.5x0.76	4.50E-04	50	vac	1289	1297	1.01		0.40	1.6	
409	13		9Cr1MoVNb2Ni		XA-3591	13	Sheet 0.76 mm		1040	0.5	He c	700	5	CTR-T1	HFIR	50	21.10		289		??	L	20.3	1.5x0.76	4.50E-04	50	vac	1357	1383	1.02		0.40	6.3	

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)			HEAT TREATMENT	(minor)					IRRADIATION										SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
410	13		12Cr1MoVW		XAA-3587	13	rod 6.35 mm		1050	0.5	He c	780	2.5		HFIR		0.00				L	18.3	2	4.50E-04	50	vac	553	759	1.37		8.10	11.2	
411	13		12Cr1MoVW		XAA-3587	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5		HFIR		0.00				L	20.3	1.5x0.76	4.50E-04	50	vac	569	759	1.33		5.10	13.0	
412	13		12Cr1MoVW		XAA-3587	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T2	HFIR	50	3.20		8	??	L	20.3	1.5x0.76	4.50E-04	50	vac	950	978	1.03		0.80	4.9	
413	13		12Cr1MoVW		XAA-3587	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T2	HFIR	50	4.70		11	??	L	20.3	1.5x0.76	4.50E-04	50	vac	976	1004	1.03		0.80	5.1	
414	13		12Cr1MoVW		XAA-3587	13	rod 6.35 mm		1050	0.5	He c	780	2.5	CTR-RB2	HFIR	50	10.30		44	??	L	18.3	2	4.50E-04	50	vac	980	992	1.01		0.40	2.9	
415	13		12Cr1MoVW		XAA-3587	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-33	HFIR	50	9.30		22	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1027	1047	1.02		0.60	6.5	
416	13		12Cr1MoVW		XAA-3587	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T1	HFIR	50	15.10		56	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1041	1060	1.02		0.60	6.4	
417	13		12Cr1MoVW		XAA-3587	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T1	HFIR	50	22.40		83	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1049	1082	1.03		0.60	6.5	
418	13		12Cr1MoVW		91354	13	rod 6.35 mm		1050	0.5	He c	780	2.5		HFIR		0.00				L	18.3	2	4.50E-04	50	vac	549	716	1.30		6.60	9.9	
419	13		12Cr1MoVW		91354	13	rod 6.35 mm		1050	0.5	He c	780	2.5	CTR-RB1	HFIR	50	5.50		19	??	L	18.3	2	4.50E-04	50	vac	986	998	1.01		0.40	2.0	
420	13		12Cr1MoVW		91354	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-33	HFIR	50	9.30		26	??	L	20.3	1.5x0.76	4.50E-04	50	vac	983	987	1.00		0.30	2.1	
421	13		12Cr1MoVW1Ni		XAA-3588	13	rod 6.35 mm		1050	0.5	He c	780	2.5		HFIR		0.00				L	18.3	2	4.50E-04	50	vac	576	800	1.39		7.10	10.6	
422	13		12Cr1MoVW1Ni		XAA-3588	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5		HFIR		0.00				L	20.3	1.5x0.76	4.50E-04	50	vac	583	791	1.36		7.80	10.5	
423	13		12Cr1MoVW1Ni		XAA-3588	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T2	HFIR	50	4.20		17	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1064	1098	1.03		0.90	3.5	
424	13		12Cr1MoVW1Ni		XAA-3588	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T2	HFIR	50	5.10		36	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1033	1087	1.05		1.00	2.8	
425	13		12Cr1MoVW1Ni		XAA-3588	13	rod 6.35 mm		1050	0.5	He c	780	2.5	CTR-RB2	HFIR	50	9.00		73	??	L	18.3	2	4.50E-04	50	vac	978	1001	1.02		0.60	2.6	
426	13		12Cr1MoVW1Ni		XAA-3588	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-33	HFIR	50	9.30		45	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1115	1134	1.02		0.60	3.0	
427	13		12Cr1MoVW1Ni		XAA-3588	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T1	HFIR	50	18.40		129	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1152	1194	1.04		0.60	5.0	
428	13		12Cr1MoVW1Ni		XAA-3588	13	Sheet 0.76 mm		1050	0.5	He c	780	2.5	CTR-T1	HFIR	50	23.70		167	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1147	1180	1.03		0.60	5.1	
429	13		12Cr1MoVW2Ni		XAA-3589	13	rod 6.35 mm		1050	0.5	He c	700	5		HFIR		0.00				L	18.3	2	4.50E-04	50	vac	719	899	1.25		4.60	7.8	
430	13		12Cr1MoVW2Ni		XAA-3589	13	Sheet 0.76 mm		1050	0.5	He c	700	5		HFIR		0.00				L	20.3	1.5x0.76	4.50E-04	50	vac	754	920	1.22		3.90	9.0	
431	13		12Cr1MoVW2Ni		XAA-3589	13	Sheet 0.76 mm		1050	0.5	He c	700	5	CTR-T2	HFIR	50	5.10		42	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1220	1277	1.05		0.90	2.9	
432	13		12Cr1MoVW2Ni		XAA-3589	13	rod 6.35 mm		1050	0.5	He c	700	5	CTR-RB2	HFIR	50	9.10		74	??	L	18.3	2	4.50E-04	50	vac	1227	1249	1.02		0.50	2.2	
433	13		12Cr1MoVW2Ni		XAA-3589	13	Sheet 0.76 mm		1050	0.5	He c	700	5	CTR-33	HFIR	50	9.30		145	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1264	1298	1.03		0.80	2.5	
434	13		12Cr1MoVW2Ni		XAA-3589	13	Sheet 0.76 mm		1050	0.5	He c	700	5	CTR-T1	HFIR	50	24.10		327	??	L	20.3	1.5x0.76	4.50E-04	50	vac	1338	1400	1.05		1.00	6.1	
435	14		CLAM			14	Bar 30 mm diam		980	0.5	water	600-750	1.5				0.00								25		504	620	1.23				
436	14		CLAM			14	Bar 30 mm diam		980	0.5	water	600-750	1.5				0.00								350		438	490	1.12				
437	15		CLAM		0211A	15			980	0.5		760	1.5				0.00								25		469	651	1.39		27.0		
438	15		CLAM		0211A	15			980	0.5		760	1.5				0.00								350		399	488	1.22		18.0		
439	15		CLAM		0408A	15	Bar		980	0.5		760	1.5				0.00								25		514	668	1.30		25.0	77	
440	15		CLAM		0408A	15	Bar		980	0.5		760	1.5				0.00								600		293	334	1.14		29.0	87	
441	15,16		CLAM		0408B	15,16	Plate 12 mm		980	0.5		760	1.5				0.00					5	1.2x0.25	6.67E-04	25		512	670	1.31		25.0		
442	15,16		CLAM		0408B	15,16	Plate 12 mm		980	0.5		760	1.5				0.00					5	1.2x0.25	6.67E-04	400	vac	450	555	1.23		18.5		
443	15,16		CLAM		0408B	15,16	Plate 12 mm		980	0.5		760	1.5				0.00					5	1.2x0.25	6.67E-04	500	vac	420	495	1.18		15.0		
444	15,16		CLAM		0408B	15,16	Plate 12 mm		980	0.5		760	1.5				0.00					5	1.2x0.25	6.67E-04	600	vac	327	373	1.14		19.0		
445	17		CLAM		0311A	17	Square rod 13x13		980	0.5	water	760	1.5				0.00								25		486.8	629	1.29		8.40	25.1	
446	17		CLAM		0311A	17	Square rod 13x13		980	0.5	water	760	1.5				0.00								350		423	513	1.21		4.90	18.6	
447	18		EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	25		573	671	1.17		6.00	19.0	-
448	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	25		547	668	1.22		5.10	17.7	80
449	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	350		456	518	1.14		2.10	14.1	80
450	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	450		428	467	1.09		1.50	16.2	83
451	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	500		372	398	1.07		1.30	20.9	91
452	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	550		350	368	1.05		1.00	21.6	93
453	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	600		263	277	1.05		0.80	19.0	96
454	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	650		218	235	1.08		1.30	26.2	97
455	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	700		153	173	1.13		2.00	21.4	98
456	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	25		542	661	1.22		5.80	19.1	80
457	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	25		528	671	1.27		6.00	18.0	
458	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	350		463	515	1.11		2.20	13.6	79
459	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	450		430	474	1.10		2.00	17.0	84
460	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	500		380	405	1.07		1.20	17.7	89
461	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	550		354	371	1.05		0.90	21.6	91
462	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	600		259	271	1.05		0.80	21.4	96
463	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	650		216	230	1.06		1.30	23.7	96
464	18	CEA	EU97		E83698		P14		980	0.5	air	760	1.5				0.00					12	2	7.00E-04	700		129	154	1.19		2.90	27.6	98
465	19	FZK	EU97		E83699		B100		980	1.25	air	740	2.5				0.00					30	5		23		568	671	1.18		4.59	21.4	76.3
466	19	FZK	EU97		E83699		B100		980	1.25	air	740	2.5				0.00					30	5		300		479	544	1.14		2.70	17.5	78.8
467	19	FZK	EU97		E83699		B100		980	1.25	air	740	2.5				0.00					30	5		400		453	503	1.11		2.36	18.0	78
468	19	FZK	EU97		E83699		B100		980	1.25	air	740	2.5				0.00					30	5		500		404	424	1.05		1.20	22.4	87.3
469	19	FZK	EU97		E83699		B100		980	1.25	air	740	2.5				0.00					30	5		600		284	291	1.02		0.84	32.4	94.3
470	19	FZK	EU97		E83699		B100		980	1.25	air	740	2.5				0.00					30	5		700		133	163	1.23		2.50	36.0	96.6
471	19	FZK	EU97		E83698		P14		980	1.25	air	740	2.5				0.00					30	5		23		537	652	1.21		4.97	20.8	79.9
472	19	FZK	EU97		E83698		P14		980	1.25	air	740	2.5				0.00					30	5		300		469	536	1.14		2.70	16.8	80.1
473	19	FZK	EU97		E83698		P14		980	1.25	air	740	2.5				0.00					30	5		400		442	497	1.12		2.32	16.8	78.8
474	19	FZK	EU97		E83698		P14		980	1.25	air	740	2.5				0.00					30	5		500		392	419	1.07		1.19	23.5	88.8
475	19	FZK	EU97		E83698		P14		980	1.25	air	740	2.5				0.00					30	5		600		277	292	1.05		0.91	29.3	94.1
476	10	E524	JLF-1				Plate 15 mm		1050	1		780	1				0.00							5.00E-04	27		479	630	1.32		6.2		
477	10	E521	JLF-1				Plate 15 mm		1050	1		780	1				0.00							5.00E-04	300		402	506	1.26		3.5		
478	10	E527	JLF-1				Plate 15 mm		1050	1		780	1				0.00							5.00E-04	300		416	515	1.24		3.6		
479	10	E530	JLF-1B				Plate		1050	1		780	1				0.00							5.00E-04	27		474	630	1.33		6.3	23.1	83.2

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)			HEAT TREATMENT	(minor)				IRRADIATION									SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h./°C	Normalizing temp.(°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
480	10	E538	JLF-1B				Plate		1050	1		780	1				0.00							5.00E-04	27		502	640	1.27		5.1		
481	10	E535	JLF-1B				Plate		1050	1		780	1				0.00							5.00E-04	300		423	516	1.22		3.5	15.6	83
482	10	E539	JLF-1B				Plate		1050	1		780	1				0.00							5.00E-04	300		434	528	1.22		3.5		
483	10	E523	JLF-1				Plate 15 mm		1050	1		780	1	ILAS-4	HFR	300	2.47							5.00E-04	300		540	579	1.07		1.4	11.5	76.7
484	10	E534	JLF-1B				Plate		1050	1		780	1	ILAS-4	HFR	300	2.50							5.00E-04	300		585	612	1.05		0.8	10.4	72.7
485	10	E520	JLF-1				Plate 15 mm		1050	1		780	1	ILAS-4	HFR	300	2.64							5.00E-04	27		628	702	1.12		3	14.7	77.4
486	10	E533	JLF-1B				Plate		1050	1		780	1	ILAS-4	HFR	300	2.68							5.00E-04	27		688	742	1.08		2.2	12.7	74.2
487	10	E515	JLF-1				Plate 15 mm		1050	1		780	1	ILAS-4	HFR	300	2.84							5.00E-04	200		580	620	1.07		1.4	12.8	78.8
488	10	E528	JLF-1B				Plate		1050	1		780	1	ILAS-4	HFR	300	2.87							5.00E-04	200		627	654	1.04		1.1	10.7	80.6
489	10	E517	JLF-1				Plate 15 mm		1050	1		780	1	ILAS-4	HFR	300	3.01							5.00E-04	400		505	559	1.11		1.5	10	70.3
490	10	E518	JLF-1				Plate 15 mm		1050	1		780	1	ILAS-4	HFR	300	3.05							5.00E-04	300		558	593	1.06		1.2	11.1	73.2
491	10	E529	JLF-1B				Plate		1050	1		780	1	ILAS-4	HFR	300	3.05							5.00E-04	400		489	551	1.13		1.9	11.2	72.7
492	10	E531	JLF-1B				Plate		1050	1		780	1	ILAS-4	HFR	300	3.08							5.00E-04	300		577	614	1.06		1.4	10.6	73.7
493	20	J1	Manet II											Alexandre	Osiris	313	0.80						8	t=1 mm		25		961	982	1.02		4.49	14.27	
494	20	J4	Manet II											Alexandre	Osiris	325	0.80						8	t=1 mm		325			834			0.04	7.6	28
495	21	J5	Manet II											Alexandre	Osiris	313	2.00						8	t=1 mm		325			797			0.02	0.75	43
496	21	J2	Manet II											Alexandre	Osiris	325	3.40						8	t=1 mm		325		990	1005	1.02		0.75	5.5	36
497	10	E503	ORNL-3791				Plate					750	0.5				0.00								5.00E-04	27		790	904	1.14		3.90	16.0	69.9
498	10	E510	ORNL-3791				Plate					750	0.5				0.00								5.00E-04	27		809	921	1.14		3.40	14.8	70.1
499	10	E507	ORNL-3791				Plate					750	0.5				0.00								5.00E-04	300		697	784	1.12		2.30		
500	10	E511	ORNL-3791				Plate					750	0.5				0.00								5.00E-04	300		726	797	1.10		1.80		
501	10	E508	ORNL-3791				Plate					750	0.5	ILAS-4	HFR	300	2.89								5.00E-04	300		867	893	1.03		0.90	8.6	67.5
502	10	E506	ORNL-3791				Plate					750	0.5	ILAS-4	HFR	300	3.06								5.00E-04	27		982	1018	1.04		1.90	9.3	68.4
503	10	E501	ORNL-3791				Plate					750	0.5	ILAS-4	HFR	300	3.26								5.00E-04	200		911	942	1.03		1.10	9.1	68.4
504	10	E502	ORNL-3791				Plate					750	0.5	ILAS-4	HFR	300	3.43								5.00E-04	400		848	886	1.04		1.00	7.4	55.1
505	10	E504	ORNL-3791				Plate					750	0.5	ILAS-4	HFR	300	3.47								5.00E-04	300		880	909	1.03		0.90	7.9	63.4
506	22	EU2T06	EU97-2	2nd batch	993394		P8										0.00						2.4	12	1.00E-04	-150		879.1	994.9	1.13		6.46	21.5	63.1
507	22	EU2T16	EU97-2	2nd batch	993394		P8										0.00						2.4	12	1.00E-04	-75		638.3	801.5	1.26		8.22	21.2	74.8
508	22	EU2T14	EU97-2	2nd batch	993394		P8										0.00						2.4	12	1.00E-04	0		588.5	721.4	1.23		5.76	18.5	78.1
509	22	EU2T01	EU97-2	2nd batch	993394		P8										0.00						2.4	12	1.00E-04	20		572.1	703.4	1.23		5.31	18.1	79.5
510	22	EU2T11	EU97-2	2nd batch	993394		P8										0.00						2.4	12	1.00E-04	150		542.4	631.9	1.17		3.74	16.6	81.3
511	22	EU2T02	EU97-2	2nd batch	993394		P8										0.00						2.4	12	1.00E-04	300		497.5	575.2	1.16		2.77	14.5	81.4
512	23	A2	EU97		E83698		P14										0.00									25		520.0	660.5	1.27			22.8	77.5
513	23	B4	EU97		E83698		P14										0.00									25		541.1	664.1	1.23			23.6	80.0
514	23	B5	EU97		E83698		P14										0.00									400		448.1	510.6	1.14			16.9	77.9
515	23	B1	EU97		E83698		P14										0.00									400		433.8	508.6	1.17			17.4	77.9
516	23	B2	EU97		E83698		P14										0.00									500		388.1	428.0	1.10			20.8	86.3
517	23	B6	EU97		E83698		P14										0.00									500		385.9	438.9	1.14			19.6	87.3
518	23	B3	EU97		E83698		P14										0.00									600		253.3	304.5	1.20			24.2	94.2
519	23	B7	EU97		E83698		P14										0.00									600		252.6	308.1	1.22			24.0	91.1
520	24		F82H		S62-01										JRR-2/JMTR	300	0.08								1.00E-04	25		684	746	1.09		4.60	18.7	80.3
521	24		F82H		S62-01										JRR-2/JMTR	300	0.08								1.00E-04	25		689	752	1.09		4.70	20.0	79.5
522	24		F82H		S62-01										JRR-2/JMTR	300	0.08								1.00E-04	25		684	753	1.10		4.70	19.0	80.8
523	24		F82H		S62-01										JRR-2/JMTR	580	0.08								1.00E-04	25		566	660	1.17		4.10	16.0	
524	24		F82H		S62-01										JRR-2/JMTR	580	0.08								1.00E-04	25		578	666	1.15		3.90	16.0	
525	24		F82H		S62-01										JRR-2/JMTR	580	0.08								1.00E-04	25		562	660	1.17		4.10	16.0	
526	24		F82H		S62-01										JRR-2/JMTR	300	0.08								1.00E-04	300		582	622	1.07		2.50	14.5	78.9
527	24		F82H		S62-01										JRR-2/JMTR	300	0.08								1.00E-04	300		589	627	1.06		2.50	14.6	78.9
528	24		F82H		S62-01										JRR-2/JMTR	580	0.08								1.00E-04	600		347	351	1.01		0.70	22.3	
529	24		F82H		S62-01										JRR-2/JMTR	580	0.08								1.00E-04	600		351	355	1.01		0.70	22.5	
530	24		F82H		S62-01										JRR-2/JMTR	580	0.08								1.00E-04	600		347	349	1.01		0.70	22.0	
531	24		F82H		S62-01										JRR-2/JMTR	520	0.10								1.00E-04	25		611	724	1.18		5.00	22.3	80.3
532	24		F82H		S62-01										JRR-2/JMTR	520	0.10								1.00E-04	25		596	708	1.19		4.80	19.8	79.8
533	24		F82H		S62-01										JRR-2/JMTR	520	0.10								1.00E-04	300		538	608	1.13		2.60	15.0	80
534	24		F82H		S62-01										JRR-2/JMTR	520	0.10								1.00E-04	500		461	493	1.07		1.30	19.0	80.3
535	24		F82H		S62-01										JRR-2/JMTR	520	0.10								1.00E-04	500		461	489	1.06		1.20	18.3	81.9
536	25	U10	F82H											Alexandre	Osiris	325	0.80						8	t=1		25		663	700	1.06		4.73	17.8	76
537	25	U7	F82H											Alexandre	Osiris	313	0.80						8	t=1		325		573	588	1.03		1.99	13.4	
538	25	U4	F82H											Alexandre	Osiris	325	0.80						8	t=1		325		576	593	1.03		1.82	13.5	78
539	26	U11	F82H											Alexandre	Osiris	313	2.00						8	t=1		25			685			0.04	5.7	76
540	26	U5	F82H											Alexandre	Osiris	313	2.00						8	t=1		325		672	672	1.00		0.26	8.3	62
541	10	7189	F82H		9741									ILAS-4	HFR	300	2.69								5.00E-04	500		462	467	1.01		0.30	13.9	88.1
542	10	7194	F82H		9741									ILAS-4	HFR	300	2.72								5.00E-04	500		403	408	1.01		0.20	14.5	88.1
543	26	U8	F82H											Alexandre	Osiris	325	3.40						8	t=1		30		847	852	1.01		0.38	9.8	71
544	26	U2	F82H											Alexandre	Osiris	325	3.40						8	t=1		325		734	734	1.00		0.20	6.2	59
545	27		F82H		S62-01										JRR-2 and JMTR	400	21.40								1.00E-04	400		524	570	1.09		2.10	11.3	
546	27		F82H		S62-01										JRR-2 and JMTR	400	31.50								1.00E-04	400		513	580	1.13		3.00	13.3	
547	27		F82H		S62-01										JRR-2 and JMTR	500	31.50								1.00E-04	500		437	478	1.09		1.80	12.4	

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)				HEAT TREATMENT		(minor)				IRRADIATION								SPECIMEN		TEST CONDITIONS			TEST RESULTS				
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h./°C	Normalizing temp.(°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
548	27		F82H		S62-01		plate 15 mm							JRR-2 and JMTR		500	33.60								1.00E-04	500		411	494	1.20	2.60	13.3	
549	28	11-1-01	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		553	672	1.22		22	78
550	28	12-1-01	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		544	660	1.21		22	77
551	28	12-3-01	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		553	671	1.21		21	78
552	28	13-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		484	608	1.26		22	77
553	28	14-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		550	671	1.22		21	74
554	28	14-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		553	673	1.22		21	77
555	28	15-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		403	551	1.37		27	78
556	28	15-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		538	659	1.22		21	75
557	28	16-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		558	676	1.21		20	77
558	28	17-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		499	629	1.26		20	72
559	28	17-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		545	669	1.23		18	73
560	28	18-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		371	527	1.42		27	74
561	29	6.1.t	F82H		9753		plate 25 mm										0.00						12	2	7.00E-05	20		581	661	1.14	5.4	19	83
562	29	6.2.t	F82H		9753		plate 25 mm										0.00						12	2	7.00E-05	20		581	669	1.15	5	18	83
563	29	B1	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	20		530	629	1.19	5.8	19	83
564	29	C1	F82H		9741		plate 7.5 mm										0.00						18	3	9.00E-04	20		511	630	1.23	6.2	21	82
565	29	F43-1	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		539	656	1.22	6.5	24	82
566	29	F43-2	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		547	659	1.20	6.5	22	81.6
567	29	F45-1	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		555	667	1.20	6.7	21	79.1
568	29	F45-2	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		555	662	1.19	5.8	19	80.6
569	29	F47-1	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		547	667	1.22	6.3	20	81.3
570	29	F47-2	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		547	667	1.22	6.3	20	79.2
571	29	F48-1	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		539	662	1.23	6.5	20	80.3
572	29	F48-2	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		541	656	1.21	6.2	20	80.6
573	29	F50-1	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		555	662	1.19	6	18	75.5
574	29	F50-2	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	20		549	661	1.20	6.2	20	75.3
575	29	A1	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	22		526	630	1.20	5.9	20	83
576	29	A2	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	22		521	630	1.21	5.7	19	84
577	29	1	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	25		523	639	1.22	5.4	18	81
578	29	2	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	25		516	627	1.22	5.9	21	82
579	29	A4	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	249		464	531	1.14	3.5	15	83
580	29	25	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	250		463	536	1.16	3.4	15	82
581	29	26	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	250		472	544	1.15	3.3	14	81
582	29	A3	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	250		461	532	1.15	2.1	15	83
583	29	B2	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	250		463	530	1.14	3.2	15	85
584	29	F43-3	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	250		478	541	1.13	3.2	15	81.2
585	29	F45-3	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	250		482	547	1.13	3.8	16	83
586	29	F47-3	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	250		486	552	1.14	3.2	15	80
587	29	F48-3	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	250		492	552	1.12	3.3	16	79.4
588	29	F50-3	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	250		484	549	1.13	3.3	15	79.5
589	29	C2	F82H		9741		plate 7.5 mm										0.00						18	3	9.00E-04	252		453	523	1.15	3.2	14	85
590	29	B3	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	349		448	498	1.11	2.2	14	82
591	29	5	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	350		449	509	1.13	2.5	14	83
592	29	6	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	350		442	511	1.16	2.8	14	82
593	29	F43-4	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	350		455	513	1.13	2.6	14	80.9
594	29	F45-4	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	350		457	518	1.13	2.4	14	81
595	29	F47-4	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	350		459	516	1.12	2.4	14	79.5
596	29	F48-4	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	350		466	518	1.11	2.4	14	81.9
597	29	F50-4	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	350		459	510	1.11	2.4	14	78.9
598	29	A5	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	351		444	501	1.13	2.5	14	84
599	29	C3	F82H		9741		plate 7.5 mm										0.00						18	3	9.00E-04	351		424	495	1.17	2.8	14	84
600	29	A6	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	398		430	482	1.12	2.1	13	83
601	29	B4	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	398		439	484	1.10	2.1	13	84
602	29	10	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	400		438	494	1.13	2.8	14	80
603	29	6.3.t	F82H		9753		plate 25 mm										0.00						12	2	7.00E-05	400		478	510	1.07	1.8	14	80
604	29	9	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	400		443	494	1.12	2.3	13	81
605	29	F43-5	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		449	497	1.11	2.6	14	81.8
606	29	F43-6	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		445	506	1.14	2.5	14	82.7
607	29	F45-5	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		453	502	1.11	2.3	13	80.4
608	29	F45-6	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		453	508	1.12	2.5	14	79.9
609	29	F47-5	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		455	503	1.11	2.2	14	82.7
610	29	F47-6	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		446	490	1.10	1.9	13	81.3
611	29	F48-5	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		446	494	1.11	2.4	14	83.2
612	29	F50-5	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		450	495	1.10	2.4	14	77.1
613	29	F50-6	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	400		446	494	1.11	2.4	14	74.5
614	29	C4	F82H		9741		plate 7.5 mm										0.00						18	3	9.00E-04	401		424	479	1.13	2.6	14	83
615	29	F48-6	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	425		450	489	1.09	2.1	14	78.6
616	29	A8	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	449		423	463	1.09	1.9	14	85
617	29	C5	F82H		9741		plate 7.5 mm										0.00						18	3	9.00E-04	449		420	461	1.10	2.2	14	86

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)				HEAT TREATMENT		(minor)				IRRADIATION								SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
618	29	11	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	450		424	460	1.08		1.9	17	86
619	29	12	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	450		424	462	1.09		1.8	15	86
620	29	A7	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	450		424	464	1.09		1.9	13	83
621	29	B5	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	450		429	465	1.08		1.9	14	81
622	29	F43-7	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	450		427	468	1.10		2.4	16	81.4
623	29	F45-7	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	450		444	486	1.09		2.4	16	80.8
624	29	F47-7	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	450		430	471	1.10		2.3	14	83.6
625	29	F48-7	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	450		434	473	1.09		2.2	14	79.9
626	29	F50-7	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	450		428	466	1.09		2.1	15	76.3
627	29	B6	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	498		400	433	1.08		1.9	16	86
628	29	C6	F82H		9741		plate 7.5 mm										0.00						18	3	9.00E-04	498		392	427	1.09		1.6	16	85
629	29	A9	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	499		404	431	1.07		1.6	17	89
630	29	15	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	500		398	421	1.06		1.2	20	84
631	29	16	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	500		400	424	1.06		1.2	18	86
632	29	6.4.t	F82H		9753		plate 25 mm										0.00						12	2	7.00E-05	500		427	449	1.05		1.1	16	85
633	29	F43-8	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	500		417	452	1.08		1.7	17	87.8
634	29	F45-8	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	500		415	447	1.08		1.7	18	83.5
635	29	F47-8	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	500		414	439	1.06		1.7	18	87.3
636	29	F48-8	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	500		415	444	1.07		1.7	18	84.3
637	29	F50-8	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	500		411	436	1.06		1.5	18	78.5
638	29	C7	F82H		9741		plate 7.5 mm										0.00						18	3	9.00E-04	548		363	388	1.07		1.1	17	90
639	29	A10	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	549		372	390	1.05		0.9	22	93
640	29	17	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	550		359	375	1.04		0.8	19	90
641	29	18	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	550		361	375	1.04		0.8	22	89
642	29	F43-9	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	550		382	398	1.04		1	20	89.6
643	29	F45-9	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	550		386	402	1.04		1	20	87.3
644	29	F47-9	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	550		383	395	1.03		0.8	19	88.9
645	29	F48-9	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	550		382	395	1.03		0.8	20	86.4
646	29	F50-9	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	550		382	398	1.04		1	26	86.2
647	29	A11	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	551		379	390	1.03		0.8	17	90
648	29	B7	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	552		372	392	1.05		0.9	17	90
649	29	6.5.t	F82H		9753		plate 25 mm										0.00						12	2	7.00E-05	600		347	354	1.02		0.6	20	93
650	29	6.6.t	F82H		9753		plate 25 mm										0.00						12	2	7.00E-05	600		338	344	1.02		0.5	19	93
651	29	B8	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	646		290	294	1.01		0.6	27	94
652	29	C8	F82H		9741		plate 15 mm										0.00						18	3	9.00E-04	648		275	286	1.04		0.6	22	95
653	29	21	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	650		231	243	1.05		1	25	93
654	29	22	F82H		9741		plate 7.5 mm										0.00						18	3	2.00E-05	650		236	246	1.04		0.7	27	93
655	29	F43-10	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	650		271	277	1.02		0.7	26	94.6
656	29	F45-10	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	650		271	277	1.02		0.7	25	93.5
657	29	F47-10	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	650		261	274	1.05		0.7	26	92.4
658	29	F48-10	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	650		267	273	1.02		0.7	28	92.5
659	29	F50-10	F82H		9741		plate 7.5 mm										0.00						12	2	7.00E-04	650		273	280	1.03		0.7	28	90
660	29	A12	F82H		9741		plate 15 mm										0.00						18	3	9.00E-05	651		281	286	1.02		0.6	20	94
661	30		F82H		9741		plate 15 mm										0.00						25	5		20		504	618	1.23		5.9	28.5	82.2
662	30		F82H		9741		plate 15 mm										0.00						25	5		300		440	512	1.16		2.5	16.3	79.8
663	30		F82H		9741		plate 15 mm										0.00						25	5		400		427	484	1.13		2.7	19.1	79.1
664	30		F82H		9741		plate 15 mm										0.00						25	5		500		366	401	1.10		1.3	27.1	85.3
665	26	TEM1	F82H														0.00						8	t=1		325		464	515	1.11		2.73	14.39	
666	26	TEM2	F82H														0.00						8	t=1		325		468	519	1.11		2.69	14.56	
667	31	31W-9-1	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	-80		615	750	1.22		8	25	74
668	31	31W-9-2	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	-60		588	721	1.23		8	24	76
669	31	31W-9-3	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	-50		577	695	1.20		7	25	76
670	31	31W-9-4	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	-40		565	700	1.24		8	23	77
671	31	31W-9-5	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	-20		556	674	1.21		7	21	78
672	31	31W-9-6	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	20		531	638	1.20		6	22	78
673	31	31W-9-7	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	100		501	595	1.19		5	20	80
674	31	31W-9-8	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	200		484	551	1.14		4	18	81
675	31	31W-9-9	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	300		455	513	1.13		3	17	81
676	31	31W-9-10	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	400		436	479	1.10		3	16	79
677	31	31W-9-11	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	450		420	455	1.08		2	16	80
678	31	31W-9-11	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	500		406	429	1.06		2	19	82
679	31	31W-9-12	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	500		406	429	1.06		2	19	82
680	31	31W-9-13	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	550		371	388	1.05		1	19	87
681	31	31W-9-14	F82H		9753		plate 25 mm										0.00						32	6	1.00E-04	600		330	342	1.04		1	21	90
682	32	2W-10-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	23		548	669	1.22			21.7	78
683	32	2W-10-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	50		534	645	1.21			20.0	79
684	32	2W-10-3	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	100		553	624	1.13			20.0	80
685	32	2W-10-4	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	200		500	579	1.16			18.7	82
686	32	2W-10-5	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	300		480	548	1.14			17.0	81
687	32	2W-10-6	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	400		458	517	1.13			16.3	81

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)				HEAT TREATMENT		(minor)				IRRADIATION								SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h./°C	Normalizing temp.(°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
688	32	2W-10-7	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	450		437	493	1.13			15.7	79
689	32	2W-10-8	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	500		413	463	1.12			17.7	82
690	32	2W-10-9	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		363	420	1.16			21.3	88
691	32	2W-10-10	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	600		296	368	1.24			25.0	90
692	32	2W-10-11	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	650		219	307	1.40			23.7	91
693	32	2W-10-12	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	700		160	243	1.52			26.3	92
694	32		F82H		H2-01												0.00								1.00E-04	25		598	706	1.18			25.0	80
695	32		F82H		H2-01												0.00								1.00E-04	25		608	706	1.16			24.0	80
696	32		F82H		H2-01												0.00								1.00E-04	25		579	697	1.20			23.0	81
697	32		F82H		H2-01												0.00								1.00E-04	100		549	657	1.20			18.0	82
698	32		F82H		H2-01												0.00								1.00E-04	100		569	657	1.15			19.0	82
699	32		F82H		H2-01												0.00								1.00E-04	200		540	608	1.13			17.0	82
700	32		F82H		H2-01												0.00								1.00E-04	200		540	608	1.13			18.0	83
701	32		F82H		H2-01												0.00								1.00E-04	300		520	579	1.11			16.0	84
702	32		F82H		H2-01												0.00								1.00E-04	300		520	579	1.11			16.0	83
703	32		F82H		H2-01												0.00								1.00E-04	300		500	569	1.14			16.0	84
704	32		F82H		H2-01												0.00								1.00E-04	400		491	540	1.10			15.0	83
705	32		F82H		H2-01												0.00								1.00E-04	400		500	540	1.08			16.0	83
706	32		F82H		H2-01												0.00								1.00E-04	400		491	540	1.10			16.0	84
707	32		F82H		H2-01												0.00								1.00E-04	450		471	520	1.10			15.0	83
708	32		F82H		H2-01												0.00								1.00E-04	450		471	520	1.10			17.0	84
709	32		F82H		H2-01												0.00								1.00E-04	500		451	481	1.07			17.0	85
710	32		F82H		H2-01												0.00								1.00E-04	500		441	481	1.09			18.0	86
711	32		F82H		H2-01												0.00								1.00E-04	500		432	471	1.09			17.0	83
712	32		F82H		H2-01												0.00								1.00E-04	550		373	432	1.16			18.0	89
713	32		F82H		H2-01												0.00								1.00E-04	550		383	432	1.13			20.0	89
714	32		F82H		H2-01												0.00								1.00E-04	600		304	373	1.23			23.0	92
715	32		F82H		H2-01												0.00								1.00E-04	600		304	383	1.26			24.0	92
716	32		F82H		H6-01												0.00								1.00E-04	600		310	380	1.23			21.0	90
717	28	11-1-01	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		553	672	1.22			22.0	78
718	28	12-1-01	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		544	660	1.21			22.0	77
719	28	12-3-01	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		553	671	1.21			21.0	78
720	28	13-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		484	608	1.26			22.0	77
721	28	14-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		550	671	1.22			21.0	74
722	28	14-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		553	673	1.22			21.0	77
723	28	15-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		403	551	1.37			27.0	78
724	28	15-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		538	659	1.22			21.0	75
725	28	16-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		558	676	1.21			20.0	77
726	28	17-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		499	629	1.26			20.0	72
727	28	17-3-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		545	669	1.23			18.0	73
728	28	18-1-1	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	20		371	527	1.42			27.0	74
729	28	11-1-02	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		354	409	1.16			21.0	87
730	28	12-1-02	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		353	405	1.15			24.0	87
731	28	12-3-02	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		355	409	1.15			20.0	86
732	28	13-3-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		317	366	1.15			24.0	88
733	28	14-1-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		353	409	1.16			23.0	87
734	28	14-3-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		355	408	1.15			24.0	87
735	28	15-1-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		268	317	1.18			25.0	87
736	28	15-3-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		347	402	1.16			20.0	86
737	28	16-1-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		357	409	1.15			17.0	86
738	28	17-1-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		317	371	1.17			21.0	86
739	28	17-3-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		342	402	1.18			18.0	85
740	28	18-1-2	F82H		9753		plate 15 mm										0.00						30	6	1.00E-04	550		257	286	1.11			28.0	84
741	33		F82H		S62-01												0.00								1.00E-04	25		540	667	1.24			26.0	80
742	34		F82H		9741		plate 15 mm										0.00						30	5		20		530	633	1.19		5.30	20.2	76
743	34		F82H		9741		plate 15 mm										0.00						30	5		250		473	541	1.14		3.10	15.2	77.9
744	34		F82H		9741		plate 15 mm										0.00						30	5		300		461	522	1.13		2.60	14.5	77
745	34		F82H		9741		plate 15 mm										0.00						30	5		400		444	491	1.11		2.20	14.8	77
746	34		F82H		9741		plate 15 mm										0.00						30	5		500		402	424	1.05		1.20	18.2	83.2
747	34		F82H		9741		plate 15 mm										0.00						30	5		600		302	312	1.03		0.50	29.8	89.1
748	34		F82H		9741		plate 15 mm										0.00						30	5		700		163	184	1.13		1.60	28.7	87.8
749	35		F82H		9741		plate 15 mm										0.00						25	5		-150		830	917.1	1.10		9.25	27.3	60.18
750	35		F82H		9741		plate 15 mm										0.00						25	5		-120		710	830.1	1.17		9.75	30.2	70.56
751	35		F82H		9741		plate 15 mm										0.00						25	5		-75		598.5	740.1	1.24		8.50	27.8	76.01
752	35		F82H		9741		plate 15 mm										0.00						25	5		20		531	641.2	1.21		5.25	22.2	78.5
753	35		F82H		9741		plate 15 mm										0.00						25	5		650		266	285	1.07		0.96	14.0	84
754	36		F82H		9741		plate 15 mm										0.00						25	5		20		519	619	1.19		5.30	20.4	78.8
755	36		F82H		9741		plate 15 mm										0.00						25	5		20		518	623	1.20		5.20	22.4	75
756	36		F82H		9741		plate 15 mm										0.00						35	3		20		524	627	1.20		6.50	13.4	79.4
757	36		F82H		9741		plate 15 mm										0.00						35	3		20		508	617	1.21		6.30	14.8	80

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)				HEAT TREATMENT		(minor)				IRRADIATION								SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
758	36		F82H		9741		plate 15 mm										0.00						35	3		20		375	545	1.45		13.40	24.0	75
759	36		F82H		9741		plate 15 mm										0.00						35	3		20		669	1022	1.53		5.30	9.1	55.6
760	36		F82H		9741		plate 15 mm										0.00						25	5		250		461	533	1.16		3.30	17.1	80.6
761	36		F82H		9741		plate 15 mm										0.00						25	5		250		460	524	1.14		2.50	16.4	79
762	36		F82H		9741		plate 15 mm										0.00						25	5		250		457	527	1.15		2.70	17.7	78.3
763	36		F82H		9741		plate 15 mm										0.00						35	3		250		467	536	1.15		3.40	9.7	77.5
764	36		F82H		9741		plate 15 mm										0.00						35	3		250		462	535	1.16		3.60	10.1	80.6
765	36		F82H		9741		plate 15 mm										0.00						35	3		250		318	443	1.39		8.20	14.6	80
766	36		F82H		9741		plate 15 mm										0.00						25	5		300		451	509	1.13		2.70	22.8	78.8
767	36		F82H		9741		plate 15 mm										0.00						25	5		300		449	500	1.11		2.80	19.2	77
768	36		F82H		9741		plate 15 mm										0.00						35	3		300		460	520	1.13		2.70	8.8	77.2
769	36		F82H		9741		plate 15 mm										0.00						35	3		300		448	514	1.15		3.10	9.1	78.2
770	36		F82H		9741		plate 15 mm										0.00						25	5		350		438	502	1.15		2.90	17.0	78.7
771	36		F82H		9741		plate 15 mm										0.00						25	5		350		432	490	1.13		2.30	14.8	76.4
772	36		F82H		9741		plate 15 mm										0.00						25	5		350		441	496	1.12		2.20	14.8	74.6
773	36		F82H		9741		plate 15 mm										0.00						35	3		350		321	418	1.30		5.60	12.0	78.3
774	36		F82H		9741		plate 15 mm										0.00						35	3		350		701	1082	1.54		8.90	7.1	30.6
775	36		F82H		9741		plate 15 mm										0.00						25	5		400		446	486	1.09		2.40	18.0	78.8
776	36		F82H		9741		plate 15 mm										0.00						25	5		400		432	469	1.09		2.30	19.6	77
777	36		F82H		9741		plate 15 mm										0.00						25	5		400		449	490	1.09		2.50	16.8	75
778	36		F82H		9741		plate 15 mm										0.00						35	3		400		443	490	1.11		2.40	8.9	77.5
779	36		F82H		9741		plate 15 mm										0.00						35	3		400		426	477	1.12		2.85	8.7	78.2
780	36		F82H		9741		plate 15 mm										0.00						25	5		450		416	458	1.10		1.80	19.2	80
781	36		F82H		9741		plate 15 mm										0.00						25	5		450		410	451	1.10		1.40	15.8	81.1
782	36		F82H		9741		plate 15 mm										0.00						25	5		450		385	439	1.14		2.10	14.7	77.1
783	36		F82H		9741		plate 15 mm										0.00						35	3		450		285	359	1.26		6.80	15.1	81.2
784	36		F82H		9741		plate 15 mm										0.00						35	3		450		674	1074	1.59		9.40	12.9	62
785	36		F82H		9741		plate 15 mm										0.00						25	5		500		391	407	1.04		1.20	29.2	85.6
786	36		F82H		9741		plate 15 mm										0.00						25	5		500		386	403	1.04		1.30	26.4	85.6
787	36		F82H		9741		plate 15 mm										0.00						35	3		500		399	418	1.05		1.40	12.4	82.9
788	36		F82H		9741		plate 15 mm										0.00						35	3		500		386	407	1.05		1.50	11.2	84
789	36		F82H		9741		plate 15 mm										0.00						25	5		550		334	359	1.07		1.30	21.4	89.3
790	36		F82H		9741		plate 15 mm										0.00						25	5		550		331	360	1.09		1.50	19.5	88.4
791	36		F82H		9741		plate 15 mm										0.00						25	5		550		328	356	1.09		1.20	20.3	88.5
792	36		F82H		9741		plate 15 mm										0.00						35	3		550		261	289	1.11		1.30	20.9	86.6
793	36		F82H		9741		plate 15 mm										0.00						35	3		550		611	834	1.36		4.10	10.0	57.4
794	36		F82H		9741		plate 15 mm										0.00						25	5		600		299	306	1.02		0.70	31.2	91
795	36		F82H		9741		plate 15 mm										0.00						25	5		600		292	301	1.03		0.70	30.0	89.7
796	36		F82H		9741		plate 15 mm										0.00						25	5		600		296	303	1.02		0.70	26.4	89.8
797	36		F82H		9741		plate 15 mm										0.00						35	3		600		307	311	1.01		0.60	15.1	88.4
798	36		F82H		9741		plate 15 mm										0.00						35	3		600		297	302	1.02		0.70	13.0	88.8
799	36		F82H		9741		plate 15 mm										0.00						25	5		650		195	250	1.28		1.30	22.7	93
800	36		F82H		9741		plate 15 mm										0.00						25	5		650		205	250	1.22		1.30	21.9	92.1
801	36		F82H		9741		plate 15 mm										0.00						25	5		650		208	256	1.23		1.20	19.6	89.4
802	36		F82H		9741		plate 15 mm										0.00						35	3		650		178	187	1.05		1.70	30.0	97
803	36		F82H		9741		plate 15 mm										0.00						35	3		700		166	182	1.10		1.70	18.6	88.8
804	36		F82H		9741		plate 15 mm										0.00						35	3		700		154	171	1.11		2.30	24.9	90.5
805	37	3-17-01	F82H		9741		plate 15 mm										0.00						35	3		20		535	634	1.19		5.60	12.6	81.2
806	37	3-17-02	F82H		9741		plate 15 mm										0.00						35	3		350		457	506	1.11		1.80	8.3	81.2
807	37	3-17-03	F82H		9741		plate 15 mm										0.00						35	3		450		424	457	1.08		1.70	8.9	82.2
808	37	3-17-04	F82H		9741		plate 15 mm										0.00						35	3		550		358	369	1.03		0.90	13.4	86.6
809	37	3-17-05	F82H		9741		plate 15 mm										0.00						35	3		650		228	239	1.05		1.20	12.9	97
810	38		F82H		H5-02												0.00								1.00E-04	-100		709				7.00	26.0	75
811	38		F82H		H5-02												0.00								1.00E-04	-80		680				7.00	28.0	77
812	38		F82H		H5-02												0.00								1.00E-04	-60		643				6.00	27.0	78
813	38		F82H		H5-02												0.00								1.00E-04	-60		637					26.0	80
814	38		F82H		H5-02												0.00								1.00E-04	-40		625				5.00	25.0	80
815	38		F82H		H5-02												0.00								1.00E-04	-20		622				5.00	24.0	80
816	38		F82H		H5-02												0.00								1.00E-04	-20		596				5.00	23.0	78
817	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	20		560	660	1.18				76
818	38		F82H		H6-03		Plate 15 mm										0.00								1.00E-04	20		510	630	1.24			2.0	79
819	38		F82H		H6-01		Plate 7.5 mm										0.00								1.00E-04	25		560	660	1.18			21.0	76
820	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	25		510	630	1.24			2.0	79
821	38		F82H		H6-04		Plate 15 mm										0.00								1.00E-04	25		535	640	1.20			22.0	80
822	38		F82H		H5-02												0.00								1.00E-04	26		563				4.00	24.0	80
823	38		F82H		H5-02												0.00								1.00E-04	26		548				5.00	25.0	81
824	38		F82H		H5-02												0.00								1.00E-04	26		541					18.0	82
825	38		F82H		H5-02												0.00								1.00E-04	100		540					19.0	83
826	38		F82H		H5-02												0.00								1.00E-04	100		576					17.0	82
827	38		F82H		H6-01		Plate 7.5 mm										0.00								1.00E-04	100		525	630	1.20			21.0	81

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)				HEAT TREATMENT		(minor)				IRRADIATION										SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h./°C	Normalizing temp.(°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
828	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	100		525	630	1.20				81
829	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	100		465	580	1.25			2.0	80
830	38		F82H		H6-03		Plate 15 mm										0.00								1.00E-04	100		560	570	1.02			2.0	80
831	38		F82H		H6-04		Plate 15 mm										0.00								1.00E-04	100		495	600	1.21			19.0	81
832	38		F82H		H5-02												0.00								1.00E-04	200		515					18.0	82
833	38		F82H		H6-01		Plate 7.5 mm										0.00								1.00E-04	200		500	590	1.18			19.0	82
834	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	200		500	540	1.08				82
835	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	200		450	545	1.21			19.0	81
836	38		F82H		H6-03		Plate 15 mm										0.00								1.00E-04	200		450	545	1.21			19.0	81
837	38		F82H		H6-04		Plate 15 mm										0.00								1.00E-04	200		480	560	1.17			18.0	82
838	38		F82H		S62-01												0.00								1.00E-04	300		529	616	1.16		3.50	13.1	
839	38		F82H		H5-02												0.00								1.00E-04	300		510					17.0	83
840	38		F82H		H6-01		Plate 7.5 mm										0.00								1.00E-04	300		490	550	1.12			18.0	81
841	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	300		490	550	1.12				81
842	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	300		435	520	1.20			18.0	80
843	38		F82H		H6-03		Plate 15 mm										0.00								1.00E-04	300		430	520	1.21			18.0	80
844	38		F82H		H6-04		Plate 15 mm										0.00								1.00E-04	300		460	530	1.15			17.0	81
845	38		F82H		S62-01												0.00								1.00E-04	400		460	533	1.16		2.50	11.5	
846	38		F82H		H5-02												0.00								1.00E-04	400		483					15.0	84
847	38		F82H		H6-01		Plate 7.5 mm										0.00								1.00E-04	400		475	530	1.12			17.0	80
848	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	400		475	530	1.12				80
849	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	400		420	480	1.14			17.0	79
850	38		F82H		H6-03		Plate 15 mm										0.00								1.00E-04	400		420	475	1.13			17.0	79
851	38		F82H		H6-04		Plate 15 mm										0.00								1.00E-04	400		440	500	1.14			17.0	79
852	38		F82H		H5-02												0.00								1.00E-04	450		464					16.0	83
853	38		F82H		H5-02												0.00								1.00E-04	450		449					17.0	81
854	38		F82H		S62-01												0.00								1.00E-04	500		455	503	1.11		2.00	11.6	
855	38		F82H		H5-02												0.00								1.00E-04	500		435					16.0	82
856	38		F82H		H6-01		Plate 7.5 mm										0.00								1.00E-04	500		420	470	1.12			19.0	84
857	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	500		420	470	1.12				84
858	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	500		375	440	1.17			19.0	84
859	38		F82H		H6-03		Plate 15 mm										0.00								1.00E-04	500		375	440	1.17			19.0	84
860	38		F82H		H6-04		Plate 15 mm										0.00								1.00E-04	500		395	450	1.14			19.0	84
861	38		F82H		H5-02												0.00								1.00E-04	550		376					19.0	88
862	38		F82H		H2-01												0.00								1.00E-04	600		314	363	1.16			2.0	90
863	38		F82H		H5-02												0.00								1.00E-04	600		296					22.0	91
864	38		F82H		H6-02		Plate 7.5 mm										0.00								1.00E-04	600		310	380	1.23				90
865	38		F82H		H6-03		Plate 15 mm										0.00								1.00E-04	600		270	350	1.30			23.0	90
866	38		F82H		H6-04		Plate 15 mm										0.00								1.00E-04	600		285	360	1.26			29.0	90
867	38		F82H		H2-01												0.00								1.00E-04	650		226	314	1.39			27.0	95
868	38		F82H		H2-01												0.00								1.00E-04	650		216	314	1.45			3.0	95
869	38		F82H		H5-02												0.00								1.00E-04	650		217					27.0	95
870	38		F82H		H2-01												0.00								1.00E-04	700		147	235	1.60			33.0	96
871	38		F82H		H2-01												0.00								1.00E-04	700		157	235	1.50			32.0	96
872	38		F82H		H2-01												0.00								1.00E-04	700		177	255	1.44			26.0	93
873	38		F82H		H5-02												0.00								1.00E-04	700		150					31.0	96
874	38		F82H		H5-02												0.00								1.00E-04	700		134					33.0	97
875	39	Böhler	EU97				Fabrication data										0.00									25		548	690	1.26			21	74
876	39	Böhler	EU97				Fabrication data										0.00									550		367	418	1.14			18	86
877	40	A696	9Cr2WVTa		VS3104				1050	1	ac	750	2				0.00						20	4	5.00E-04	24		519	643	1.24		5.81	23.9	
878	41	A703	9Cr2WVTa		VS3104				1050	1	ac	750	2	SUMO-09	HFR	250	2.13				Na		20	4	5.00E-04	24		780	782	1.00		0.17	16.7	
879	41	A702	9Cr2WVTa		VS3104				1050	1	ac	750	2	SUMO-09	HFR	250	1.62				Na		20	4	5.00E-04	24		752	753	1.00		0.18	13.1	
880	41	A709	9Cr2WVTa		VS3104				1050	1	ac	750	2	SUMO-09	HFR	300	1.68				Na		20	4	5.00E-04	24		808	812	1.00		0.27	15.3	
881	41	A706	9Cr2WVTa		VS3104				1050	1	ac	750	2	SUMO-09	HFR	300	2.08				Na		20	4	5.00E-04	24		827	828	1.00		0.25	10.4	
882	41	A705	9Cr2WVTa		VS3104				1050	1	ac	750	2	SUMO-09	HFR	342.5	2.43				Na		20	4	5.00E-04	24		657	714	1.09		4.13	19.6	
883	41	A704	9Cr2WVTa		VS3104				1050	1	ac	750	2	SUMO-09	HFR	342.5	2.41				Na		20	4	5.00E-04	24		672	729	1.09		4.60	19.2	
884	41	B457	EU97		E83699		B100							SUMO-09	HFR	250	2.10	9.80E-08			Na		20	4	5.00E-04	-90		983	983	1.00		0.16	11.0	
885	41	B459	EU97		E83699		B100							SUMO-09	HFR	300	2.16	1.01E-07			Na		20	4	5.00E-04	-90		1030	1031	1.00		0.29	9.6	
886	41	B458	EU97		E83699		B100							SUMO-09	HFR	342.5	2.45	1.14E-07			Na		20	4	5.00E-04	-90		806	876	1.09		6.60	17.6	
887	41	B774	EU97		E83698		P14							SUMO-09	HFR	250	1.64	7.65E-08			Na		20	4	5.00E-04	250		636	636	1.00		0.10	10.2	
888	41	B776	EU97		E83698		P14							SUMO-09	HFR	300	1.59	7.42E-08			Na		20	4	5.00E-04	300		701	710	1.01	400	0.30	10.0	
889	41	B775	EU97		E83698		P14							SUMO-09	HFR	342.5	2.37	1.11E-07			Na		20	4	5.00E-04	350		566	600	1.06		1.99	10.8	
890	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	20		482	624	1.29		7.60	27.9	79.5
891	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	20		483	626	1.30		8.50	28.1	80.1
892	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	300		425	509	1.20		4.10	20.6	76.6
893	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	300		423	508	1.20		4.40	20.8	80.4
894	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	400			467	######				
895	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	400		400	464	1.16		3.20	21.3	76.3

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)			HEAT TREATMENT	(minor)					IRRADIATION									SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h/°C	Normalizing temp (°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
896	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	500		351	381	1.09		1.10	27.4	88.9
897	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	500		351	385	1.10		1.50	27.2	90.6
898	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	600		250	264	1.06		1.90	34.6	96.1
899	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	600		236	267	1.13		1.20	33.0	96.8
900	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	700		112	134	1.20		2.60	47.7	99.1
901	42		EU97-2	2nd batch	993378		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	700		115	132	1.15		2.80	45.8	99.2
902	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	20		494	628	1.27		7.50	25.0	77.9
903	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	20		483	627	1.30		7.10	28.3	80.1
904	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	300		431	518	1.20		4.20	20.2	78.5
905	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	300		418	511	1.22		4.40	20.1	79.2
906	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	400		406	473	1.17		4.80	21.4	79.8
907	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	400		401	475	1.18		4.60	20.6	78.2
908	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	500		356	388	1.09		2.50	27.2	88.2
909	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	500		353	388	1.10		2.10	28.6	88
910	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	600		251	263	1.05		1.40	32.1	96.3
911	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	600		244	272	1.11		1.30	30.7	96.1
912	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	700		118	129	1.09		2.70	41.0	99.2
913	42		EU97-2	2nd batch	993394		B100		960	1.5	oil	750	4				0.00						18	3	1.00E-04	700		119	134	1.13		3.20	40.6	98.9
914	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	20		537	661	1.23		7.20	24.5	82.4
915	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	20		531	657	1.24		5.80	25.4	82.9
916	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	300		469	539	1.15		3.80	19.5	81.2
917	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	300		462	539	1.17		3.70	18.6	80.6
918	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	400		443	498	1.12		2.90	20.4	82.4
919	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	400		442	498	1.13		2.90	20.3	86.6
920	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	500		387	409	1.06		1.00	24.1	90.8
921	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	500		385	408	1.06		1.00	30.3	93.1
922	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	600		261	270	1.03		0.80	29.1	96.5
923	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	600		250	275	1.10		2.60	28.9	95.9
924	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	700		115	142	1.23		2.20	55.2	98.9
925	42		EU97-2	2nd batch	993391		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	700		117	141	1.21		4.30	26.3	99.3
926	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	20		546	683	1.25		6.70	24.9	80.6
927	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	20		540	682	1.26		6.50	24.9	79.5
928	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	300		483	562	1.16		5.00	20.7	84.5
929	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	300		470	556	1.18		3.50	18.8	80.9
930	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	400		448	514	1.15		2.60	20.5	83.7
931	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	400		453	515	1.14		3.50	18.8	80.6
932	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	500		391	424	1.08		1.50	24.6	91
933	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	500		394	421	1.07		1.70	22.8	90.6
934	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	600		262	277	1.06		1.30	27.9	96.3
935	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	600		256	276	1.08		1.40	32.5	97
936	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	700		109	143	1.31		2.30	47.4	98.9
937	42		EU97-2	2nd batch	993393		P14		980	0.37		760	1.5				0.00						18	3	1.00E-04	700		114	143	1.25		3.90	33.3	98.7
938	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	20		537	678	1.26		6.20	21.8	77.3
939	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	20		551	676	1.23		6.30	24.0	79.5
940	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	300		473	562	1.19		4.30	19.9	80.6
941	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	300		479	555	1.16		4.70	20.0	81.2
942	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	400		448	517	1.15		4.20	21.1	82.9
943	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	400		427	514	1.20		3.90	23.5	80.4
944	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	500		381	419	1.10		1.50	14.4	91.6
945	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	500		382	419	1.10		1.90	27.6	91.4
946	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	600		254	271	1.07		1.50	18.6	97.1
947	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	600		237	279	1.18		1.20	32.4	97
948	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	700		113	136	1.20		4.00	33.0	99.1
949	42		EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5				0.00						18	3	1.00E-04	700		109	134	1.23		1.90	51.0	99.3
950	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	20		549	663	1.21		7.50	25.1	83.2
951	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	20		539	664	1.23		6.30	24.5	82.4
952	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	300		474	552	1.16		3.60	18.8	85.3

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)				HEAT TREATMENT	(minor)					IRRADIATION												SPECIMEN		TEST CONDITIONS			TEST RESULTS				
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h./°C	Normalizing temp.(°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
953	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	300		476	551	1.16		3.50	18.8	84.3
954	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	400		450	510	1.13		3.40	20.3	88.7
955	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	400		448	509	1.14		3.20	20.7	88.7
956	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	500		390	412	1.06		1.70	21.0	92.9
957	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	500		388	416	1.07		1.70	23.7	93.2
958	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	600		252	279	1.11		2.30	25.4	96.5
959	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	600		261	275	1.05		0.70	16.1	96.5
960	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	700		119	142	1.19		2.70	30.7	98
961	42		EU97-2	2nd batch	993402		P25		980	0.5		760	1.5				0.00						18	3	1.00E-04	700		120	139	1.16		4.20	45.1	98.2
962	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-196		1092	1121	1.03		9.40		
963	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-160		880	953	1.08		10.30		
964	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-145		791	906	1.15		11.10		
965	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-130		720	854	1.19		11.30		
966	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-120		689	828	1.20		11.00		
967	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-100		649	784	1.21		10.50		
968	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-90		645	763	1.18		10.10		
969	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-80		635	748	1.18		9.80		
970	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	-50		579	710	1.23		8.60		
971	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	20		530	654	1.23		7.00		
972	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	100		525	598	1.14		4.70		
973	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	9.00E-05	198		518	569	1.10		4.00		
974	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	-196		1120	1137	1.02		7.70		
975	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	-150		850	921	1.08		7.90		
976	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	-100		695	809	1.16		8.00		
977	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	-50		608	717	1.18		7.50		
978	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	0		573	669	1.17		5.70		
979	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	20		565	655	1.16		4.80		
980	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	150		532	600	1.13		3.40		
981	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	250		476	564	1.18		3.10		
982	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	350		450	528	1.17		2.15		
983	9		EU97		E83967		P25		980	0.5	air	760	1.5				0.00						13.2	2.4	5.00E-04	450		440	490	1.11		2.25		
984	43,44	A025	F82H	mod	IEA									RB-11J	HFIR	307	4.90						7.62	t=0.76	1.00E-02	28		960	968	1.01		0.47	7.6	
985	43,44	A023	F82H	mod	IEA									RB-11J	HFIR	307	4.90						7.62	t=0.76	1.11E-03	25		898	911	1.01		0.45	7.8	
986	43,44	A026	F82H	mod	IEA									RB-11J	HFIR	307	4.90						7.62	t=0.76	1.00E-04	25		889	896	1.01		0.38	8.2	
987	43,44	A024	F82H	mod	IEA									RB-11J	HFIR	307	4.90						7.62	t=0.76	1.11E-03	300		762	770	1.01		0.32	7.3	
988	43,44		F82H	mod	IEA									RB-11J	HFIR	300	5.00						7.62	t=0.76	1.10E-04	-100		1002	1002	1.00		0.20	7.2	
989	43,44	A038	F82H	mod	IEA									RB-12J	HFIR	497	4.80						7.62	t=0.76	1.00E-02	25		510	630	1.24		6.66	18.2	
990	43,44	A033	F82H	mod	IEA									RB-12J	HFIR	497	4.80						7.62	t=0.76	1.00E-03	25		527	637	1.21		7.54	18.3	
991	43,44	A039	F82H	mod	IEA									RB-12J	HFIR	497	4.80						7.62	t=0.76	1.00E-04	25		535	620	1.16		4.30	14.5	
992	43,44	A035	F82H	mod	IEA									RB-12J	HFIR	497	4.90						7.62	t=0.76	1.00E-03	500		401	444	1.11		1.92	11.2	
993	43,44		9Cr2WVTa		ORNL3791												0.00						7.62	t=0.76	1.10E-03	-100		678	866	1.28		13.40	22.8	
994	43,44		9Cr2WVTa		ORNL3791												0.00						7.62	t=0.76	1.10E-03	25		577	734	1.27		7.50	17.8	
995	43,44		9Cr2WVTa		ORNL3791												0.00						7.62	t=0.76	1.10E-03	300		513	625	1.22		5.00	13.8	
996	43,44		9Cr2WVTa		ORNL3791									RB-11J	HFIR	300	5.00						7.62	t=0.76	1.10E-03	-100		1229	1247	1.01		0.40	6.4	
997	43,44		9Cr2WVTa		ORNL3791									RB-11J	HFIR	300	5.00						7.62	t=0.76	1.11E-03	25		1040	1040	1.00		0.17	7.1	
998	43,44		9Cr2WVTa		ORNL3791									RB-11J	HFIR	300	5.00						7.62	t=0.76	1.11E-03	300		918	918	1.00		0.20	6.3	
999	43,44		9Cr2WVTa		ORNL3791									RB-11J	HFIR	500	5.00						7.62	t=0.76	1.10E-03	25		569						
1000	43,44		JLF-1											RB-11J	HFIR	300	5.00						7.62	t=0.76	1.10E-03	-100		942	1023	1.09		1.50	8.5	
1001	43,44		JLF-1											RB-11J	HFIR	300	5.00						7.62	t=0.76	1.10E-03	25		839	858	1.02		0.80	9.3	
1002	43,44		JLF-1											RB-11J	HFIR	300	5.00						7.62	t=0.76	1.10E-03	300		755	774	1.03		0.50	6.7	
1003	45	EU2T08	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	-150		1247	1247	1.00		0.10	11.0	-
1004	45	EU2T19	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	-150		1232	1232	1.00		-	12.6	67.1
1005	45	EU2T04	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	-75		961	961	1.00		0.18	12.3	74.6
1006	45	EU2T12	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	-75		955	955	1.00		0.20	12.8	74.9
1007	45	EU2T03	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	0		879	879	1.00		0.15	11.5	79.5
1008	45	EU2T20	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	0		851	851	1.00		0.23	12.2	79.7
1009	45	EU2T07	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	22		853	853	1.00		0.13	11.6	78.8
1010	45	EU2T09	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	22		847	847	1.00		0.18	11.6	82.3
1011	45	EU2T13	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	22		836	836	1.00		0.17	11.8	77.7
1012	45	EU2T21	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	22		808	808	1.00		0.16	12.4	79.9
1013	45	EU2T05	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	300		700	700	1.00		0.10	10.9	78.8
1014	45	EU2T15	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	300		683	683	1.00		0.15	11.1	79.0
1015	45	EU2T18	EU97-2	2nd batch	993394P		P8		980	0.25		760	1.5	IRFUMA-5M	BR2	300	1.32				H20		13	2.4	1.00E-04	300		688	688	1.00		0.10	10.8	85.3
1016	46	E1-15-t	EU97		E83697		P25		980	0.5		760	1.5	ARBOR-1	BOR-60	336	30.20									250		1012	1012	1.00		0.22	14.1	
1017	46	E1-16-t	EU97		E83697		P25		980	0.5		760	1.5	ARBOR-1	BOR-60	336	30.20									300		973	973	1.00		0.21	13.8	

ROW NR	REFERENCE	Specimen id.:	MAT	(Capitals)			HEAT TREATMENT	(minor)				IRRADIATION									SPECIMEN		TEST CONDITIONS			TEST RESULTS					
			Name	2nd Name	Heat id.	Chem.comp. See Ref	Product form	Final treatment h./°C	Normalizing temp.(°C)	Normalizing time (h)	Cooling conditions	Tempering temp (°C)	Tempering time (h)	Name	Reactor	Temperature (°C)	Dose (dpa)	Dose rate (dpa/s)	He produced (ppm)	Fast fluence (n/cm²)	Capsule type He/Na/H2O	Remarks	Gauge length (mm)	Gauge diameter (mm)	Strain rate (sec-1)	Test temp (°C)	Environment if diff. air	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	σ fracture (MPa)	ε uniform (%)	ε total (%)	Reduction of area (%)
1018	46	E1-17-t	EU97		E83697		P25		980	0.5		760	1.5	ARBOR-1	BOR-60	336	30.20									350		930	930	1.00		0.21	13.5	
1019	47	EUROF1-s	EU97		E83697		P25		980	0.5		760	1.5	WTZ	BOR-60	330	15.00						15			250		922	923.5	1.00		0.24	10.22	
1020	47	EUROF1-s	EU97		E83697		P25		980	0.5		760	1.5	WTZ	BOR-60	330	15.00						15			250		922	928.6	1.01		0.28	9.82	
1021	47	EUROF1-s	EU97		E83697		P25		980	0.5		760	1.5	WTZ	BOR-60	330	15.00						15			300		894	911	1.02		0.32	9.75	
1022	47	EUROF1-s	EU97		E83697		P25		980	0.5		760	1.5	WTZ	BOR-60	330	15.00						15			300		880	894	1.02		0.30	9.47	
1023	47	EUROF1-s	EU97		E83697		P25		980	0.5		760	1.5	WTZ	BOR-60	330	15.00						15			350		862	874	1.01		0.30	9.41	
1024	47	EUROF1-s	EU97		E83697		P25		980	0.5		760	1.5	WTZ	BOR-60	330	15.00						15			350		864	870	1.01		0.26	9.45	

ANNEX 2

Literature references for the tensile properties database

Number	Reference
1	Mechanical properties of the European reference RAFM steel (Eurofer97) before and after irradiation at 300°C (0,3-2 dpa), Irfuma I-III; SCK-CEN Mol, BLG-962, November 2003, E.Lucon
2	NRG Irradiation Testing: Report on 300°C and 60°C Irradiated RAFM Steels, Final Report for Subtask TW2-TTMS-001aD06 and TW2-TTMS-001bD12, Petten, 30 August 2005, 20023/0568497/P, J.Rensman
3	Table from Alamo sent by J. Henry 29-08-2006 and report DMN/SRMA/NT/2005-2767/A
4	Mechanical properties and microstructure of HFR-irradiated martensitic low-activation alloys, E.I. Materna et al., ASTM-STP 1366, M.L. Hamilton, A.S.Kumar, S.T.Rosinski and M.L.Grossbeck, Eds., ASTM, 1999 and tables from private communication
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7	Tensile and Charpy impact properties of irradiated reduced activaion ferritic steels, R.L.Klueh, D.J.Alexander, ASTM-STP 1325 , R.K.Nanstad, M.L.Hamilton, F.A.Garner, A.S.Kumar, Eds.,ASTM 1999
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16	Y. Li, Q. Huang, Y. Wu, T. Nagasaka and T. Muroga, *Mechanical Properties and Microstructures of China Low Activation Martensitic Steel Compared with JFL-1* , Journal of Nuclear Materials (2007), doi: 10.1016/j.jnucmat.2007.03.236
17	J. Yu, Q. Huang, F. Wan, *Research and Development on the Chinese Low Activation Martensitic Steel (CLAM)* , Journal of Nuclear Materials (2007), doi: 10.1016/j.jnucmat.2007.03.236
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Number	Reference
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30	CIEMAT in Schirra et al, FZKA 6008, Dec. 1997
31	NRG Report
32	JAERI internal report
33	K.Shiba etd, ICFRM-7, Obninsk, Russia.
34	L. Schäfer in Schirra et al, FZKA 6008, Dec. 1997
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36	M. Schirra, et al, FZK Interner Bericht 31.02.02, IMF-Nr 046, July 1998
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ANNEX 3

Tensile data pooled
according to irradiation temperature

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
9	I29T09_E15	EU97		PSI			PIREX	50	0.22		50	711	185.1	766	15.1	1.40		
9	I29T01_E1	EU97		PSI			PIREX	50	0.62		50	617	91.1	714	8.8	1.27		
9	I29T02_E4	EU97		PSI			PIREX	50	0.62		50	717	191.1	762	18.3	2.50		
9	I29T01_2	EU97		PSI			PIREX	50	0.62		50	636	110.1	749	8.2	1.40		
9	I29T18	EU97		PSI			PIREX	50	1.27		50	739	213.1	772	26.2	1.10		
9	I29T17	EU97		PSI			PIREX	50	1.27		50	750	224.1	823	12.4	1.75		
2	B596	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.30	5.00E-04	27	853	320.1	855	0.0	0.30	14.3	87
2	B884	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.40	5.00E-04	27	859	326.1	863	0.0	0.30	14.8	87
2	B603	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.20	5.00E-04	50	846	320.1	849	0.0	0.30	14.7	82
2	B597	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.30	5.00E-04	50	848	322.1	848	0.0	0.20	14.7	84
2	B885	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.50	5.00E-04	50	831	305.1	832	0.0	0.20	14.8	82
2	B598	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.10	5.00E-04	100	781	263.1	783	0.0	0.30	14.2	84
2	B886	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.30	5.00E-04	100	781	263.1	786	0.0	0.30	14.7	0
2	B887	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.30	5.00E-04	200	705	199.0	706	0.0	0.30	14.7	87
2	B599	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	200	707	201.0	709	0.0	0.30	14.3	84
2	B888	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.10	5.00E-04	300	614	135.4	618	0.0	0.30	14.6	84
2	B600	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	300	618	139.4	621	0.0	0.20	14.4	89
2	B889	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.20	5.00E-04	400	533	97.1	610	9.3	4.30	18.8	84
2	B601	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.40	5.00E-04	400	543	107.1	601	11.5	4.20	18.4	82
2	B890	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.10	5.00E-04	500	438	55.4	506	8.9	3.40	21.1	88
2	B602	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	500	433	50.4	484	10.7	2.40	21.3	87
10	7161	F82H		9741	7,5mmP6-14	SIWAS-6	HFR	80	1.67	5.00E-04	150	722	234.8	722	0.0	0.20	12.4	87
10	7164	F82H		9741	7,5mmP6-14	SIWAS-6	HFR	80	1.95	5.00E-04	150	726	238.8	726	0.0	0.20	12.6	87

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
41	B457	EU97		E83699	B100	SUMO-09	HFR	250	2.10	5.00E-04	-90	983	324.3	983	0.0	0.16	11.0	
9	I29T12	EU97		PSI			PIREX	250	0.24		250	515	20.3	592	9.1	4.30		
9	I29T13	EU97		PSI			PIREX	250	0.24		250	552	57.3	588	17.7	3.90		
9	I29T04	EU97		PSI			PIREX	250	0.63		250	614	119.3	661	15.2	1.80		
9	I29T20	EU97		PSI			PIREX	250	1.36		250	570	75.3	638	10.6	1.00		
41	B774	EU97		E83698	P14	SUMO-09	HFR	250	1.64	5.00E-04	250	636	141.3	636	0.10	10.20		
4	31	F82H			P	Teseo	HFR	250	0.80	1.60E-04	250	625		632	704.0	0.50	11.9	80
4	32	F82H			P	Teseo	HFR	250	0.80	1.60E-04	250	627		630	0.0	0.50	11.7	79
10	8845	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.08	5.00E-04	27	840	313.4	851	267.0	0.2	11	81
10	8838	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.55	5.00E-04	27	874	347.4	898	49.1	0.4	10.3	70
10	8842	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.49	5.00E-04	80	867	363.5	873	0.0	0.3	10.1	80
10	8844	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.06	5.00E-04	325	722	262.0	727	0.0	0.2	9.2	77
10	8837	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.48	5.00E-04	325	801	341.0	801	0.0	0.2	10.1	78
10	8849	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.36	5.00E-04	425	674	241.9	686	106.5	0.4	8.7	75
10	8839	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.57	5.00E-04	425	750	317.9	762	138.0	0.2	9	78
10	8848	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.28	5.00E-04	500	524	126.7	541	38.9	0.5	13	81
5	81	JLF1				Phase Ib	HFR	250	2.40	1.60E-04	250	608	183.4	628	38.1	2.50	13.5	79
5	82	JLF1				Phase Ib	HFR	250	2.40	1.60E-04	250	610	185.4	621	103.6	1.80	13.1	79
4	52	OPTIV			P	Teseo	HFR	250	0.80	1.60E-04	250	632	184.9	636	0.0	0.80	11.1	74
5	U1	OPTIV			P	Phase Ia	HFR	250	2.40	1.60E-04	250	734	286.9	737	0.0	0.27	9.9	77
5	U2	OPTIV			P	Phase Ia	HFR	250	2.40	1.60E-04	250	714	266.9	714	0.0	0.23	9.8	61

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION					TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Sqrt(dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	R	EU97		E83699	B100	IRF II	BR2	300	0.15	0.39		-150	972	130.6	1000	45.8	6.78	24.0	67
1,11	S	EU97		E83699	B100	IRF II	BR2	300	0.31	0.56		-150	993	151.6	1017	59.8	4.34	19.0	72
1,11	J	EU97		E83699	B100	IRF I	BR2	300	0.34	0.58		-150	984	142.6	993	0.0	7.09	23.0	70
1,11	D	EU97		E83699	B100	IRF I	BR2	300	0.38	0.62		-150	1001	159.6	1001	0.0	0.17	24.0	74
41	B459	EU97		E83699	B100	SUMO-09	HFR	300	2.16	1.47	5.00E-04	-90	1030	371.2	1031	0.0	0.29	9.6	
1,11	C	EU97		E83699	B100	IRF I	BR2	300	0.36	0.60		-75	745	115.5	818	12.3	8.06	22.0	75
1,11	I	EU97		E83699	B100	IRF I	BR2	300	0.37	0.61		-75	753	123.5	816	14.1	7.34	21.0	76
1,11	T	EU97		E83699	B100	IRF II	BR2	300	0.44	0.66		-75	781	151.5	829	18.7	5.68	19.0	73
1,11	U	EU97		E83699	B100	IRF II	BR2	300	0.57	0.75		-75	816	186.5	848	30.5	4.68	19.0	79
1,11	P	EU97		E83699	B100	IRF III	BR2	300	0.99	0.99		-75	882	252.5	882	0.0	1.87	13.0	72
1,11	H1	EU97		E83699	B100	IRF III	BR2	300	1.73	1.32		-75	958	328.5	961	0.0	0.27	12.0	71
2	B900	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.00	1.41	5.00E-04	27	839	306.1	840	0.0	0.30	13.3	75
2	C299	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.20	1.48	5.00E-04	27	901	368.1	902	0.0	0.30	13.0	76
2	C274	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.40	1.55	5.00E-04	27	854	321.1	862	0.0	0.30	12.9	80
2	B906	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.60	1.61	5.00E-04	27	908	375.1	908	0.0	0.20	12.6	81
2	B616	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.70	1.64	5.00E-04	27	910	377.1	910	0.0	0.20	12.6	75
2	B594	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	7.50	2.74	5.00E-04	27	1047	514.1	1047	0.0	0.10	11.5	70
2	B589	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	9.00	3.00	5.00E-04	27	1081	548.1	1081	0.0	0.20	11.3	69
1,11	F	EU97		E83699	B100	IRF I	BR2	300	0.40	0.63		30	672	140.2	720	16.2	5.40	18.0	80
1,11	D1	EU97		E83699	B100	IRF III	BR2	300	0.48	0.69		30	667	135.2	699	24.2	3.82	16.0	81
1,11	V	EU97		E83699	B100	IRF II	BR2	300	0.71	0.84		30	751	219.2	751	0.0	0.32	12.0	79
1,11	W	EU97		E83699	B100	IRF II	BR2	300	0.83	0.91		30	775	243.2	775	0.0	0.21	13.0	78
1,11	O	EU97		E83699	B100	IRF III	BR2	300	1.32	1.15		30	839	307.2	840	0.0	0.19	10.0	81
1,11	N	EU97		E83699	B100	IRF III	BR2	300	1.66	1.29		30	872	340.2	873	0.0	0.20	10.0	75
1,11	M	EU97		E83699	B100	IRF III	BR2	300	2.14	1.46		30	898	366.2	899	0.0	0.18	10.0	76
1,11	L	EU97		E83699	B100	IRF I	BR2	300	0.23	0.48		32	650	118.8	708	13.3	5.65	18.0	79
2	B902	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.30	1.52	5.00E-04	50	814	288.1	815	0.0	0.10	13.1	72
2	C295	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.60	1.61	5.00E-04	50	894	368.1	894	0.0	0.20	12.7	75
2	B590	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.90	2.98	5.00E-04	50	1066	540.1	1066	0.0	0.20	11.3	70
2	B903	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.10	1.45	5.00E-04	100	799	281.1	799	0.0	0.20	12.9	75
2	C275	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.40	1.55	5.00E-04	100	832	314.1	835	0.0	0.20	12.6	74
2	C296	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.40	1.55	5.00E-04	100	879	361.1	879	0.0	0.10	12.5	71
2	B593	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.20	2.86	5.00E-04	100	1029	511.1	1029	0.0	0.10	11.2	75
1,11	X	EU97		E83699	B100	IRF II	BR2	300	0.16	0.40		150	600	87.0	655	13.0	4.95	16.0	80
1,11	B	EU97		E83699	B100	IRF I	BR2	300	0.33	0.57		150	610	97.0	656	15.4	4.55	17.0	80
1,11	Y	EU97		E83699	B100	IRF II	BR2	300	0.33	0.57		150	610	97.0	656	15.4	3.30	17.0	80
1,11	H	EU97		E83699	B100	IRF I	BR2	300	0.39	0.62		150	619	106.0	654	20.3	4.25	16.0	81
1,11	E1	EU97		E83699	B100	IRF III	BR2	300	0.89	0.94		150	714	201.0	716	0.0	0.12	11.0	81
1,11	F1	EU97		E83699	B100	IRF III	BR2	300	1.17	1.08		150	748	235.0	750	0.0	0.16	10.0	81
2	C276	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	1.52	5.00E-04	200	785	279.0	789	0.0	0.20	12.2	78
2	B904	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.50	1.58	5.00E-04	200	799	293.0	799	0.0	0.20	12.1	76
2	C297	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.50	1.58	5.00E-04	200	812	306.0	812	0.0	0.20	12.2	69
2	B592	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.40	2.90	5.00E-04	200	937	431.0	937	0.0	0.10	10.9	74

1,11	A	EU97		E83699	B100	IRF I	BR2	300	0.27	0.52		225	579	78.1	610	21.5	2.39	14.0	81
1,11	G	EU97		E83699	B100	IRF I	BR2	300	0.40	0.63		225	585	84.1	620	19.2	2.62	14.0	81
1,11	B1	EU97		E83699	B100	IRF II	BR2	300	0.75	0.87		225	681	180.1	681	0.0	0.22	11.0	79
1,11	C1	EU97		E83699	B100	IRF II	BR2	300	0.89	0.94		225	691	190.1	691	0.0	0.22	10.0	75
2	H867	EU97	3/7 4/14	E83698	P14	STROBO-01	HFR	300	0.22	0.47	5.00E-04	300	532	53.4	560	21.9	1.20	n.a.	82
2	H861	EU97	3/7 4/14	E83698	P14	STROBO-01	HFR	300	0.26	0.51	5.00E-04	300	543	64.4	577	18.4	2.10	n.a.	86
2	H865	EU97	3/7 4/14	E83698	P14	STROBO-01	HFR	300	0.28	0.53	5.00E-04	300	521	42.4	543	28.0	0.60	n.a.	80
1,11	K	EU97		E83699	B100	IRF I	BR2	300	0.30	0.55		300	562	83.4	597	18.5	2.36	13.0	81
1,11	E	EU97		E83699	B100	IRF I	BR2	300	0.40	0.63		300	569	90.4	593	28.0	1.43	13.0	81
1,11	Z	EU97		E83699	B100	IRF II	BR2	300	0.47	0.69		300	617	138.4	627	133.4	1.67	11.0	76
2	H862	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.54	0.73	5.00E-04	300	589	110.4	594	0.0	0.50	n.a.	81
2	H866	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.57	0.75	5.00E-04	300	560	81.4	572	73.5	0.40	n.a.	83
1,11	A1	EU97		E83699	B100	IRF II	BR2	300	0.61	0.78		300	642	163.4	643	0.0	0.54	11.0	76
2	H868	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.61	0.78	5.00E-04	300	577	98.4	589	77.7	0.50	n.a.	78
1,11	Q	EU97		E83699	B100	IRF III	BR2	300	0.66	0.81		300	626	147.4	629	0.0	0.68	10.0	82
1,11	G1	EU97		E83699	B100	IRF III	BR2	300	1.45	1.20		300	720	241.4	724	0.0	0.11	9.0	82
41	B776	EU97		E83698	P14	SUMO-09	HFR	300	1.59	1.26	5.00E-04	300	701	222.4	710	291.3	0.30	10.0	
2	B901	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	1.80	1.34	5.00E-04	300	720	241.4	723	0.0	0.20	12.1	70
1,11	I1	EU97		E83699	B100	IRF III	BR2	300	2.01	1.42		300	739	260.4	747	1045.0	0.11	9.0	77
2	C301	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.10	1.45	5.00E-04	300	764	285.4	764	0.0	0.10	12.1	72
2	C277	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	1.52	5.00E-04	300	746	267.4	746	0.0	0.20	11.7	74
2	B907	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.40	1.55	5.00E-04	300	735	256.4	737	0.0	0.20	11.9	74
2	B617	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.50	1.58	5.00E-04	300	769	290.4	770	0.0	0.10	11.7	78
2	B595	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	7.30	2.70	5.00E-04	300	883	404.4	883	0.0	0.10	10.8	71
2	B588	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	9.20	3.03	5.00E-04	300	914	435.4	914	0.0	0.20	10.6	72
2	C278	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	1.52	5.00E-04	400	675	239.1	684	247.8	0.40	11.6	57
2	B905	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.30	1.52	5.00E-04	400	691	255.1	691	0.0	0.10	11.7	76
2	C298	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.30	1.52	5.00E-04	400	710	274.1	710	0.0	0.10	11.5	66
2	B591	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.70	2.95	5.00E-04	400	842	406.1	842	0.0	0.10	10.7	66
45	EU2T08	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	-150	1247	378.3	1247	1.00	0.10	11.0	-
45	EU2T19	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	-150	1232	363.1	1232	1.00	-	12.6	67.1
45	EU2T04	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	-75	961	298.3	961	1.00	0.18	12.3	74.6
45	EU2T12	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	-75	955	292.5	955	1.00	0.20	12.8	74.9
45	EU2T03	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	0	879	330.0	879	1.00	0.15	11.5	79.5
45	EU2T20	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	0	851	302.5	851	1.00	0.23	12.2	79.7
45	EU2T07	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	22	853	324.8	853	1.00	0.13	11.6	78.8
45	EU2T09	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	22	847	319.0	847	1.00	0.18	11.6	82.3
45	EU2T13	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	22	836	307.2	836	1.00	0.17	11.8	77.7
45	EU2T21	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	22	808	279.6	808	1.00	0.16	12.4	79.9
45	EU2T05	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	300	700	234.0	700	1.00	0.10	10.9	78.8
45	EU2T15	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	300	683	216.8	683	1.00	0.15	11.1	79.0
45	EU2T18	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	300	688	222.5	688	1.00	0.10	10.8	85.3
43,44		F82H	mod	IEA		RB-11J	HFIR	300	5.00	2.24	1.10E-04	-100	1002	329.6	1002	0.0	0.20	7.2	
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	25	684		746	13.1	4.60	18.7	80.3
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	25	689		752	13.1	4.70	20.0	79.5
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	25	684		753	12.1	4.70	19.0	80.8
10	7213	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.34	1.53	5.00E-04	27	728	201.4	770	19.9	1.80	11.8	80
10	7162	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.54	1.59	5.00E-04	27	700	173.4	745	17.9	2.20	12.3	79
10	7192	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.92	1.71	5.00E-04	27	711	184.4	758	17.4	2.10	12.8	78
10	7196	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.01	1.73	5.00E-04	27	717	190.4	762	18.3	2.30	12.6	81
10	7201	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.87	1.69	5.00E-04	80	676	172.5	722	17.0	2.00	12.5	79
10	7176	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.88	1.70	5.00E-04	80	679	175.5	723	17.8	2.10	11.9	77
10	7202	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.70	1.64	5.00E-04	200	698	218.2	709	143.7	0.60	9.5	76
10	7177	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.71	1.65	5.00E-04	200	653	173.2	680	28.7	1.20	10.4	80
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	300	582		622	16.8	2.50	14.5	78.9
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	300	589		627	17.8	2.50	14.6	78.9

4	33	F82H	Pre-IEA	P	Teseo	HFR	300	0.80	0.89	1.60E-04	300	658		661	0.0	0.30	10.8	82
4	34	F82H	Pre-IEA	P	Teseo	HFR	300	0.80	0.89	1.60E-04	300	646		649	0.0	0.40	11.1	82
10	7166	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.37	1.54	5.00E-04	300	653	188.2	662	218.3	0.50		
10	7211	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.51	1.58	5.00E-04	300	590	125.2	618	24.5	0.90	10.1	76
10	7197	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.84	1.69	5.00E-04	300	629	164.2	644	61.2	0.70	9.1	71
10	7181	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.96	1.72	5.00E-04	300	604	139.2	629	28.6	1.00	10.5	77
10	7179	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	3.00	1.73	5.00E-04	300	618	153.2	640	34.4	1.10	10.0	74
10	7191	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	3.09	1.76	5.00E-04	300	647	182.2	662	64.1	0.80	9.4	73
10	7205	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.69	1.64	5.00E-04	400	594	153.4	614	37.0	0.90	7.4	70
10	7187	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	3.06	1.75	5.00E-04	400	577	136.4	598	33.5	0.80	9.8	65
10	7206	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.52	1.59	5.00E-04	500	473	75.7	485	55.4	0.50	12.4	82
10	7189	F82H	9741		ILAS-4	HFR	300	2.69	1.64	5.00E-04	500	462	64.7	467	1048.9	0.30	13.9	88.1
10	7194	F82H	9741		ILAS-4	HFR	300	2.72	1.65	5.00E-04	500	403	5.7	408	344.2	0.20	14.5	88.1
10	7188	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.89	1.70	5.00E-04	500	498	100.7	506	136.5	0.40	11.5	79
10	7168	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.17	1.47	5.00E-04	550	383	19.9	396	36.6	0.60	15.8	88
10	7198	F82H	9741	7,5mmP6-14	ILAS-4	HFR	300	2.64	1.62	5.00E-04	550	396	32.9	405	66.3	0.40	13.8	90
43,44		JLF-1			RB-11J	HFIR	300	5.00	2.24	1.10E-03	-100	942	379.6	1023	2.5	1.50	8.5	
43,44		JLF-1			RB-11J	HFIR	300	5.00	2.24	1.10E-03	25	839	345.5	858	2.8	0.80	9.3	
10	E520	JLF-1		Plate 15 mm	ILAS-4	HFR	300	2.64	1.62	5.00E-04	27	628	135.4	702	10.7	3	14.7	77.4
10	E533	JLF-1B		Plate	ILAS-4	HFR	300	2.68	1.64	5.00E-04	27	688	195.4	742	14.9	2.2	12.7	74.2
10	E515	JLF-1		Plate 15 mm	ILAS-4	HFR	300	2.84	1.69	5.00E-04	200	580	146.2	620	16.7	1.4	12.8	78.8
10	E528	JLF-1B		Plate	ILAS-4	HFR	300	2.87	1.69	5.00E-04	200	627	193.2	654	27.4	1.1	10.7	80.6
5	83	JLF1			Phase Ib	HFR	300	2.40	1.55	1.60E-04	300	652	233.1	652	0.0	0.26	8.9	70
5	84	JLF1			Phase Ib	HFR	300	2.40	1.55	1.60E-04	300	659	240.1	665	0.0	0.36	8.7	70
10	E523	JLF-1		Plate 15 mm	ILAS-4	HFR	300	2.47	1.57	5.00E-04	300	540	121.1	579	16.0	1.4	11.5	76.7
10	E534	JLF-1B		Plate	ILAS-4	HFR	300	2.50	1.58	5.00E-04	300	585	166.1	612	25.3	0.8	10.4	72.7
10	E518	JLF-1		Plate 15 mm	ILAS-4	HFR	300	3.05	1.75	5.00E-04	300	558	139.1	593	18.3	1.2	11.1	73.2
10	E531	JLF-1B		Plate	ILAS-4	HFR	300	3.08	1.75	5.00E-04	300	577	158.1	614	17.9	1.4	10.6	73.7
43,44		JLF-1			RB-11J	HFIR	300	5.00	2.24	1.10E-03	300	755	336.1	774	3.1	0.50	6.7	
10	E517	JLF-1		Plate 15 mm	ILAS-4	HFR	300	3.01	1.73	5.00E-04	400	505	86.9	559	11.5	1.5	10	70.3
10	E529	JLF-1B		Plate	ILAS-4	HFR	300	3.05	1.75	5.00E-04	400	489	70.9	551	10.2	1.9	11.2	72.7
4	53	OPTIV		P	Teseo	HFR	300	0.80	0.89	1.60E-04	300	633	197.7	633	0.0	0.20	10.5	76
4	54	OPTIV		P	Teseo	HFR	300	0.80	0.89	1.60E-04	300	653	217.7	655	0.0	0.30	11.5	76
5	U3	OPTIV		P	Phase Ia	HFR	300	2.40	1.55	1.60E-04	300	711	275.7	716	0.0	0.30	7.8	52
5	U4	OPTIV		P	Phase Ia	HFR	300	2.40	1.55	1.60E-04	300	765	329.7	765	0.0	0.23	7.4	54
10	E506	ORNL-3791		Plate	ILAS-4	HFR	300	3.06	1.75	5.00E-04	27	982	182.5	1018	33.2	1.90	9.3	68.4
10	E501	ORNL-3791		Plate	ILAS-4	HFR	300	3.26	1.81	5.00E-04	200	911	167.3	942	36.5	1.10	9.1	68.4
10	E508	ORNL-3791		Plate	ILAS-4	HFR	300	2.89	1.70	5.00E-04	300	867	155.5	893	43.3	0.90	8.6	67.5
10	E504	ORNL-3791		Plate	ILAS-4	HFR	300	3.47	1.86	5.00E-04	300	880	168.5	909	38.1	0.90	7.9	63.4
10	E502	ORNL-3791		Plate	ILAS-4	HFR	300	3.43	1.85	5.00E-04	400	848	168.7	886	26.1	1.00	7.4	55.1
43,44		9Cr2WVTa	ORNL3791		RB-11J	HFIR	300	5.00	2.24	1.10E-03	-100	1229		1247	177.8	0.40	6.4	
43,44		9Cr2WVTa	ORNL3791		RB-11J	HFIR	300	5.00	2.24	1.11E-03	25	1040		1040	0.0	0.17	7.1	
43,44		9Cr2WVTa	ORNL3791		RB-11J	HFIR	300	5.00	2.24	1.11E-03	300	918		918	0.0	0.20	6.3	

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION					TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Sqrt(dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		250	922	427.3	923.5	1.00	0.24	10.22	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		250	922	427.3	928.6	1.01	0.28	9.82	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		300	894	415.4	911	1.02	0.32	9.75	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		300	880	401.4	894	1.02	0.30	9.47	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		350	862	403.3	874	1.01	0.30	9.41	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		350	864	405.3	870	1.01	0.26	9.45	
3	K 9D	EU97	66/5	E83698	P8	Altair	BOR-60	325	42.30	6.50	1.40E-03	20	1139	603.3	1161	1.02	0.50	7.7	58
3	K10D	EU97	66/5	E83698	P8	Altair	BOR-60	325	42.30	6.50	1.40E-03	325	976	507.0	993	1.02	0.40	6.2	58
46	E1-15-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20	5.50		250	1012	517.3	1012	1.00	0.22	14.1	
46	E1-16-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20	5.50		300	973	494.4	973	1.00	0.21	13.8	
46	E1-17-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20	5.50		350	930	471.3	930	1.00	0.21	13.5	
25	U10	F82H				Alexandre	Osiris	325	0.80	0.89		25	663		700	20.6	4.73	17.8	76
26	U11	F82H				Alexandre	Osiris	313	2.00	1.41		25			685		0.04	5.7	76
43,44	A023	F82H	mod	IEA		RB-11J	HFIR	307	4.90	2.21	1.10E-03	25	898	370.3	911	184.5	0.45	7.8	
43,44	A026	F82H	mod	IEA		RB-11J	HFIR	307	4.90	2.21	1.00E-04	25	889	361.3	896	0.0	0.38	8.2	
26	U8	F82H				Alexandre	Osiris	325	3.40	1.84		30	847		852	0.0	0.38	9.8	71
43,44	A024	F82H	mod	IEA		RB-11J	HFIR	307	4.90	2.21	1.10E-03	300	762	297.2	770	1812.7	0.32	7.3	
25	U7	F82H				Alexandre	Osiris	313	0.80	0.89		325	573		588	52.8	1.99	13.4	
25	U4	F82H				Alexandre	Osiris	325	0.80	0.89		325	576		593	44.2	1.82	13.5	78
26	U5	F82H				Alexandre	Osiris	313	2.00	1.41		325	672		672	0.0	0.26	8.3	62
26	U2	F82H				Alexandre	Osiris	325	3.40	1.84		325	734		734	0.0	0.20	6.2	59
20	J1	Manet II				Alexandre	Osiris	313	0.80	0.89		25	961		982	71.0	4.49	14.27	
20	J4	Manet II				Alexandre	Osiris	325	0.80	0.89		325			834		0.04	7.6	28
21	J5	Manet II				Alexandre	Osiris	313	2.00	1.41		325			797		0.02	0.75	43
21	J2	Manet II				Alexandre	Osiris	325	3.40	1.84		325	990		1005	160.4	0.75	5.5	36

REFERENCE	Specimen id.:	MAT (Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
41	B458	EU97		E83699	B100	SUMO-09	HFR	342.5	2.45	5.00E-04	-90	806	147.2	876	13.6	6.60	17.6	
41	B775	EU97		E83698	P14	SUMO-09	HFR	342.5	2.37	5.00E-04	350	566	107.0	600	19.1	1.99	10.8	
9	I29T15	EU97		PSI			PIREX	350	0.16		350	470	11.3	557	8.0	6.50		
9	I29T16	EU97		PSI			PIREX	350	0.16		350	475	16.3	555	8.5	8.20		
9	I29T06E8	EU97		PSI			PIREX	350	0.68		350	475	16.3	529	11.0	2.60		
9	I29T7	EU97		PSI			PIREX	350	0.68		350	476	17.3	549	9.0	3.50		
4	35	F82H		Pre-IEA	P	Teseo	HFR	350	0.80	1.60E-04	350	641		648	930.6	0.70	11.1	76
4	36	F82H		Pre-IEA	P	Teseo	HFR	350	0.80	1.60E-04	350	634		640	0.0	0.70	10.7	77
5	85	JLF1				Phase Ib	HFR	350	2.40	1.60E-04	350	535	118.3	571	17.1	1.60	10.8	74
5	86	JLF1				Phase Ib	HFR	350	2.40	1.60E-04	350	530	113.3	570	15.4	1.50	11.1	73
4	55	OPTIV			P	Teseo	HFR	350	0.80	1.60E-04	350	623	198.4	623	0.0	0.40	10.0	73
4	56	OPTIV			P	Teseo	HFR	350	0.80	1.60E-04	350	583	158.4	587	0.0	0.60	10.8	67
5	U5	OPTIV			P	Phase Ia	HFR	350	2.40	1.60E-04	350	496	71.4	555	10.6	3.40	13.5	61
5	U6	OPTIV			P	Phase Ia	HFR	350	2.40	1.60E-04	350	603	178.4	636	21.0	1.10	8.3	42
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	6.40	1.00E-03	365	857		890	31.2	1.70	8.0	
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	15.40	1.00E-03	365	866		902	28.5	1.20	7.1	
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	27.20	1.00E-03	365	900		932	34.5	1.30	8.0	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	924		959	31.9	1.30	7.5	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	976		1026	22.6	1.00	7.5	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	25.40	1.00E-03	365	924		963	28.0	1.40	7.7	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	754		799	19.3	2.20	8.8	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	796		830	27.6	1.70	7.5	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	28.60	1.00E-03	365	747		787	21.5	2.00	10.0	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	788		810	47.9	1.40	7.8	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	909		939	38.0	1.10	5.3	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	28.60	1.00E-03	365	910		940	38.0	1.20	5.9	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	950		980	40.3	1.10	6.4	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	937		968	37.9	0.90	7.0	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	26.00	1.00E-03	365	883		920	28.2	1.20	7.0	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	7.70	1.00E-03	365	729		771	20.0	2.40	9.1	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	16.70	1.00E-03	365	757		793	24.5	1.70	7.8	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	27.60	1.00E-03	365	739		766	33.3	1.40	11.2	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	7.70	1.00E-03	365	710		764	15.3	3.50	10.2	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	16.70	1.00E-03	365	697		745	16.8	2.30	9.0	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	26.60	1.00E-03	365	705		756	16.0	2.30	8.7	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	6.40	1.00E-03	365	669		734	12.4	3.90	11.1	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	15.40	1.00E-03	365	699		765	12.7	2.90	9.7	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	27.20	1.00E-03	365	710		769	14.2	3.50	12.0	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
4	37	F82H		Pre-IEA	P	Teseo	HFR	400	0.80	1.60E-04	400	515		542	22.0	1.20	12.1	77
4	38	F82H		Pre-IEA	P	Teseo	HFR	400	0.80	1.60E-04	400	508		539	18.8	1.40	12.0	82
27		F82H		S62-01			JRR-2 and JMTR	400	21.40	1.00E-04	400	524		570	13.5	2.10	11.3	
27		F82H		S62-01			JRR-2 and JMTR	400	31.50	1.00E-04	400	513		580	10.0	3.00	13.3	
5	87	JLF1				Phase Ib	HFR	400	2.40	1.60E-04	400	464	45.9	544	8.4	2.40	9.5	63
5	88	JLF1				Phase Ib	HFR	400	2.40	1.60E-04	400	463	44.9	527	9.6	3.00	10.3	63
4	57	OPTIV			P	Teseo	HFR	400	0.80	1.60E-04	400	493	78.2	540	12.6	2.50	12.3	70
4	58	OPTIV			P	Teseo	HFR	400	0.80	1.60E-04	400	499	84.2	539	14.6	1.90	11.5	74
5	U7	OPTIV			P	Phase Ia	HFR	400	2.40	1.60E-04	400	478	63.2	520	13.5	2.60	12.2	61
5	U8	OPTIV			P	Phase Ia	HFR	400	2.40	1.60E-04	400	491	76.2	540	12.2	2.90	13.1	60
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	390	10.00	4.20E-04	22	881		933	19.5	3.60	7.0	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	390	10.00	4.20E-04	400	781		808	35.7	1.40	4.1	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
4	39	F82H		Pre-IEA	P	Teseo	HFR	450	0.80	1.60E-04	450	466		493	19.8	1.30	13.9	82
4	40	F82H		Pre-IEA	P	Teseo	HFR	450	0.80	1.60E-04	450	463		491	19.0	1.50	14.6	81
5	89	JLF1				Phase Ib	HFR	450	2.40	1.60E-04	450	619	196.1	627	282.7	0.46	8.7	71
5	80	JLF1				Phase Ib	HFR	450	2.40	1.60E-04	450	428	5.1	478	10.8	2.50	13.3	61
4	59	OPTIV			P	Teseo	HFR	450	0.80	1.60E-04	450	429	22.9	476	11.3	3.30	14.9	74
4	61	OPTIV			P	Teseo	HFR	450	0.80	1.60E-04	450	435	28.9	483	11.2	3.50	16.5	68
5	U9	OPTIV			P	Phase Ia	HFR	450	2.40	1.60E-04	450	548	141.9	580	19.7	0.90	8.4	53
5	U0	OPTIV			P	Phase Ia	HFR	450	2.40	1.60E-04	450	457	50.9	510	10.8	3.80	14.5	55
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	450	10.00	4.20E-04	450	480		575	7.8	3.60	6.9	

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σ_y 0,2% pl.def. (Mpa)	Irradiation hardening (MPa)	Tensile strength (Mpa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	25	611		724	8.0	5.00	22.3	80.3
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	25	596		708	8.0	4.80	19.8	79.8
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	300	538		608	10.0	2.60	15.0	80
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	500	461		493	16.6	1.30	19.0	80.3
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	500	461		489	18.9	1.20	18.3	81.9
27		F82H		S62-01			JRR-2/JMTR	500	31.50	1.00E-04	500	437		478	12.8	1.80	12.4	
27		F82H		S62-01			JRR-2/JMTR	500	33.60	1.00E-04	500	411		494	7.7	2.60	13.3	
43,44	A033	F82H	mod	IEA		RB-12J	HFIR	497	4.80	1.00E-03	25	527	-0.7	637	7.5	7.54	18.3	
43,44	A039	F82H	mod	IEA		RB-12J	HFIR	497	4.80	1.00E-04	25	535	7.3	620	8.8	4.30	14.5	
43,44	A035	F82H	mod	IEA		RB-12J	HFIR	497	4.90	1.00E-03	500	401	3.7	444	11.5	1.92	11.2	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	500	10.00	4.20E-04	22	558		712	6.7	7.90	12.4	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	500	10.00	4.20E-04	500	445		536	7.6	3.30	6.8	

REFERENCE		MAT (Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS					
Specimen id.:		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	25	566		660	8.5	4.10	16.0	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	25	578		666	9.0	3.90	16.0	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	25	562		660	8.3	4.10	16.0	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	347		351	548.1	0.70	22.3	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	351		355	601.5	0.70	22.5	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	347		349	0.0	0.70	22.0	

ANNEX 4

Tensile data pooled
according to accumulated dose

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	R	EU97		E83699	B100	IRF II	BR2	300	0.15		-150	972	130.6	1000	45.8	6.78	24.0	67
1,11	X	EU97		E83699	B100	IRF II	BR2	300	0.16		150	600	87.0	655	13.0	4.95	16.0	80
9	I29T15	EU97		PSI			PIREX	350	0.16		350	470	11.3	557	8.0	6.50		
9	I29T16	EU97		PSI			PIREX	350	0.16		350	475	16.3	555	8.5	8.20		
24		F82H		S62-01			JRR-2/JMTR	300	0.08	1.00E-04	25	684		746	13.1	4.60	18.7	80.3
24		F82H		S62-01			JRR-2/JMTR	300	0.08	1.00E-04	25	689		752	13.1	4.70	20.0	79.5
24		F82H		S62-01			JRR-2/JMTR	300	0.08	1.00E-04	25	684		753	12.1	4.70	19.0	80.8
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	25	566		660	8.5	4.10	16.0	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	25	578		666	9.0	3.90	16.0	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	25	562		660	8.3	4.10	16.0	
24		F82H		S62-01			JRR-2/JMTR	300	0.08	1.00E-04	300	582		622	16.8	2.50	14.5	78.9
24		F82H		S62-01			JRR-2/JMTR	300	0.08	1.00E-04	300	589		627	17.8	2.50	14.6	78.9
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	347		351	548.1	0.70	22.3	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	351		355	601.5	0.70	22.5	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	347		349	0.0	0.70	22.0	
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	25	611		724	8.0	5.00	22.3	80.3
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	25	596		708	8.0	4.80	19.8	79.8
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	300	538		608	10.0	2.60	15.0	80
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	500	461		493	16.6	1.30	19.0	80.3
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	500	461		489	18.9	1.20	18.3	81.9

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
9	I29T09_E15	EU97		PSI			PIREX	50	0.22		50	711	185.1	766	15.1	1.40		
9	129T12	EU97		PSI			PIREX	250	0.24		250	515	20.3	592	9.1	4.30		
9	I29T13	EU97		PSI			PIREX	250	0.24		250	552	57.3	588	17.7	3.90		
1,11	S	EU97		E83699	B100	IRF II	BR2	300	0.31		-150	993	151.6	1017	59.8	4.34	19.0	72
1,11	J	EU97		E83699	B100	IRF I	BR2	300	0.34		-150	984	142.6	993	0.0	7.09	23.0	70
1,11	L	EU97		E83699	B100	IRF I	BR2	300	0.23		32	650	118.8	708	13.3	5.65	18.0	79
1,11	B	EU97		E83699	B100	IRF I	BR2	300	0.33		150	610	97.0	656	15.4	4.55	17.0	80
1,11	Y	EU97		E83699	B100	IRF II	BR2	300	0.33		150	610	97.0	656	15.4	3.30	17.0	80
1,11	A	EU97		E83699	B100	IRF I	BR2	300	0.27		225	579	78.1	610	21.5	2.39	14.0	81
2	H867	EU97	3/7 4/14	E83698	P14	STROBO-	HFR	300	0.22	5.00E-04	300	532	53.4	560	21.9	1.20		82
2	H861	EU97	3/7 4/14	E83698	P14	STROBO-	HFR	300	0.26	5.00E-04	300	543	64.4	577	18.4	2.10		86
2	H865	EU97	3/7 4/14	E83698	P14	STROBO-	HFR	300	0.28	5.00E-04	300	521	42.4	543	28.0	0.60		80
1,11	K	EU97		E83699	B100	IRF I	BR2	300	0.30		300	562	83.4	597	18.5	2.36	13.0	81

REFERENCE	Specimen id.:	MAT (Capitals)			IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	C	EU97		E83699	B100	IRF I	BR2	300	0.36		-75	745	115.5	818	12.3	8.06	22.0	75
1,11	I	EU97		E83699	B100	IRF I	BR2	300	0.37		-75	753	123.5	816	14.1	7.34	21.0	76
1,11	D	EU97		E83699	B100	IRF I	BR2	300	0.38		-150	1001	159.6	1001	0.0	0.17	24.0	74
1,11	H	EU97		E83699	B100	IRF I	BR2	300	0.39		150	619	106.0	654	20.3	4.25	16.0	81
1,11	F	EU97		E83699	B100	IRF I	BR2	300	0.40		30	672	140.2	720	16.2	5.40	18.0	80
1,11	G	EU97		E83699	B100	IRF I	BR2	300	0.40		225	585	84.1	620	19.2	2.62	14.0	81
1,11	E	EU97		E83699	B100	IRF I	BR2	300	0.40		300	569	90.4	593	28.0	1.43	13.0	81
1,11	T	EU97		E83699	B100	IRF II	BR2	300	0.44		-75	781	151.5	829	18.7	5.68	19.0	73

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	Z	EU97		E83699	B100	IRF II	BR2	300	0.47		300	617	138.4	627	133.4	1.67	11.0	76
1,11	D1	EU97		E83699	B100	IRF III	BR2	300	0.48		30	667	135.2	699	24.2	3.82	16.0	81
2	H862	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.54	5.00E-04	300	589	110.4	594	0.0	0.50		81

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
9	I29T01_E1	EU97		PSI			PIREX	50	0.62		50	617	91.1	714	8.8	1.27		
9	I29T02_E4	EU97		PSI			PIREX	50	0.62		50	717	191.1	762	18.3	2.50		
9	I29T01_2	EU97		PSI			PIREX	50	0.62		50	636	110.1	749	8.2	1.40		
9	I29T04	EU97		PSI			PIREX	250	0.63		250	614	119.3	661	15.2	1.80		
1,11	U	EU97		E83699	B100	IRF II	BR2	300	0.57		-75	816	186.5	848	30.5	4.68	19.0	79
2	H866	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.57	5.00E-04	300	560	81.4	572	73.5	0.40		83
1,11	A1	EU97		E83699	B100	IRF II	BR2	300	0.61		300	642	163.4	643	0.0	0.54	11.0	76
2	H868	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.61	5.00E-04	300	577	98.4	589	77.7	0.50		78

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	V	EU97		E83699	B100	IRF II	BR2	300	0.71		30	751	219.2	751	0.0	0.32	12.0	79
1,11	B1	EU97		E83699	B100	IRF II	BR2	300	0.75		225	681	180.1	681	0.0	0.22	11.0	79
1,11	Q	EU97		E83699	B100	IRF III	BR2	300	0.66		300	626	147.4	629	0.0	0.68	10.0	82
9	I29T06E8	EU97		PSI			PIREX	350	0.68		350	475	16.3	529	11.0	2.60		
9	I29T7	EU97		PSI			PIREX	350	0.68		350	476	17.3	549	9.0	3.50		

REFERENCE	Specimen id.:	MAT (Capitals)			IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	W	EU97		E83699	B100	IRF II	BR2	300	0.83		30	775	243.2	775	0.0	0.21	13.0	78
1,11	C1	EU97		E83699	B100	IRF II	BR2	300	0.89		225	691	190.1	691	0.0	0.22	10.0	75
1,11	E1	EU97		E83699	B100	IRF III	BR2	300	0.89		150	714	201.0	716	0.0	0.12	11.0	81
4	31	F82H		Pre-IEA	P	Teseo	HFR	250	0.80	1.60E-04	250	625		632	704.0	0.50	11.9	80
4	32	F82H		Pre-IEA	P	Teseo	HFR	250	0.80	1.60E-04	250	627		630	0.0	0.50	11.7	79
4	33	F82H		Pre-IEA	P	Teseo	HFR	300	0.80	1.60E-04	300	658		661	0.0	0.30	10.8	82
4	34	F82H		Pre-IEA	P	Teseo	HFR	300	0.80	1.60E-04	300	646		649	0.0	0.40	11.1	82
4	35	F82H		Pre-IEA	P	Teseo	HFR	350	0.80	1.60E-04	350	641		648	930.6	0.70	11.1	76
4	36	F82H		Pre-IEA	P	Teseo	HFR	350	0.80	1.60E-04	350	634		640	0.0	0.70	10.7	77
4	37	F82H		Pre-IEA	P	Teseo	HFR	400	0.80	1.60E-04	400	515		542	22.0	1.20	12.1	77
4	38	F82H		Pre-IEA	P	Teseo	HFR	400	0.80	1.60E-04	400	508		539	18.8	1.40	12.0	82
4	39	F82H		Pre-IEA	P	Teseo	HFR	450	0.80	1.60E-04	450	466		493	19.8	1.30	13.9	82
4	40	F82H		Pre-IEA	P	Teseo	HFR	450	0.80	1.60E-04	450	463		491	19.0	1.50	14.6	81
25	U10	F82H		Pre-IEA		Alexandre	Osiris	325	0.80		25	663		700	20.6	4.73	17.8	76
25	U7	F82H		Pre-IEA		Alexandre	Osiris	313	0.80		325	573		588	52.8	1.99	13.4	
25	U4	F82H		Pre-IEA		Alexandre	Osiris	325	0.80		325	576		593	44.2	1.82	13.5	78
4	52	OPTIV			P	Teseo	HFR	250	0.80	1.60E-04	250	632	184.9	636	0.0	0.80	11.1	74
4	53	OPTIV			P	Teseo	HFR	300	0.80	1.60E-04	300	633	197.7	633	0.0	0.20	10.5	76
4	54	OPTIV			P	Teseo	HFR	300	0.80	1.60E-04	300	653	217.7	655	0.0	0.30	11.5	76
4	55	OPTIV			P	Teseo	HFR	350	0.80	1.60E-04	350	623	198.4	623	0.0	0.40	10.0	73
4	56	OPTIV			P	Teseo	HFR	350	0.80	1.60E-04	350	583	158.4	587	0.0	0.60	10.8	67
4	57	OPTIV			P	Teseo	HFR	400	0.80	1.60E-04	400	493	78.2	540	12.6	2.50	12.3	70
4	58	OPTIV			P	Teseo	HFR	400	0.80	1.60E-04	400	499	84.2	539	14.6	1.90	11.5	74
4	59	OPTIV			P	Teseo	HFR	450	0.80	1.60E-04	450	429	22.9	476	11.3	3.30	14.9	74
4	61	OPTIV			P	Teseo	HFR	450	0.80	1.60E-04	450	435	28.9	483	11.2	3.50	16.5	68
20	J1	Manet II				Alexandre	Osiris	313	0.80		25	961		982	71.0	4.49	14.27	
20	J4	Manet II				Alexandre	Osiris	325	0.80		325			834		0.04	7.6	28

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	P	EU97		E83699	B100	IRF III	BR2	300	0.99		-75	882	252.5	882	0.0	1.87	13.0	72
1,11	F1	EU97		E83699	B100	IRF III	BR2	300	1.17		150	748	235.0	750	0.0	0.16	10.0	81

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
9	I29T18	EU97		PSI			PIREX	50	1.27		50	739	213.1	772	26.2	1.10		
9	I29T17	EU97		PSI			PIREX	50	1.27		50	750	224.1	823	12.4	1.75		
1,11	O	EU97		E83699	B100	IRF III	BR2	300	1.32		30	839	307.2	840	0.0	0.19	10.0	81
9	I29T20	EU97		PSI			PIREX	250	1.36		250	570	75.3	638	10.6	1.00		
1,11	G1	EU97		E83699	B100	IRF III	BR2	300	1.45		300	720	241.4	724	0.0	0.11	9.0	82
45	EU2T08	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	-150	1247	1247	1.00		0.10	11.0	-
45	EU2T19	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	-150	1232	1232	1.00		-	12.6	67.1
45	EU2T04	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	-75	961	961	1.00		0.18	12.3	74.6
45	EU2T12	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	-75	955	955	1.00		0.20	12.8	74.9
45	EU2T03	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	0	879	879	1.00		0.15	11.5	79.5
45	EU2T20	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	0	851	851	1.00		0.23	12.2	79.7
45	EU2T07	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	22	853	853	1.00		0.13	11.6	78.8
45	EU2T09	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	22	847	847	1.00		0.18	11.6	82.3
45	EU2T13	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	22	836	836	1.00		0.17	11.8	77.7
45	EU2T21	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	22	808	808	1.00		0.16	12.4	79.9
45	EU2T05	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	300	700	700	1.00		0.10	10.9	78.8
45	EU2T15	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	300	683	683	1.00		0.15	11.1	79.0
45	EU2T18	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.00E-04	300	688	688	1.00		0.10	10.8	85.3

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	H1	EU97		E83699	B100	IRF III	BR2	300	1.73	1.00E-04	-75	958	328.5	961	0.0	0.27	12.0	71
1,11	N	EU97		E83699	B100	IRF III	BR2	300	1.66	1.00E-04	30	872	340.2	873	0.0	0.20	10.0	75
41	B774	EU97		E83698	P14	SUMO-09	HFR	250	1.64	5.00E-04	250	636	141.3	636	0.0	0.10	10.2	
41	B776	EU97		E83698	P14	SUMO-09	HFR	300	1.59	5.00E-04	300	701	222.4	710	291.3	0.30	10.0	
2	B901	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	1.80	5.00E-04	300	720	241.4	723	0.0	0.20	12.1	70
10	7161	F82H		9741	7,5mmP6-14	SIWAS-6	HFR	80	1.67	5.00E-04	150	722	234.8	722	0.0	0.20	12.4	87
10	7164	F82H		9741	7,5mmP6-14	SIWAS-6	HFR	80	1.95	5.00E-04	150	726	238.8	726	0.0	0.20	12.6	87

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B598	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.10	5.00E-04	100	781	263.1	783	0.0	0.30	14.2	84
2	B888	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.10	5.00E-04	300	614	135.4	618	0.0	0.30	14.6	84
2	B890	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.10	5.00E-04	500	438	55.4	506	8.9	3.40	21.1	88
41	B457	EU97		E83699	B100	SUMO-09	HFR	250	2.10	5.00E-04	-90	983	324.3	983	0.0	0.16	11.0	
2	B900	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.00	5.00E-04	27	839	306.1	840	0.0	0.30	13.3	75
2	B903	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.10	5.00E-04	100	799	281.1	799	0.0	0.20	12.9	75
1,11	I1	EU97		E83699	B100	IRF III	BR2	300	2.01		300	739	260.4	747	1045.0	0.11	9.0	77
2	C301	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.10	5.00E-04	300	764	285.4	764	0.0	0.10	12.1	72
26	U11	F82H				Alexandre	Osiris	313	2.00		25			685		0.04	5.7	76
26	U5	F82H				Alexandre	Osiris	313	2.00		325	672		672	0.0	0.26	8.3	62
10	8844	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.06	5.00E-04	325	722	262.0	727	0.0	0.2	9.2	77
10	8845	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.08	5.00E-04	27	840	313.4	851	267.0	0.2	11	81
21	J5	Manet II				Alexandre	Osiris	313	2.00		325			797		0.02	0.75	43

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B603	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.20	5.00E-04	50	846	320.1	849	0.0	0.30	14.7	82
2	B889	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.20	5.00E-04	400	533	97.1	610	9.3	4.30	18.8	84
41	B459	EU97		E83699	B100	SUMO-09	HFR	300	2.16	5.00E-04	-90	1030	371.2	1031	0.0	0.29	9.6	
2	C299	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.20	5.00E-04	27	901	368.1	902	0.0	0.30	13.0	76
1,11	M	EU97		E83699	B100	IRF III	BR2	300	2.14	1.00E-04	30	898	366.2	899	0.0	0.18	10.0	76
10	7168	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.17	5.00E-04	550	383	19.9	396	36.6	0.60	15.8	88
10	8848	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.28	5.00E-04	500	524	126.7	541	38.9	0.5	13	81

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B596	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.30	5.00E-04	27	853	320.1	855	0.0	0.30	14.3	87
2	B884	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.40	5.00E-04	27	859	326.1	863	0.0	0.30	14.8	87
2	B597	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.30	5.00E-04	50	848	322.1	848	0.0	0.20	14.7	84
2	B886	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.30	5.00E-04	100	781	263.1	786	0.0	0.30	14.7	0
2	B887	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.30	5.00E-04	200	705	199.0	706	0.0	0.30	14.7	87
2	B601	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.40	5.00E-04	400	543	107.1	601	11.5	4.20	18.4	82
2	C274	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.40	5.00E-04	27	854	321.1	862	0.0	0.30	12.9	80
2	B902	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.30	5.00E-04	50	814	288.1	815	0.0	0.10	13.1	72
2	C275	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.40	5.00E-04	100	832	314.1	835	0.0	0.20	12.6	74
2	C296	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.40	5.00E-04	100	879	361.1	879	0.0	0.10	12.5	71
2	C276	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	5.00E-04	200	785	279.0	789	0.0	0.20	12.2	78
2	C277	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	5.00E-04	300	746	267.4	746	0.0	0.20	11.7	74
2	B907	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.40	5.00E-04	300	735	256.4	737	0.0	0.20	11.9	74
2	C278	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	5.00E-04	400	675	239.1	684	247.8	0.40	11.6	57
2	B905	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.30	5.00E-04	400	691	255.1	691	0.0	0.10	11.7	76
2	C298	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.30	5.00E-04	400	710	274.1	710	0.0	0.10	11.5	66
41	B458	EU97		E83698	B100	SUMO-09	HFR	342.5	2.45	5.00E-04	-90	806	147.2	876	13.6	6.60	17.6	
41	B775	EU97		E83698	P14	SUMO-09	HFR	342.5	2.37	5.00E-04	350	566	107.0	600	19.1	1.99	10.8	
10	7213	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.34	5.00E-04	27	728	201.4	770	19.9	1.80	11.8	80
10	8849	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.36	5.00E-04	425	674	241.9	686	106.5	0.4	8.7	75
10	7166	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.37	5.00E-04	300	653	188.2	662	218.3	0.50		
5	81	JLF1				Phase Ib	HFR	250	2.40	1.60E-04	250	608	183.4	628	38.1	2.50	13.5	79
5	82	JLF1				Phase Ib	HFR	250	2.40	1.60E-04	250	610	185.4	621	103.6	1.80	13.1	79
5	83	JLF1				Phase Ib	HFR	300	2.40	1.60E-04	300	652	233.1	652	0.0	0.26	8.9	70
5	84	JLF1				Phase Ib	HFR	300	2.40	1.60E-04	300	659	240.1	665	0.0	0.36	8.7	70
5	85	JLF1				Phase Ib	HFR	350	2.40	1.60E-04	350	535	118.3	571	17.1	1.60	10.8	74
5	86	JLF1				Phase Ib	HFR	350	2.40	1.60E-04	350	530	113.3	570	15.4	1.50	11.1	73
5	87	JLF1				Phase Ib	HFR	400	2.40	1.60E-04	400	464	45.9	544	8.4	2.40	9.5	63
5	88	JLF1				Phase Ib	HFR	400	2.40	1.60E-04	400	463	44.9	527	9.6	3.00	10.3	63
5	89	JLF1				Phase Ib	HFR	450	2.40	1.60E-04	450	619	196.1	627	282.7	0.46	8.7	71
5	80	JLF1				Phase Ib	HFR	450	2.40	1.60E-04	450	428	5.1	478	10.8	2.50	13.3	61
5	U1	OPTIV			P	Phase Ia	HFR	250	2.40	1.60E-04	250	734	286.9	737	0.0	0.27	9.9	77
5	U2	OPTIV			P	Phase Ia	HFR	250	2.40	1.60E-04	250	714	266.9	714	0.0	0.23	9.8	61
5	U3	OPTIV			P	Phase Ia	HFR	300	2.40	1.60E-04	300	711	275.7	716	0.0	0.30	7.8	52
5	U4	OPTIV			P	Phase Ia	HFR	300	2.40	1.60E-04	300	765	329.7	765	0.0	0.23	7.4	54
5	U5	OPTIV			P	Phase Ia	HFR	350	2.40	1.60E-04	350	496	71.4	555	10.6	3.40	13.5	61
5	U6	OPTIV			P	Phase Ia	HFR	350	2.40	1.60E-04	350	603	178.4	636	21.0	1.10	8.3	42
5	U7	OPTIV			P	Phase Ia	HFR	400	2.40	1.60E-04	400	478	63.2	520	13.5	2.60	12.2	61
5	U8	OPTIV			P	Phase Ia	HFR	400	2.40	1.60E-04	400	491	76.2	540	12.2	2.90	13.1	60
5	U9	OPTIV			P	Phase Ia	HFR	450	2.40	1.60E-04	450	548	141.9	580	19.7	0.90	8.4	53
5	U0	OPTIV			P	Phase Ia	HFR	450	2.40	1.60E-04	450	457	50.9	510	10.8	3.80	14.5	55

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B885	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.50	5.00E-04	50	831	305.1	832	0.0	0.20	14.8	82
2	B904	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.50	5.00E-04	200	799	293.0	799	0.0	0.20	12.1	76
2	B599	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	200	707	201.0	709	0.0	0.30	14.3	84
2	C297	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.50	5.00E-04	200	812	306.0	812	0.0	0.20	12.2	69
2	B600	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	300	618	139.4	621	0.0	0.20	14.4	89
2	B617	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.50	5.00E-04	300	769	290.4	770	0.0	0.10	11.7	78
2	B602	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	500	433	50.4	484	10.7	2.40	21.3	87
10	8837	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.48	5.00E-04	325	801	341.0	801	0.0	0.2	10.1	78
10	8842	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.49	5.00E-04	80	867	363.5	873	0.0	0.3	10.1	80
10	7211	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.51	5.00E-04	300	590	125.2	618	24.5	0.90	10.1	76
10	7206	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.52	5.00E-04	500	473	75.7	485	55.4	0.50	12.4	82
10	7162	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.54	5.00E-04	27	700	173.4	745	17.9	2.20	12.3	79
10	8838	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.55	5.00E-04	27	874	347.4	898	49.1	0.4	10.3	70
10	8839	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.57	5.00E-04	425	750	317.9	762	138.0	0.2	9	78
10	E523	JLF-1			Plate 15 mm	ILAS-4	HFR	300	2.47	5.00E-04	300	540	121.1	579	16.0	1.4	11.5	76.7
10	E534	JLF-1B			Plate	ILAS-4	HFR	300	2.50	5.00E-04	300	585	166.1	612	25.3	0.8	10.4	72.7

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B906	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.60	5.00E-04	27	908	375.1	908	0.0	0.20	12.6	81
2	C295	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.60	5.00E-04	50	894	368.1	894	0.0	0.20	12.7	75
2	B616	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.70	5.00E-04	27	910	377.1	910	0.0	0.20	12.6	75
10	7198	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.64	5.00E-04	550	396	32.9	405	66.3	0.40	13.8	90
10	7205	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.69	5.00E-04	400	594	153.4	614	37.0	0.90	7.4	70
10	7189	F82H		9741		ILAS-4	HFR	300	2.69	5.00E-04	500	462	64.7	467	1048.9	0.30	13.9	88.1
10	7202	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.70	5.00E-04	200	698	218.2	709	143.7	0.60	9.5	76
10	7177	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.71	5.00E-04	200	653	173.2	680	28.7	1.20	10.4	80
10	7194	F82H		9741		ILAS-4	HFR	300	2.72	5.00E-04	500	403	5.7	408	344.2	0.20	14.5	88.1
10	E520	JLF-1			Plate 15 mm	ILAS-4	HFR	300	2.64	5.00E-04	27	628	135.4	702	10.7	3	14.7	77.4
10	E533	JLF-1B			Plate	ILAS-4	HFR	300	2.68	5.00E-04	27	688	195.4	742	14.9	2.2	12.7	74.2

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
10	7197	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.84	5.00E-04	300	629	164.2	644	61.2	0.70	9.1	71
10	7201	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.87	5.00E-04	80	676	172.5	722	17.0	2.00	12.5	79
10	7176	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.88	5.00E-04	80	679	175.5	723	17.8	2.10	11.9	77
10	7188	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.89	5.00E-04	500	498	100.7	506	136.5	0.40	11.5	79
10	7192	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.92	5.00E-04	27	711	184.4	758	17.4	2.10	12.8	78
10	7181	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.96	5.00E-04	300	604	139.2	629	28.6	1.00	10.5	77
10	E515	JLF-1			Plate 15 mm	ILAS-4	HFR	300	2.84	5.00E-04	200	580	146.2	620	16.7	1.4	12.8	78.8
10	E528	JLF-1B			Plate	ILAS-4	HFR	300	2.87	5.00E-04	200	627	193.2	654	27.4	1.1	10.7	80.6
10	E508	ORNL-3791			Plate	ILAS-4	HFR	300	2.89	5.00E-04	300	867	155.5	893	43.3	0.90	8.6	67.5

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
10	7179	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.00	5.00E-04	300	618	153.2	640	34.4	1.10	10.0	74
10	7196	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.01	5.00E-04	27	717	190.4	762	18.3	2.30	12.6	81
10	7187	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.06	5.00E-04	400	577	136.4	598	33.5	0.80	9.8	65
10	7191	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.09	5.00E-04	300	647	182.2	662	64.1	0.80	9.4	73
10	E517	JLF-1			Plate 15 mm	ILAS-4	HFR	300	3.01	5.00E-04	400	505	86.9	559	11.5	1.5	10	70.3
10	E518	JLF-1			Plate 15 mm	ILAS-4	HFR	300	3.05	5.00E-04	300	558	139.1	593	18.3	1.2	11.1	73.2
10	E529	JLF-1B			Plate	ILAS-4	HFR	300	3.05	5.00E-04	400	489	70.9	551	10.2	1.9	11.2	72.7
10	E531	JLF-1B			Plate	ILAS-4	HFR	300	3.08	5.00E-04	300	577	158.1	614	17.9	1.4	10.6	73.7
10	E506	ORNL-3791			Plate	ILAS-4	HFR	300	3.06	5.00E-04	27	982	182.5	1018	33.2	1.90	9.3	68.4
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T2	HFIR	50	3.20	4.50E-04	50	950		978	44.3	0.80	4.9	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σ_y 0,2% pl.def. (Mpa)	Irradiation hardening (MPa)	Tensile strength (Mpa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
26	U8	F82H				Alexandre	Osiris	325	3.40		30	847		852	0.0	0.38	9.8	71
26	U2	F82H				Alexandre	Osiris	325	3.40		325	734		734	0.0	0.20	6.2	59
21	J2	Manet II				Alexandre	Osiris	325	3.40		325	990		1005	160.4	0.75	5.5	36
10	E501	ORNL-3791			Plate	ILAS-4	HFR	300	3.26	5.00E-04	200	911	167.3	942	36.5	1.10	9.1	68.4
10	E502	ORNL-3791			Plate	ILAS-4	HFR	300	3.43	5.00E-04	400	848	168.7	886	26.1	1.00	7.4	55.1
10	E504	ORNL-3791			Plate	ILAS-4	HFR	300	3.47	5.00E-04	300	880	168.5	909	38.1	0.90	7.9	63.4

REFERENCE		MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS					
	Specimen id.:	Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T2	HFIR	50	4.20	4.50E-04	50	1064	1098	39.7	0.90	3.5	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T2	HFIR	50	4.30	4.50E-04	50	907	921	152.1	0.60	4.0	
13		9Cr1MoVNb2Ni		XA-3591	Sheet 0.76 mm	CTR-T2	HFIR	50	4.50	4.50E-04	50	1230	1264	48.6	0.60	2.8	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T2	HFIR	50	4.70	4.50E-04	50	932	935	0.0	0.30	2.8	
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T2	HFIR	50	4.70	4.50E-04	50	976	1004	46.1	0.80	5.1	

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION				TEST CONDITIO		TEST RESULTS					
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
13		9Cr1MoVNb2Ni		XA-3591	rod 6.35 mm	CTR-RB2	HFIR	50	5.00	4.50E-04	50	1255	1258	0.0	0.30	1.5	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T2	HFIR	50	5.10	4.50E-04	50	1033	1087	22.1	1.00	2.8	
13		12Cr1MoVW2Ni		XAA-3589	Sheet 0.76 mm	CTR-T2	HFIR	50	5.10	4.50E-04	50	1220	1277	24.9	0.90	2.9	
13		9Cr1MoVNb		30176	rod 6.35 mm	CTR-RB1	HFIR	50	5.30	4.50E-04	50	879	881	0.0	0.30	2.0	
13		12Cr1MoVW		91354	rod 6.35 mm	CTR-RB1	HFIR	50	5.50	4.50E-04	50	986	998	382.4	0.40	2.0	
43,44		9Cr2WVTa		ORNL3791		RB-11J	HFIR	300	5.00	1.10E-03	-100	1229	1247	177.8	0.40	6.4	
43,44		9Cr2WVTa		ORNL3791		RB-11J	HFIR	300	5.00	1.11E-03	25	1040	1040	0.0	0.17	7.1	
43,44		9Cr2WVTa		ORNL3791		RB-11J	HFIR	500	5.00	1.10E-03	25	569					
43,44		9Cr2WVTa		ORNL3791		RB-11J	HFIR	300	5.00	1.11E-03	300	918	918	0.0	0.20	6.3	
43,44		F82H	mod	IEA		RB-11J	HFIR	300	5.00	1.10E-04	-100	1002	1002	0.0	0.20	7.2	
43,44	A023	F82H	mod	IEA		RB-11J	HFIR	307	4.90	1.11E-03	25	898	911	184.5	0.45	7.8	
43,44	A026	F82H	mod	IEA		RB-11J	HFIR	307	4.90	1.10E-04	25	889	896	0.0	0.38	8.2	
43,44	A033	F82H	mod	IEA		RB-12J	HFIR	497	4.80	1.00E-03	25	527	637	7.5	7.54	18.3	
43,44	A039	F82H	mod	IEA		RB-12J	HFIR	497	4.80	1.00E-04	25	535	620	8.8	4.30	14.5	
43,44	A024	F82H	mod	IEA		RB-11J	HFIR	307	4.90	1.10E-03	300	762	770	1812.7	0.32	7.3	
43,44	A035	F82H	mod	IEA		RB-12J	HFIR	497	4.90	1.00E-03	500	401	444	11.5	1.92	11.2	
43,44		JLF-1				RB-11J	HFIR	300	5.00	1.10E-03	-100	942	1023	13.7	1.50	8.5	
43,44		JLF-1				RB-11J	HFIR	300	5.00	1.10E-03	25	839	858	66.7	0.80	9.3	
43,44		JLF-1				RB-11J	HFIR	300	5.00	1.10E-03	300	755	774	56.1	0.50	6.7	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0.2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B595	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	7.30	5.00E-04	300	883	404.4	883	0.0	0.10	10.8	71
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	6.40	1.00E-03	365	857		890	31.2	1.70	8.0	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	924		959	31.9	1.30	7.5	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	754		799	19.3	2.20	8.8	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	788		810	47.9	1.40	7.8	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	950		980	40.3	1.10	6.4	
13		9Cr1MoVNb		XA-3590	rod 6.35 mm	CTR-RB2	HFIR	50	7.10	4.50E-04	50	990		990	0.0	0.30	2.4	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	6.40	1.00E-03	365	669		734	12.4	3.90	11.1	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B594	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	7.50	5.00E-04	27	1047	514.1	1047	0.0	0.10	11.5	70
2	B593	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.20	5.00E-04	100	1029	511.1	1029	0.0	0.10	11.2	75
2	B592	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.40	5.00E-04	200	937	431.0	937	0.0	0.10	10.9	74
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	7.70	1.00E-03	365	729		771	20.0	2.40	9.1	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	7.70	1.00E-03	365	710		764	15.3	3.50	10.2	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B591	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.70	5.00E-04	400	842	406.1	842	0.0	0.10	10.7	66
2	B590	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.90	5.00E-04	50	1066	540.1	1066	0.0	0.20	11.3	70
2	B589	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	9.00	5.00E-04	27	1081	548.1	1081	0.0	0.20	11.3	69
2	B588	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	9.20	5.00E-04	300	914	435.4	914	0.0	0.20	10.6	72
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-33	HFIR	50	9.30	4.50E-04	50	1027		1047	88.2	0.60	6.5	
13		12Cr1MoVW		91354	Sheet 0.76 mm	CTR-33	HFIR	50	9.30	4.50E-04	50	983		987	0.0	0.30	2.1	
13		12Cr1MoVW		XAA-3587	rod 6.35 mm	CTR-RB2	HFIR	50	10.30	4.50E-04	50	980		992	369.5	0.40	2.9	
13		12Cr1MoVW1Ni		XAA-3588	rod 6.35 mm	CTR-RB2	HFIR	50	9.00	4.50E-04	50	978		1001	62.6	0.60	2.6	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-33	HFIR	50	9.30	4.50E-04	50	1115		1134	117.9	0.60	3.0	
13		12Cr1MoVW2Ni		XAA-3589	rod 6.35 mm	CTR-RB2	HFIR	50	9.10	4.50E-04	50	1227		1249	104.9	0.50	2.2	
13		12Cr1MoVW2Ni		XAA-3589	Sheet 0.76 mm	CTR-33	HFIR	50	9.30	4.50E-04	50	1264		1298	50.6	0.80	2.5	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-33	HFIR	50	9.30	4.50E-04	50	878		878	0.0	0.20	3.2	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	390	10.00	4.20E-04	22	881		933	19.5	3.60	7.0	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	500	10.00	4.20E-04	22	558		712	6.7	7.90	12.4	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	550	10.00	4.20E-04	22	544		697	6.6	6.10	10.0	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	390	10.00	4.20E-04	400	781		808	35.7	1.40	4.1	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	450	10.00	4.20E-04	450	480		575	7.8	3.60	6.9	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	500	10.00	4.20E-04	500	445		536	7.6	3.30	6.8	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	550	10.00	4.20E-04	550	429		495	8.9	3.10	9.9	
13		9Cr1MoVNb2Ni		XA-3591	Sheet 0.76 mm	CTR-33	HFIR	50	9.30	4.50E-04	50	1289		1297	0.0	0.40	1.6	

REFERENCE	Specimen id.:	MAT (Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		250	922	427.3	923.5	1.00	0.24	10.22	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		250	922	427.3	928.6	1.01	0.28	9.82	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		300	894	415.4	911	1.02	0.32	9.75	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		300	880	401.4	894	1.02	0.30	9.47	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		350	862	403.3	874	1.01	0.30	9.41	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		350	864	405.3	870	1.01	0.26	9.45	
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T1	HFIR	50	15.10	4.50E-04	50	1041		1060	1.02	0.60	6.4	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	15.4	0.001	365	699		765	1.09	2.9	9.7	
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	15.4	0.001	365	866		902	1.04	1.2	7.1	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	937		968	1.03	0.90	7.0	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	976		1026	1.05	1.00	7.5	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	796		830	1.04	1.70	7.5	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	909		939	1.03	1.10	5.3	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	16.70	1.00E-03	365	757		793	1.05	1.70	7.8	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	16.70	1.00E-03	365	697		745	1.07	2.30	9.0	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T1	HFIR	50	18.40	4.50E-04	50	1152		1194	1.04	0.60	5.0	

REFERENCE	Specimen id.:	MAT (Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
27		F82H		S62-01			JRR-2 and JMTR	400	21.40	1.00E-04	400	524		570	13.5	2.10	11.3	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T1	HFIR	50	20.20	4.50E-04	50	1009		1022	286.7	0.40	5.4	
13		9Cr1MoVNb2Ni		XA-3591	Sheet 0.76 mm	CTR-T1	HFIR	50	21.10	4.50E-04	50	1357		1383	91.1	0.40	6.3	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T1	HFIR	50	22.30	4.50E-04	50	1010		1014	0.0	0.40	5.5	
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T1	HFIR	50	22.40	4.50E-04	50	1049		1082	40.5	0.60	6.5	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T1	HFIR	50	23.70	4.50E-04	50	1147		1180	45.9	0.60	5.1	
13		12Cr1MoVW2Ni		XAA-3589	Sheet 0.76 mm	CTR-T1	HFIR	50	24.10	4.50E-04	50	1338		1400	25.2	1.00	6.1	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS					
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σ_y 0,2% pl.def. (Mpa)	Tensile strength (Mpa)	Strain hardening exponent	ε uniform (%)	ε total (%)	Reduction of area (%)
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	25.40	1.00E-03	365	924	963	28.0	1.40	7.7	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	26.00	1.00E-03	365	883	920	28.2	1.20	7.0	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	26.60	1.00E-03	365	705	756	16.0	2.30	8.7	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	27.20	1.00E-03	365	710	769	14.2	3.50	12.0	
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	27.20	1.00E-03	365	900	932	34.5	1.30	8.0	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	27.60	1.00E-03	365	739	766	33.3	1.40	11.2	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	28.60	1.00E-03	365	747	787	21.5	2.00	10.0	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	28.60	1.00E-03	365	910	940	38.0	1.20	5.9	

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
3	K 9D	EU97	66/5	E83698	P8	Altair	BOR-60	325	42.30	1.40E-03	20	1139	603.3	1161	1.02	0.50	7.7	58
3	K10D	EU97	66/5	E83698	P8	Altair	BOR-60	325	42.30	1.40E-03	325	976	507.0	993	1.02	0.40	6.2	58
46	E1-15-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20		250	1012	517.3	1012	1.00	0.22	14.1	
46	E1-16-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20		300	973	494.4	973	1.00	0.21	13.8	
46	E1-17-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20		350	930	471.3	930	1.00	0.21	13.5	
27		F82H		S62-01			JRR-2 and JMTR	400	31.50	1.00E-04	400	513		580	1.13	3.00	13.3	
27		F82H		S62-01			JRR-2 and JMTR	500	31.50	1.00E-04	500	437		478	1.09	1.80	12.4	
27		F82H		S62-01			JRR-2 and JMTR	500	33.60	1.00E-04	500	411		494	1.20	2.60	13.3	
46	F10-t	F82H	mod	9741		ARBOR-1	BOR-60	336	30.20		250	959	486.1	966	1.01	0.44	13.2	
46	F11-t	F82H	mod	9741		ARBOR-1	BOR-60	336	30.20		300	935	470.2	940	1.01	0.33	11.8	
46	F12-t	F82H	mod	9741		ARBOR-1	BOR-60	336	30.20		350	913	458.6	915	1.00	0.29	6.4	

ANNEX 5

Tensile data pooled according to test temperature

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
41	B457	EU97		E83699	B100	SUMO-09	HFR	250	2.10	5.00E-04	-90	983	324.3	983	1.00	0.16	11.0	
41	B459	EU97		E83699	B100	SUMO-09	HFR	300	2.16	5.00E-04	-90	1030	371.2	1031	1.00	0.29	9.6	
41	B458	EU97		E83699	B100	SUMO-09	HFR	342.5	2.45	5.00E-04	-90	806	147.2	876	1.09	6.60	17.6	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	C	EU97		E83699	B100	IRF I	BR2	300	0.36		-75	745	115.5	818	1.10	8.06	22.0	75
1,11	I	EU97		E83699	B100	IRF I	BR2	300	0.37		-75	753	123.5	816	1.08	7.34	21.0	76
1,11	T	EU97		E83699	B100	IRF II	BR2	300	0.44		-75	781	151.5	829	1.06	5.68	19.0	73
1,11	U	EU97		E83699	B100	IRF II	BR2	300	0.57		-75	816	186.5	848	1.04	4.68	19.0	79
1,11	P	EU97		E83699	B100	IRF III	BR2	300	0.99		-75	882	252.5	882	1.00	1.87	13.0	72
1,11	H1	EU97		E83699	B100	IRF III	BR2	300	1.73		-75	958	328.5	961	1.00	0.27	12.0	71
45	EU2T04	EU97-2	2nd batch	993394P	P8	5M	BR2	300	1.32	1.00E-04	-75	961	298.3	961	1.00	0.18	12.3	74.6
45	EU2T12	EU97-2	2nd batch	993394P	P8	5M	BR2	300	1.32	1.00E-04	-75	955	292.5	955	1.00	0.20	12.8	74.9

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION					TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	sqrt(dose)	Strain rate (sec-1)	Test temp (°C)	σy 0.2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
		EU97				**REFERENCE CONDITION**			0.00	0.00		25	533.7	0	654.9	1.23	21.2	21.2	78.2
2	B596	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.30	1.52	5.00E-04	27	853	320.1	855	1.00	0.30	14.3	87
2	B884	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.40	1.55	5.00E-04	27	859	326.1	863	1.00	0.30	14.8	87
1,11	L	EU97		E83699	B100	IRF I	BR2	300	0.23	0.48		32	650	118.8	708	1.09	5.65	18.0	79
1,11	F	EU97		E83699	B100	IRF I	BR2	300	0.40	0.63		30	672	140.2	720	1.07	5.40	18.0	80
1,11	D1	EU97		E83699	B100	IRF III	BR2	300	0.48	0.69		30	667	135.2	699	1.05	3.82	16.0	81
1,11	V	EU97		E83699	B100	IRF II	BR2	300	0.71	0.84		30	751	219.2	751	1.00	0.32	12.0	79
1,11	W	EU97		E83699	B100	IRF II	BR2	300	0.83	0.91		30	775	243.2	775	1.00	0.21	13.0	78
1,11	O	EU97		E83699	B100	IRF III	BR2	300	1.32	1.15		30	839	307.2	840	1.00	0.19	10.0	81
1,11	N	EU97		E83699	B100	IRF III	BR2	300	1.66	1.29		30	872	340.2	873	1.00	0.20	10.0	75
2	B900	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.00	1.41	5.00E-04	27	839	306.1	840	1.00	0.30	13.3	75
1,11	M	EU97		E83699	B100	IRF III	BR2	300	2.14	1.46		30	898	366.2	899	1.00	0.18	10.0	76
2	C299	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.20	1.48	5.00E-04	27	901	368.1	902	1.00	0.30	13.0	76
2	C274	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.40	1.55	5.00E-04	27	854	321.1	862	1.01	0.30	12.9	80
2	B906	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.60	1.61	5.00E-04	27	908	375.1	908	1.00	0.20	12.6	81
2	B616	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.70	1.64	5.00E-04	27	910	377.1	910	1.00	0.20	12.6	75
2	B594	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	7.50	2.74	5.00E-04	27	1047	514.1	1047	1.00	0.10	11.5	70
2	B589	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	9.00	3.00	5.00E-04	27	1081	548.1	1081	1.00	0.20	11.3	69
3	K 9D	EU97	66/5	E83698	P8	Altair	BOR-60	325	42.30	6.50	1.40E-03	20	1139	603.3	1161	1.02	0.50	7.7	58
		EU97-2				**REFERENCE CONDITION**			0.00	0.00		22	528.5	0	657.0	1.24	21.2	21.2	78.1
45	EU2T07	EU97-2	2nd batch	993394P	P8	5M	BR2	300	1.32	1.15	1.00E-04	22	853	324.8	853	1.00	0.13	11.6	78.8
45	EU2T09	EU97-2	2nd batch	993394P	P8	5M	BR2	300	1.32	1.15	1.00E-04	22	847	319.0	847	1.00	0.18	11.6	82.3
45	EU2T13	EU97-2	2nd batch	993394P	P9	5M	BR2	300	1.32	1.15	1.00E-04	22	836	307.2	836	1.00	0.17	11.8	77.7
45	EU2T21	EU97-2	2nd batch	993394P	P10	5M	BR2	300	1.32	1.15	1.00E-04	22	808	279.6	808	1.00	0.16	12.4	79.9
		F82H				**REFERENCE CONDITION**			0.00	0.00		25	526.0	0	641.2	1.22	20.1	20.1	79.8
10	8845	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.08	1.44	5.00E-04	27	840	313.4	851	1.01	0.2	11	81
10	8838	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.55	1.60	5.00E-04	27	874	347.4	898	1.03	0.4	10.3	70
10	7213	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.34	1.53	5.00E-04	27	728	201.4	770	1.06	1.80	11.8	80
10	7162	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.54	1.59	5.00E-04	27	700	173.4	745	1.06	2.20	12.3	79
10	7192	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.92	1.71	5.00E-04	27	711	184.4	758	1.07	2.10	12.8	78
10	7196	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.01	1.73	5.00E-04	27	717	190.4	762	1.06	2.30	12.6	81
43,44	A023	F82H	mod	IEA		RB-11J	HFIR	307	4.90	2.21	1.11E-03	25	898	370.3	911	1.01	0.45	7.8	
43,44	A026	F82H	mod	IEA		RB-11J	HFIR	307	4.90	2.21	1.10E-04	25	889	361.3	896	1.01	0.38	8.2	
43,44	A033	F82H	mod	IEA		RB-12J	HFIR	497	4.80	2.19	1.00E-03	25	527	-0.7	637	1.21	7.54	18.3	
43,44	A039	F82H	mod	IEA		RB-12J	HFIR	497	4.80	2.19	1.00E-04	25	535	7.3	620	1.16	4.30	14.5	
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	25	684		746	1.09	4.60	18.7	80.3
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	25	689		752	1.09	4.70	20.0	79.5
24		F82H		S62-01			JRR-2/JMTR	300	0.08	0.28	1.00E-04	25	684		753	1.10	4.70	19.0	80.8
26	U11	F82H				Alexandre	Osiris	313	2.00	1.41		25			685		0.04	5.7	76
25	U10	F82H				Alexandre	Osiris	325	0.80	0.89		25	663		700	1.06	4.73	17.8	76
26	U8	F82H				Alexandre	Osiris	325	3.40	1.84		30	847		852	1.01	0.38	9.8	71
24		F82H		S62-01			JRR-2/JMTR	520	0.10	0.32	1.00E-04	25	611		724	1.18	5.00	22.3	80.3
24		F82H		S62-01			JRR-2/JMTR	520	0.10	0.32	1.00E-04	25	596		708	1.19	4.80	19.8	79.8
24		F82H		S62-01			JRR-2/JMTR	580	0.08	0.28	1.00E-04	25	566		660	1.17	4.10	16.0	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	0.28	1.00E-04	25	578		666	1.15	3.90	16.0	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	0.28	1.00E-04	25	562		660	1.17	4.10	16.0	
10	E520	JLF-1			Plate 15 mm	ILAS-4	HFR	300	2.64	1.62	5.00E-04	27	628	135.4	702	1.12	3	14.7	77.4
10	E533	JLF-1B			Plate	ILAS-4	HFR	300	2.68	1.64	5.00E-04	27	688	195.4	742	1.08	2.2	12.7	74.2
43,44		JLF-1				RB-11J	HFIR	300	5.00	2.24	1.10E-03	25	839	345.5	858	1.02	0.80	9.3	
20	J1	Manet II				Alexandre	Osiris	313	0.80	0.89		25	961		982	1.02	4.49	14.27	
10	E506	ORNL-3791			Plate	ILAS-4	HFR	300	3.06	1.75	5.00E-04	27	982	182.5	1018	1.04	1.90	9.3	68.4
43,44		9Cr2WVTa		ORNL3791		RB-11J	HFIR	300	5.00		1.11E-03	25	1040	1040	0.0	0.00	7.1		
43,44		9Cr2WVTa		ORNL3791		RB-11J	HFIR	500	5.00		1.10E-03	25	569			0.00			
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	390	10.00	3.16	4.20E-04	22	881		933	1.06	3.60	7.0	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	500	10.00	3.16	4.20E-04	22	558		712	1.28	7.90	12.4	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	550	10.00	3.16	4.20E-04	22	544		697	1.28	6.10	10.0	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION					TEST CONDITIONS		TEST RESULTS					
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	sqrt(dose)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
		EU97				**REFERENCE CONDITION**			0.00	0.00		50	525.9	0	639.4	1.22	5.9	20.6	79.2
9	I29T09_E15	EU97		PSI			PIREX	50	0.22	0.46		50	711	185.1	766	1.08	1.40		
9	I29T01_E1	EU97		PSI			PIREX	50	0.62	0.79		50	617	91.1	714	1.16	1.27		
9	I29T02_E4	EU97		PSI			PIREX	50	0.62	0.79		50	717	191.1	762	1.06	2.50		
9	I29T01_2	EU97		PSI			PIREX	50	0.62	0.79		50	636	110.1	749	1.18	1.40		
9	I29T18	EU97		PSI			PIREX	50	1.27	1.13		50	739	213.1	772	1.04	1.10		
9	I29T17	EU97		PSI			PIREX	50	1.27	1.13		50	750	224.1	823	1.10	1.75		
2	B603	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.20	1.48	5.00E-04	50	846	320.1	849	1.00	0.30	14.7	82
2	B597	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.30	1.52	5.00E-04	50	848	322.1	848	1.00	0.20	14.7	84
2	B885	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.50	1.58	5.00E-04	50	831	305.1	832	1.00	0.20	14.8	82
2	B902	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.30	1.52	5.00E-04	50	814	288.1	815	1.00	0.10	13.1	72
2	C295	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.60	1.61	5.00E-04	50	894	368.1	894	1.00	0.20	12.7	75
2	B590	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.90	2.98	5.00E-04	50	1066	540.1	1066	1.00	0.20	11.3	70
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T2	HFIR	50	3.20		4.50E-04	50	950		978	1.03	0.80	4.9	
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T2	HFIR	50	4.70		4.50E-04	50	976		1004	1.03	0.80	5.1	
13		12Cr1MoVW		91354	rod 6.35 mm	CTR-RB1	HFIR	50	5.50		4.50E-04	50	986		998	1.01	0.40	2.0	
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-33	HFIR	50	9.30		4.50E-04	50	1027		1047	1.02	0.60	6.5	
13		12Cr1MoVW		91354	Sheet 0.76 mm	CTR-33	HFIR	50	9.30		4.50E-04	50	983		987	1.00	0.30	2.1	
13		12Cr1MoVW		XAA-3587	rod 6.35 mm	CTR-RB2	HFIR	50	10.30		4.50E-04	50	980		992	1.01	0.40	2.9	
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T1	HFIR	50	15.10		4.50E-04	50	1041		1060	1.02	0.60	6.4	
13		12Cr1MoVW		XAA-3587	Sheet 0.76 mm	CTR-T1	HFIR	50	22.40		4.50E-04	50	1049		1082	1.03	0.60	6.5	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T2	HFIR	50	4.20		4.50E-04	50	1064		1098	1.03	0.90	3.5	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T2	HFIR	50	5.10		4.50E-04	50	1033		1087	1.05	1.00	2.8	
13		12Cr1MoVW1Ni		XAA-3588	rod 6.35 mm	CTR-RB2	HFIR	50	9.00		4.50E-04	50	978		1001	1.02	0.60	2.6	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-33	HFIR	50	9.30		4.50E-04	50	1115		1134	1.02	0.60	3.0	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T1	HFIR	50	18.40		4.50E-04	50	1152		1194	1.04	0.60	5.0	
13		12Cr1MoVW1Ni		XAA-3588	Sheet 0.76 mm	CTR-T1	HFIR	50	23.70		4.50E-04	50	1147		1180	1.03	0.60	5.1	
13		12Cr1MoVW2Ni		XAA-3589	Sheet 0.76 mm	CTR-T2	HFIR	50	5.10		4.50E-04	50	1220		1277	1.05	0.90	2.9	
13		12Cr1MoVW2Ni		XAA-3589	rod 6.35 mm	CTR-RB2	HFIR	50	9.10		4.50E-04	50	1227		1249	1.02	0.50	2.2	
13		12Cr1MoVW2Ni		XAA-3589	Sheet 0.76 mm	CTR-33	HFIR	50	9.30		4.50E-04	50	1264		1298	1.03	0.80	2.5	
13		12Cr1MoVW2Ni		XAA-3589	Sheet 0.76 mm	CTR-T1	HFIR	50	24.10		4.50E-04	50	1338		1400	1.05	1.00	6.1	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T2	HFIR	50	4.30		4.50E-04	50	907		921	1.02	0.60	4.0	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T2	HFIR	50	4.70		4.50E-04	50	932		935	1.00	0.30	2.8	
13		9Cr1MoVNb		30176	rod 6.35 mm	CTR-RB1	HFIR	50	5.30		4.50E-04	50	879		881	1.00	0.30	2.0	
13		9Cr1MoVNb		XA-3590	rod 6.35 mm	CTR-RB2	HFIR	50	7.10		4.50E-04	50	990		990	1.00	0.30	2.4	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-33	HFIR	50	9.30		4.50E-04	50	878		878	1.00	0.20	3.2	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T1	HFIR	50	20.20		4.50E-04	50	1009		1022	1.01	0.40	5.4	
13		9Cr1MoVNb		XA-3590	Sheet 0.76 mm	CTR-T1	HFIR	50	22.30		4.50E-04	50	1010		1014	1.00	0.40	5.5	
13		9Cr1MoVNb2Ni		XA-3591	Sheet 0.76 mm	CTR-T2	HFIR	50	4.50		4.50E-04	50	1230		1264	1.03	0.60	2.8	
13		9Cr1MoVNb2Ni		XA-3591	rod 6.35 mm	CTR-RB2	HFIR	50	5.00		4.50E-04	50	1255		1258	1.00	0.30	1.5	
13		9Cr1MoVNb2Ni		XA-3591	Sheet 0.76 mm	CTR-33	HFIR	50	9.30		4.50E-04	50	1289		1297	1.01	0.40	1.6	
13		9Cr1MoVNb2Ni		XA-3591	Sheet 0.76 mm	CTR-T1	HFIR	50	21.10		4.50E-04	50	1357		1383	1.02	0.40	6.3	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION					TEST CONDITIO		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	sqrt(dose)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
		EU97				**REFERENCE CONDITION**			0.00	0.00		100	517.9	0	616.4	1.19	5.1	19.6	80.3
2	B598	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.10	1.45	5.00E-04	100	781	263.1	783	1.00	0.30	14.2	84
2	B886	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.30	1.52	5.00E-04	100	781	263.1	786	1.01	0.30	14.7	
2	B903	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.10	1.45	5.00E-04	100	799	281.1	799	1.00	0.20	12.9	75
2	C275	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.40	1.55	5.00E-04	100	832	314.1	835	1.00	0.20	12.6	74
2	C296	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.40	1.55	5.00E-04	100	879	361.1	879	1.00	0.10	12.5	71
2	B593	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.20	2.86	5.00E-04	100	1029	511.1	1029	1.00	0.10	11.2	75

REFERENCE	Specimen id.:	MAT (Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	X	EU97		E83699	B100	IRF II	BR2	300	0.16		150	600	87.0	655	1.09	4.95	16.0	80
1,11	B	EU97		E83699	B100	IRF I	BR2	300	0.33		150	610	97.0	656	1.08	4.55	17.0	80
1,11	Y	EU97		E83699	B100	IRF II	BR2	300	0.33		150	610	97.0	656	1.08	3.30	17.0	80
1,11	H	EU97		E83699	B100	IRF I	BR2	300	0.39		150	619	106.0	654	1.06	4.25	16.0	81
1,11	E1	EU97		E83699	B100	IRF III	BR2	300	0.89		150	714	201.0	716	1.00	0.12	11.0	81
1,11	F1	EU97		E83699	B100	IRF III	BR2	300	1.17		150	748	235.0	750	1.00	0.16	10.0	81
10	7161	F82H		9741	7,5mmP6-14	SIWAS-6	HFR	80	1.67	5.00E-04	150	722	233.5	722	1.00	0.20	12.4	87
10	7164	F82H		9741	7,5mmP6-14	SIWAS-6	HFR	80	1.95	5.00E-04	150	726	237.5	726	1.00	0.20	12.6	87

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B599	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	200	707	201.0	709	1.00	0.30	14.3	84
2	C297	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.50	5.00E-04	200	812	306.0	812	1.00	0.20	12.2	69
2	B592	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.40	5.00E-04	200	937	431.0	937	1.00	0.10	10.9	74
10	7202	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.70	5.00E-04	200	698	224.2	709	1.02	0.60	9.5	76
10	7177	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.71	5.00E-04	200	653	179.2	680	1.04	1.20	10.4	80
10	E515	JLF-1			Plate 15 mm	ILAS-4	HFR	300	2.84	5.00E-04	200	580	146.2	620	1.07	1.4	12.8	78.8
10	E528	JLF-1B			Plate	ILAS-4	HFR	300	2.87	5.00E-04	200	627	193.2	654	1.04	1.1	10.7	80.6
10	E501	ORNL-3791			Plate	ILAS-4	HFR	300	3.26	5.00E-04	200	911	167.3	942	1.03	1.10	9.1	68.4

REFERENCE	Specimen id.:	MAT (Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
1,11	A	EU97		E83699	B100	IRF I	BR2	300	0.27		225	579	78.1	610	1.05	2.39	14.0	81
1,11	G	EU97		E83699	B100	IRF I	BR2	300	0.40		225	585	84.1	620	1.06	2.62	14.0	81
1,11	B1	EU97		E83699	B100	IRF II	BR2	300	0.75		225	681	180.1	681	1.00	0.22	11.0	79
1,11	C1	EU97		E83699	B100	IRF II	BR2	300	0.89		225	691	190.1	691	1.00	0.22	10.0	75

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
9	129T12	EU97		PSI			PIREX	250	0.24		250	515	20.3	592	1.15	4.30		
9	I29T13	EU97		PSI			PIREX	250	0.24		250	552	57.3	588	1.07	3.90		
9	I29T04	EU97		PSI			PIREX	250	0.63		250	614	119.3	661	1.08	1.80		
9	I29T20	EU97		PSI			PIREX	250	1.36		250	570	75.3	638	1.12	1.00		
41	B774	EU97		E83698	P14	SUMO-09	HFR	250	1.64	5.00E-04	250	636	141.3	636	1.00	0.10	10.2	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		250	922	427.3	923.5	1.00	0.24	10.22	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		250	922	427.3	928.6	1.01	0.28	9.82	
46	E1-15-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20		250	1012	517.3	1012	1.00	0.22	14.1	
4	31	F82H		Pre-IEA	P	Teseo	HFR	250	0.80	1.60E-04	250	625		632	1.01	0.50	11.9	80
4	32	F82H		Pre-IEA	P	Teseo	HFR	250	0.80	1.60E-04	250	627		630	1.00	0.50	11.7	79
46	F10-t	F82H	mod	9741		ARBOR-1	BOR-60	336	30.20		250	959	487.8	966	1.01	0.44	13.2	
5	81	JLF1				Phase Ib	HFR	250	2.40	1.60E-04	250	608	183.4	628	1.03	2.50	13.5	79
5	82	JLF1				Phase Ib	HFR	250	2.40	1.60E-04	250	610	185.4	621	1.02	1.80	13.1	79
4	52	OPTIV			P	Teseo	HFR	250	0.80	1.60E-04	250	632	184.9	636	1.01	0.80	11.1	74
5	U1	OPTIV			P	Phase Ia	HFR	250	2.40	1.60E-04	250	734	286.9	737	1.00	0.27	9.9	77
5	U2	OPTIV			P	Phase Ia	HFR	250	2.40	1.60E-04	250	714	266.9	714	1.00	0.23	9.8	61

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION					TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Sqrt(dose)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
		EU97				**REFERENCE CONDITION**			0.00	0.00		300	478.6	0	548.7	1.15	2.7	17.4	78.8
2	B888	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.10	1.45	5.00E-04	300	614	135.4	618	1.01	0.30	14.6	84
2	B600	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	1.58	5.00E-04	300	618	139.4	621	1.00	0.20	14.4	89
2	H867	EU97	3/7 4/14	E83698	P14	STROBO-01	HFR	300	0.22	0.47	5.00E-04	300	532	53.4	560	1.05	1.20		82
2	H861	EU97	3/7 4/14	E83698	P14	STROBO-01	HFR	300	0.26	0.51	5.00E-04	300	543	64.4	577	1.06	2.10		86
2	H865	EU97	3/7 4/14	E83698	P14	STROBO-01	HFR	300	0.28	0.53	5.00E-04	300	521	42.4	543	1.04	0.60		80
1,11	K	EU97		E83699	B100	IRF I	BR2	300	0.30	0.55		300	562	83.4	597	1.06	2.36	13.0	81
1,11	E	EU97		E83699	B100	IRF I	BR2	300	0.40	0.63		300	569	90.4	593	1.04	1.43	13.0	81
1,11	Z	EU97		E83699	B100	IRF II	BR2	300	0.47	0.69		300	617	138.4	627	1.02	1.67	11.0	76
2	H862	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.54	0.73	5.00E-04	300	589	110.4	594	1.01	0.50		81
2	H866	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.57	0.75	5.00E-04	300	560	81.4	572	1.02	0.40		83
1,11	A1	EU97		E83699	B100	IRF II	BR2	300	0.61	0.78		300	642	163.4	643	1.00	0.54	11.0	76
2	H868	EU97	3/7 4/14	E83698	P14	STROBO-02	HFR	300	0.61	0.78	5.00E-04	300	577	98.4	589	1.02	0.50		78
1,11	Q	EU97		E83699	B100	IRF III	BR2	300	0.66	0.81		300	626	147.4	629	1.00	0.68	10.0	82
1,11	G1	EU97		E83699	B100	IRF III	BR2	300	1.45	1.20		300	720	241.4	724	1.01	0.11	9.0	82
41	B776	EU97		E83698	P14	SUMO-09	HFR	300	1.59	1.26	5.00E-04	300	701	222.4	710	1.01	0.30	10.0	
2	B901	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	1.80	1.34	5.00E-04	300	720	241.4	723	1.00	0.20	12.1	70
1,11	I1	EU97		E83699	B100	IRF III	BR2	300	2.01	1.42		300	739	260.4	747	1.01	0.11	9.0	77
2	C301	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.10	1.45	5.00E-04	300	764	285.4	764	1.00	0.10	12.1	72
2	C277	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	1.52	5.00E-04	300	746	267.4	746	1.00	0.20	11.7	74
2	B907	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.40	1.55	5.00E-04	300	735	256.4	737	1.00	0.20	11.9	74
2	B617	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.50	1.58	5.00E-04	300	769	290.4	770	1.00	0.10	11.7	78
2	B595	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	7.30	2.70	5.00E-04	300	883	404.4	883	1.00	0.10	10.8	71
2	B588	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	9.20	3.03	5.00E-04	300	914	435.4	914	1.00	0.20	10.6	72
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		300	894	415.4	911	1.02	0.32	9.75	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00	3.87		300	880	401.4	894	1.02	0.30	9.47	
46	E1-16-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20	5.50		300	973	494.4	973	1.00	0.21	13.8	
45	EU2T05	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	300	700	234.0	700	1.00	0.10	10.9	78.8
45	EU2T15	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	300	683	216.8	683	1.00	0.15	11.1	79.0
45	EU2T18	EU97-2	2nd batch	993394P	P8	IRFUMA-5M	BR2	300	1.32	1.15	1.00E-04	300	688	222.5	688	1.00	0.10	10.8	85.3
24		F82H		S62-01			JRR-2/JMTR	300	0.08		1.00E-04	300	582		622	1.07	2.50	14.5	78.9
24		F82H		S62-01			JRR-2/JMTR	300	0.08		1.00E-04	300	589		627	1.06	2.50	14.6	78.9
43,44	A024	F82H	mod	IEA		RB-11J	HFIR	307	4.90	2.21	1.10E-03	300	762	297.2	770	1.01	0.32	7.3	
24		F82H		S62-01			JRR-2/JMTR	520	0.10		1.00E-04	300	538		608	1.13	2.60	15.0	80
4	33	F82H		Pre-IEA	P	Teseo	HFR	300	0.80		1.60E-04	300	658		661	1.00	0.30	10.8	82
4	34	F82H		Pre-IEA	P	Teseo	HFR	300	0.80		1.60E-04	300	646		649	1.00	0.40	11.1	82
10	7166	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.37		5.00E-04	300	653	188.2	662	1.01	0.50		
10	7211	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.51		5.00E-04	300	590	125.2	618	1.05	0.90	10.1	76
10	7197	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.84		5.00E-04	300	629	164.2	644	1.02	0.70	9.1	71
10	7181	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.96		5.00E-04	300	604	139.2	629	1.04	1.00	10.5	77
10	7179	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.00		5.00E-04	300	618	153.2	640	1.04	1.10	10.0	74
10	7191	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.09		5.00E-04	300	647	182.2	662	1.02	0.80	9.4	73
46	F11-t	F82H		9741		ARBOR-1	BOR-60	336	30.20	5.50		300	935	470.2	940	1.01	0.33	11.8	
5	83	JLF1				Phase Ib	HFR	300	2.40		1.60E-04	300	652	233.1	652	1.00	0.26	8.9	70
5	84	JLF1				Phase Ib	HFR	300	2.40		1.60E-04	300	659	240.1	665	1.01	0.36	8.7	70
10	E523	JLF-1			Plate 15 mm	ILAS-4	HFR	300	2.47		5.00E-04	300	540	121.1	579	1.07	1.4	11.5	76.7
10	E518	JLF-1			Plate 15 mm	ILAS-4	HFR	300	3.05		5.00E-04	300	558	139.1	593	1.06	1.2	11.1	73.2
10	E534	JLF-1B			Plate	ILAS-4	HFR	300	2.50		5.00E-04	300	585	166.1	612	1.05	0.8	10.4	72.7
10	E531	JLF-1B			Plate	ILAS-4	HFR	300	3.08		5.00E-04	300	577	158.1	614	1.06	1.4	10.6	73.7
43,44		JLF-1				RB-11J	HFIR	300	5.00	2.24	1.10E-03	300	755	336.1	774	1.03	0.50	6.7	
4	53	OPTIV			P	Teseo	HFR	300	0.80		1.60E-04	300	633	197.7	633	1.00	0.20	10.5	76
4	54	OPTIV			P	Teseo	HFR	300	0.80		1.60E-04	300	653	217.7	655	1.00	0.30	11.5	76
5	U3	OPTIV			P	Phase Ia	HFR	300	2.40		1.60E-04	300	711	275.7	716	1.01	0.30	7.8	52
5	U4	OPTIV			P	Phase Ia	HFR	300	2.40		1.60E-04	300	765	329.7	765	1.00	0.23	7.4	54
10	E508	ORNL-3791			Plate	ILAS-4	HFR	300	2.89		5.00E-04	300	867	155.5	893	1.03	0.90	8.6	67.5
10	E504	ORNL-3791			Plate	ILAS-4	HFR	300	3.47		5.00E-04	300	880	168.5	909	1.03	0.90	7.9	63.4
43,44		9Cr2WVTa		ORNL3791		RB-11J	HFIR	300	5.00		1.11E-03	300	918		918	1.00	6.3		

REFERENCE	Specimen id.:	MAT	(Capitals)			IRRADIATION					TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Sqrt (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.MPa. (Mpa)	Irradiation hardening (MPa)	Tensile strength (Mpa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
3	K10D	EU97	66/5	E83698	P8	Altair	BOR-60	325	42.30	6.50	1.40E-03	325	976	507.0	993	1.02	0.40	6.2	58
25	U7	F82H				Alexandre	Osiris	313	0.80			325	573		588	1.03	1.99	13.4	
25	U4	F82H				Alexandre	Osiris	325	0.80			325	576		593	1.03	1.82	13.5	78
26	U5	F82H				Alexandre	Osiris	313	2.00			325	672		672	1.00	0.26	8.3	62
10	8844	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.06		5.00E-04	325	722	261.1	727	1.01	0.2	9.2	77
10	8837	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.48		5.00E-04	325	801	340.1	801	1.00	0.2	10.1	78
26	U2	F82H				Alexandre	Osiris	325	3.40			325	734		734	1.00	0.20	6.2	59
20	J4	Manet II				Alexandre	Osiris	325	0.80			325			834		0.04	7.6	28
21	J5	Manet II				Alexandre	Osiris	313	2.00			325			797		0.02	0.75	43
21	J2	Manet II				Alexandre	Osiris	325	3.40			325	990		1005	1.02	0.75	5.5	36

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
9	I29T15	EU97		PSI			PIREX	350	0.16		350	470	11.3	557	1.19	6.50		
9	I29T16	EU97		PSI			PIREX	350	0.16		350	475	16.3	555	1.17	8.20		
9	I29T06E8	EU97		PSI			PIREX	350	0.68		350	475	16.3	529	1.11	2.60		
9	I29T7	EU97		PSI			PIREX	350	0.68		350	476	17.3	549	1.15	3.50		
41	B775	EU97		E83698	P14	SUMO-09	HFR	342.5	2.37	5.00E-04	350	566	107.0	600	1.06	1.99	10.8	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		350	862	403.3	874	1.01	0.30	9.41	
47	EUROF1-s	EU97		E83697	P25	WTZ	BOR-60	330	15.00		350	864	405.3	870	1.01	0.26	9.45	
46	E1-17-t	EU97		E83697	P25	ARBOR-1	BOR-60	336	30.20		350	930	471.3	930	1.00	0.21	13.5	
4	35	F82H		Pre-IEA	P	Teseo	HFR	350	0.80	1.60E-04	350	641		648	1.01	0.70	11.1	76
4	36	F82H		Pre-IEA	P	Teseo	HFR	350	0.80	1.60E-04	350	634		640	1.01	0.70	10.7	77
46	F12-t	F82H	mod	9741		ARBOR-1	BOR-60	336	30.20		350	913	458.6	915	1.00	0.29	6.4	
5	85	JLF1				Phase Ib	HFR	350	2.40	1.60E-04	350	535	118.3	571	1.07	1.60	10.8	74
5	86	JLF1				Phase Ib	HFR	350	2.40	1.60E-04	350	530	113.3	570	1.08	1.50	11.1	73
4	55	OPTIV			P	Teseo	HFR	350	0.80	1.60E-04	350	623	198.4	623	1.00	0.40	10.0	73
4	56	OPTIV			P	Teseo	HFR	350	0.80	1.60E-04	350	583	158.4	587	1.01	0.60	10.8	67
5	U5	OPTIV			P	Phase Ia	HFR	350	2.40	1.60E-04	350	496	71.4	555	1.12	3.40	13.5	61
5	U6	OPTIV			P	Phase Ia	HFR	350	2.40	1.60E-04	350	603	178.4	636	1.05	1.10	8.3	42

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS					
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	6.40	1.00E-03	365	857	890	1.04	1.70	8.0	
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	15.40	1.00E-03	365	866	902	1.04	1.20	7.1	
7	na	12Cr2WV		ORNL	P0,76		FFTF	365	27.20	1.00E-03	365	900	932	1.04	1.30	8.0	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	924	959	1.04	1.30	7.5	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	976	1026	1.05	1.00	7.5	
7	na	2,25Cr1WV		ORNL	P0,76		FFTF	365	25.40	1.00E-03	365	924	963	1.04	1.40	7.7	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	754	799	1.06	2.20	8.8	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	796	830	1.04	1.70	7.5	
7	na	2,25Cr2W		ORNL	P0,76		FFTF	365	28.60	1.00E-03	365	747	787	1.05	2.00	10.0	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	788	810	1.03	1.40	7.8	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	909	939	1.03	1.10	5.3	
7	na	2,25Cr2WV		ORNL	P0,76		FFTF	365	28.60	1.00E-03	365	910	940	1.03	1.20	5.9	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	7.40	1.00E-03	365	950	980	1.03	1.10	6.4	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	16.20	1.00E-03	365	937	968	1.03	0.90	7.0	
7	na	2,25CrV		ORNL	P0,76		FFTF	365	26.00	1.00E-03	365	883	920	1.04	1.20	7.0	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	7.70	1.00E-03	365	729	771	1.06	2.40	9.1	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	16.70	1.00E-03	365	757	793	1.05	1.70	7.8	
7	na	5Cr2WV		ORNL	P0,76		FFTF	365	27.60	1.00E-03	365	739	766	1.04	1.40	11.2	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	7.70	1.00E-03	365	710	764	1.08	3.50	10.2	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	16.70	1.00E-03	365	697	745	1.07	2.30	9.0	
7	na	9Cr2WV		ORNL	P0,76		FFTF	365	26.60	1.00E-03	365	705	756	1.07	2.30	8.7	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	6.40	1.00E-03	365	669	734	1.10	3.90	11.1	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	15.40	1.00E-03	365	699	765	1.09	2.90	9.7	
7	na	9Cr2WVTa		ORNL3791	P0,76		FFTF	365	27.20	1.00E-03	365	710	769	1.08	3.50	12.0	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION					TEST CONDITIONS		TEST RESULTS					
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Sqrt(dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
		EU97				**REFERENCE CONDITION**			0.00	0.00		400	435.9	0	497.0	1.14	2.0	17.9	80.3
2	B889	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.20	1.48	5.00E-04	400	533	97.1	610	1.14	4.30	18.8	84
2	B601	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.40	1.55	5.00E-04	400	543	107.1	601	1.11	4.20	18.4	82
2	C278	EU97	66/3 66/4	E83698	P8	SOSIA-02	HFR	300	2.30	1.52	5.00E-04	400	675	239.1	684	1.01	0.40	11.6	57
2	B905	EU97	66/3 66/4	E83698	P8	SUMO-04	HFR	300	2.30	1.52	5.00E-04	400	691	255.1	691	1.00	0.10	11.7	76
2	C298	EU97	2/10 2/11	E83697	P25	SUMO-04	HFR	300	2.30	1.52	5.00E-04	400	710	274.1	710	1.00	0.10	11.5	66
2	B591	EU97	2/10 2/11	E83697	P25	SUMO-02	HFR	300	8.70	2.95	5.00E-04	400	842	406.1	842	1.00	0.10	10.7	66
4	37	F82H		Pre-IEA	P	Teseo	HFR	400	0.80		1.60E-04	400	515		542	1.05	1.20	12.1	77
4	38	F82H		Pre-IEA	P	Teseo	HFR	400	0.80		1.60E-04	400	508		539	1.06	1.40	12.0	82
10	7205	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.69		5.00E-04	400	594	159.1	614	1.03	0.90	7.4	70
10	7187	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	3.06		5.00E-04	400	577	142.1	598	1.04	0.80	9.8	65
27		F82H		S62-01			JRR-2 and JMTR	400	21.40		1.00E-04	400	524		570	1.09	2.10	11.3	
27		F82H		S62-01			JRR-2 and JMTR	400	31.50		1.00E-04	400	513		580	1.13	3.00	13.3	
5	87	JLF1				Phase Ib	HFR	400	2.40		1.60E-04	400	464	45.9	544	1.17	2.40	9.5	63
5	88	JLF1				Phase Ib	HFR	400	2.40		1.60E-04	400	463	44.9	527	1.14	3.00	10.3	63
10	E517	JLF-1			Plate 15 mm	ILAS-4	HFR	300	3.01		5.00E-04	400	505	86.9	559	1.11	1.5	10	70.3
10	E529	JLF-1B			Plate	ILAS-4	HFR	300	3.05		5.00E-04	400	489	70.9	551	1.13	1.9	11.2	72.7
4	57	OPTIV			P	Teseo	HFR	400	0.80		1.60E-04	400	493	78.2	540	1.10	2.50	12.3	70
4	58	OPTIV			P	Teseo	HFR	400	0.80		1.60E-04	400	499	84.2	539	1.08	1.90	11.5	74
5	U7	OPTIV			P	Phase Ia	HFR	400	2.40		1.60E-04	400	478	63.2	520	1.09	2.60	12.2	61
5	U8	OPTIV			P	Phase Ia	HFR	400	2.40		1.60E-04	400	491	76.2	540	1.10	2.90	13.1	60
10	E502	ORNL-3791			Plate	ILAS-4	HFR	300	3.43		5.00E-04	400	848	168.7	886	1.04	1.00	7.4	55.1
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	390	10.00		4.20E-04	400	781		808	1.03	1.40	4.1	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
4	39	F82H		Pre-IEA	P	Teseo	HFR	450	0.80	1.60E-04	450	466		493	1.06	1.30	13.9	82
4	40	F82H		Pre-IEA	P	Teseo	HFR	450	0.80	1.60E-04	450	463		491	1.06	1.50	14.6	81
5	89	JLF1				Phase Ib	HFR	450	2.40	1.60E-04	450	619	196.1	627	1.01	0.46	8.7	71
5	80	JLF1				Phase Ib	HFR	450	2.40	1.60E-04	450	428	5.1	478	1.12	2.50	13.3	61
4	59	OPTIV			P	Teseo	HFR	450	0.80	1.60E-04	450	429	22.92	476	1.11	3.30	14.9	74
4	61	OPTIV			P	Teseo	HFR	450	0.80	1.60E-04	450	435	28.92	483	1.11	3.50	16.5	68
5	U9	OPTIV			P	Phase Ia	HFR	450	2.40	1.60E-04	450	548	141.92	580	1.06	0.90	8.4	53
5	U0	OPTIV			P	Phase Ia	HFR	450	2.40	1.60E-04	450	457	50.92	510	1.12	3.80	14.5	55
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	450	10.00	4.20E-04	450	480		575	1.20	3.60	6.9	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
2	B890	EU97	66/3 66/4	E83698	P8	SIWAS-09	HFR	60	2.10	5.00E-04	500	438	55.4	506	1.16	3.40	21.1	88
2	B602	EU97	2/10 2/11	E83697	P25	SIWAS-09	HFR	60	2.50	5.00E-04	500	433	50.4	484	1.12	2.40	21.3	87
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	500	461		493	1.07	1.30	19.0	80.3
24		F82H		S62-01			JRR-2/JMTR	520	0.10	1.00E-04	500	461		489	1.06	1.20	18.3	81.9
10	8848	F82H		9753	25mmP31W-20	ILAS-6	HFR	275	2.28	5.00E-04	500	524	157.3	541	1.03	0.5	13	81
10	7206	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.52	5.00E-04	500	473	106.3	485	1.03	0.50	12.4	82
10	7189	F82H		9741		ILAS-4	HFR	300	2.69	5.00E-04	500	462	95.3	467	1.01	0.30	13.9	88.1
10	7194	F82H		9741		ILAS-4	HFR	300	2.72	5.00E-04	500	403	36.3	408	1.01	0.20	14.5	88.1
10	7188	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.89	5.00E-04	500	498	131.3	506	1.02	0.40	11.5	79
27		F82H		S62-01			JRR-2 and JMTR	500	31.50	1.00E-04	500	437		478	1.09	1.80	12.4	
27		F82H		S62-01			JRR-2 and JMTR	500	33.60	1.00E-04	500	411		494	1.20	2.60	13.3	
43,44	A035	F82H	mod	IEA		RB-12J	HFIR	497	4.90	1.00E-03	500	401	34.3	444	1.11	1.92	11.2	
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	500	10.00	4.20E-04	500	445		536	1.20	3.30	6.8	

REFERENCE	Specimen id.:	MAT (Capitals)				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
10	7168	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.17	5.00E-04	550	383	65.9	396	1.03	0.60	15.8	88
10	7198	F82H		9741	7,5mmP6-14	ILAS-4	HFR	300	2.64	5.00E-04	550	396	78.9	405	1.02	0.40	13.8	90
12		9Cr1MoVNb		30182	Sheet 0.76 mm		EBRII	550	10.00	4.20E-04	550	429		495	1.15	3.10	9.9	

REFERENCE	Specimen id.:	MAT				IRRADIATION				TEST CONDITIONS		TEST RESULTS						
		Name	2nd Name	Heat id.	Product form	Name	Reactor	Temperature (°C)	Dose (dpa)	Strain rate (sec-1)	Test temp (°C)	σy 0,2% pl.def. (MPa)	Irradiation hardening (MPa)	Tensile strength (MPa)	Strain hardening capability	ε uniform (%)	ε total (%)	Reduction of area (%)
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	347		351	1.01	0.70	22.3	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	351		355	1.01	0.70	22.5	
24		F82H		S62-01			JRR-2/JMTR	580	0.08	1.00E-04	600	347		349	1.01	0.70	22.0	

ANNEX 6

Tensile properties of F82H in the unirradiated condition

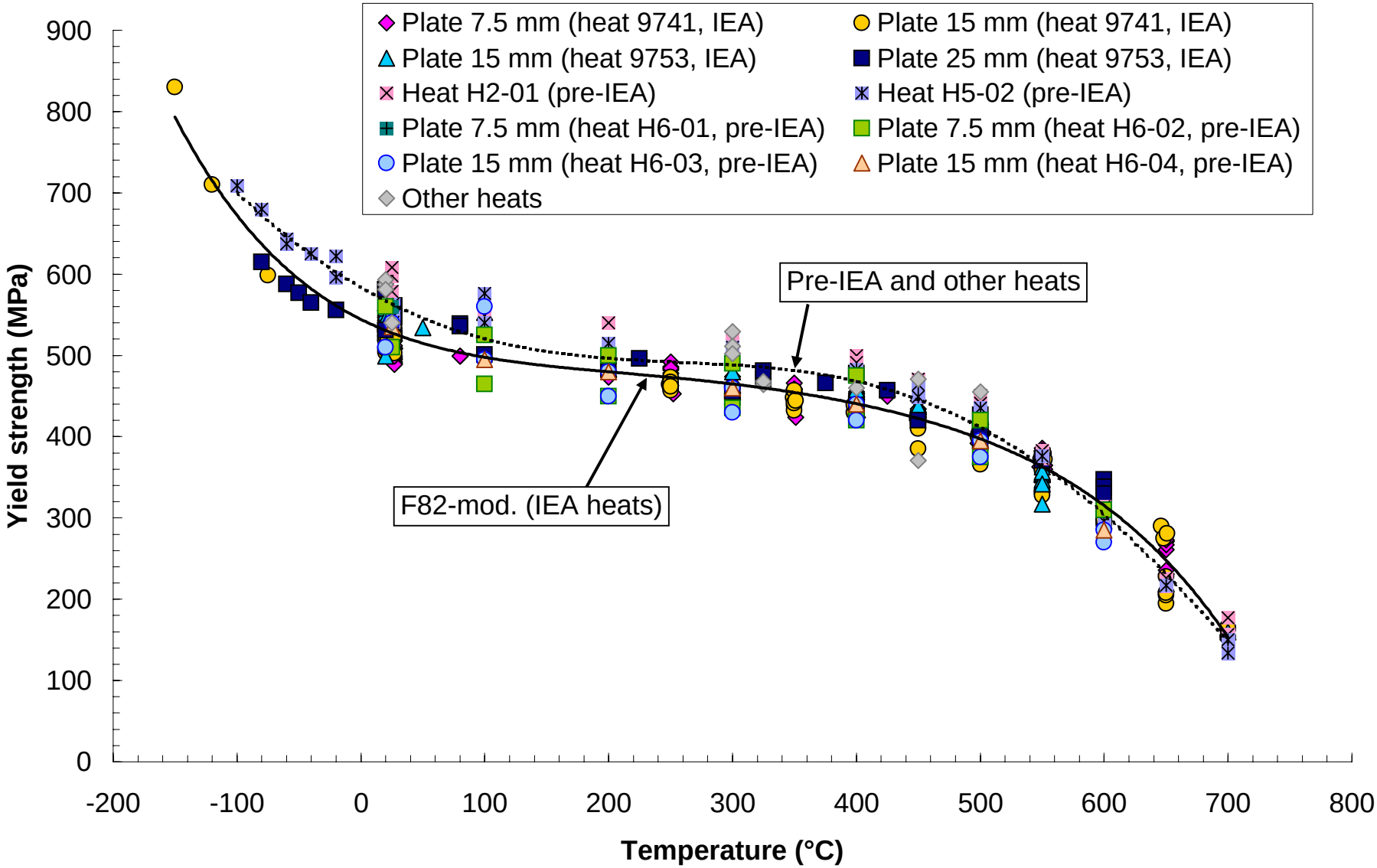


Plate 7.5 mm (heat 9741, IEA)
Plate 15 mm (heat 9741, IEA)
Plate 15 mm (heat 9753, IEA)
Plate 25 mm (heat 9753, IEA)
Heat H2-01 (pre-IEA)
Heat H5-02 (pre-IEA)
Plate 7.5 mm (heat H6-01, pre-IEA)
Plate 7.5 mm (heat H6-02, pre-IEA)
Plate 15 mm (heat H6-03, pre-IEA)
Plate 15 mm (heat H6-04, pre-IEA)
Other heats
Pre-IEA and other heats
F82-mod. (IEA heats)
Yield strength (MPa)
Temperature (°C)
900
800
700
600
500
400
300
200
100
0
-200
-100
0
100
200
300
400
500
600
700
800

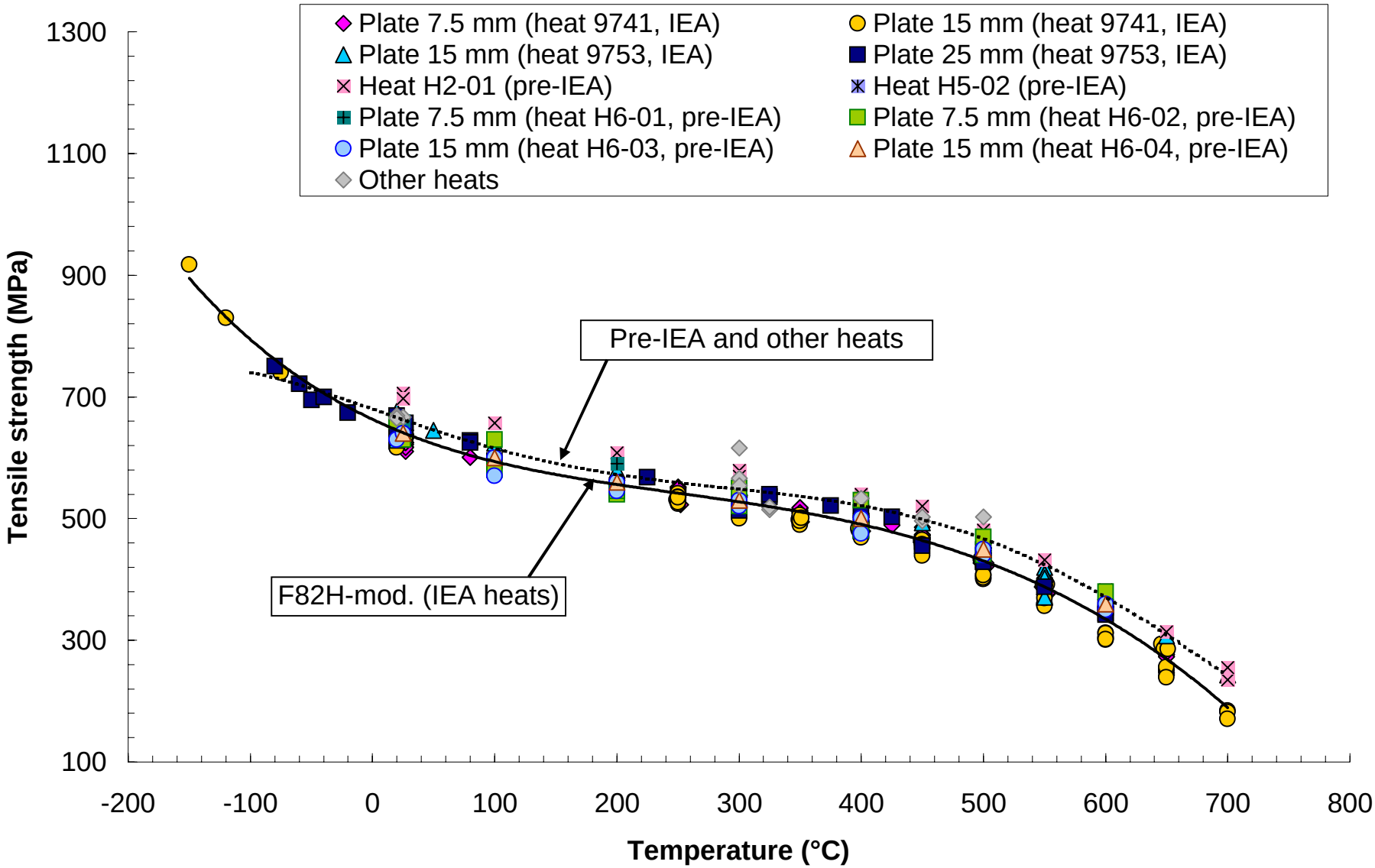


Plate 7.5 mm (heat 9741, IEA)
Plate 15 mm (heat 9741, IEA)
Plate 15 mm (heat 9753, IEA)
Plate 25 mm (heat 9753, IEA)
Heat H2-01 (pre-IEA)
Heat H5-02 (pre-IEA)
Plate 7.5 mm (heat H6-01, pre-IEA)
Plate 7.5 mm (heat H6-02, pre-IEA)
Plate 15 mm (heat H6-03, pre-IEA)
Plate 15 mm (heat H6-04, pre-IEA)
Other heats
Pre-IEA and other heats
F82H-mod. (IEA heats)
Tensile strength (MPa)
Temperature (°C)
1300
1100
900
700
500
300
100
-200
-100
0
100
200
300
400
500
600
700
800

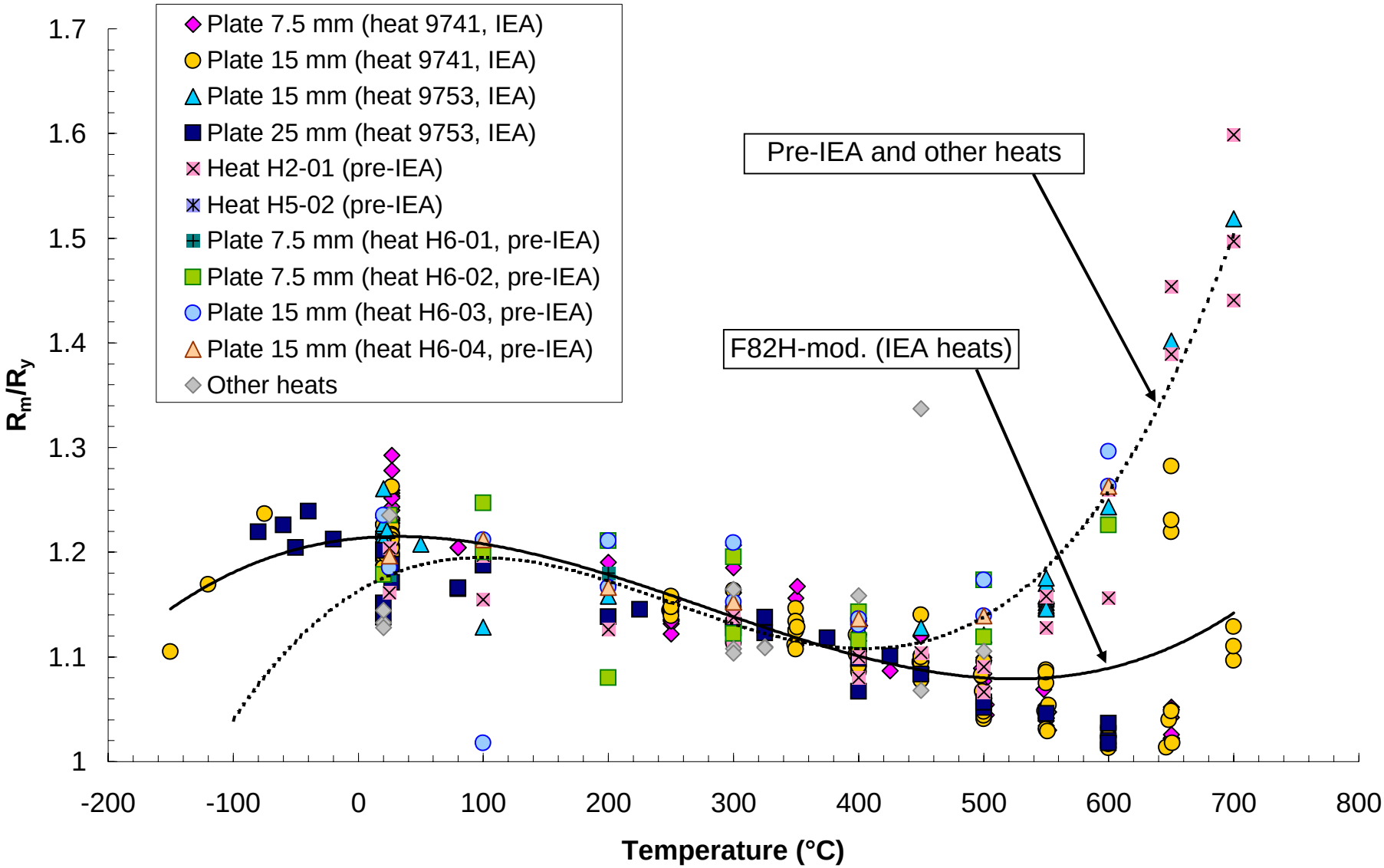


Plate 7.5 mm (heat 9741, IEA)
Plate 15 mm (heat 9741, IEA)
Plate 15 mm (heat 9753, IEA)
Plate 25 mm (heat 9753, IEA)
Heat H2-01 (pre-IEA)
Heat H5-02 (pre-IEA)
Plate 7.5 mm (heat H6-01, pre-IEA)
Plate 7.5 mm (heat H6-02, pre-IEA)
Plate 15 mm (heat H6-03, pre-IEA)
Plate 15 mm (heat H6-04, pre-IEA)
Other heats
Pre-IEA and other heats
F82H-mod. (IEA heats)
R_m/R_y
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
-200
-100
0
100
200
300
400
500
600
700
800
Temperature (°C)

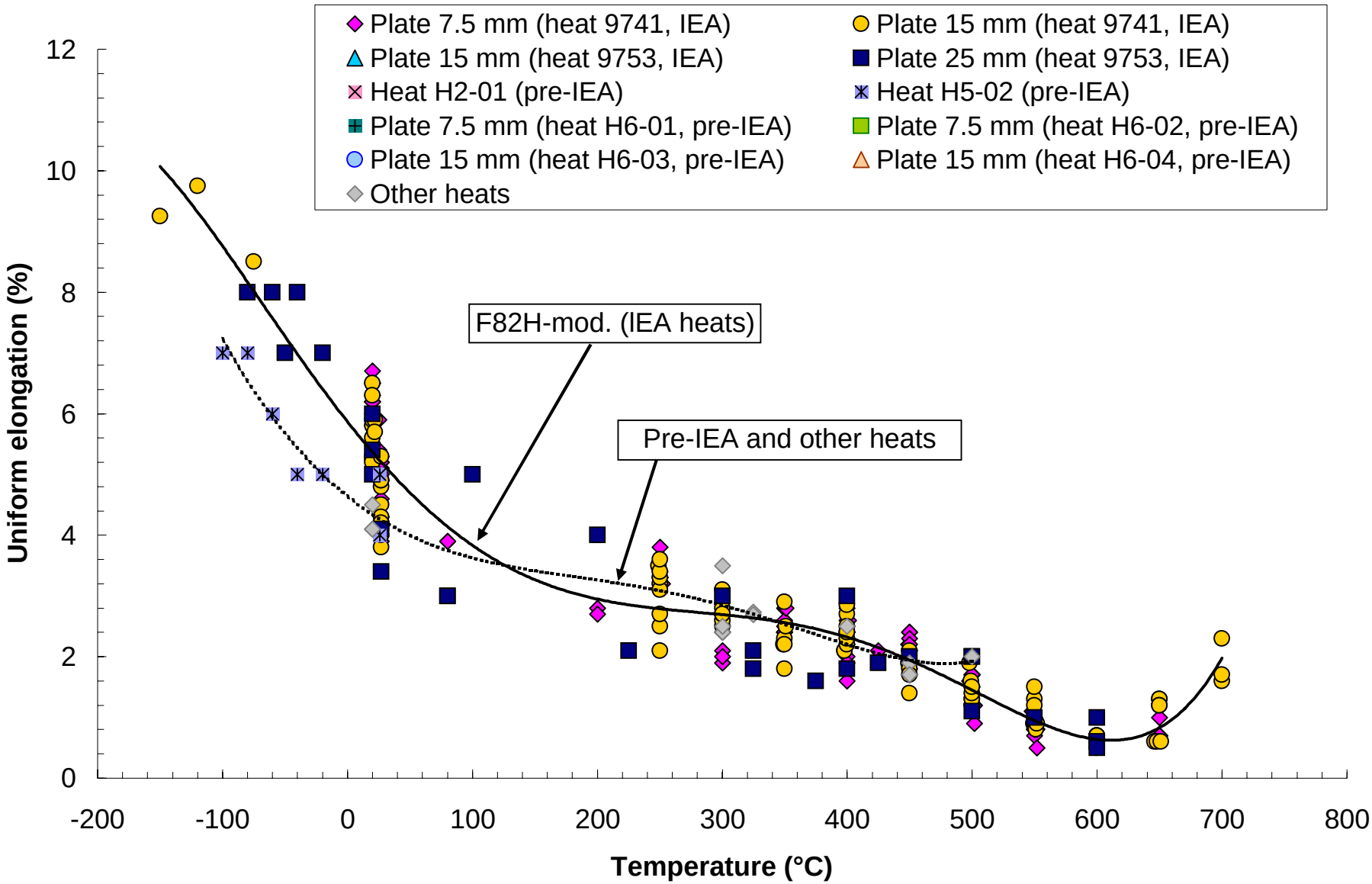


Plate 7.5 mm (heat 9741, IEA)
Plate 15 mm (heat 9741, IEA)
Plate 15 mm (heat 9753, IEA)
Plate 25 mm (heat 9753, IEA)
Heat H2-01 (pre-IEA)
Heat H5-02 (pre-IEA)
Plate 7.5 mm (heat H6-01, pre-IEA)
Plate 7.5 mm (heat H6-02, pre-IEA)
Plate 15 mm (heat H6-03, pre-IEA)
Plate 15 mm (heat H6-04, pre-IEA)
Other heats
F82H-mod. (IEA heats)
Pre-IEA and other heats
Uniform elongation (%)
Temperature (°C)
0
2
4
6
8
10
12
-200
-100
0
100
200
300
400
500
600
700
800

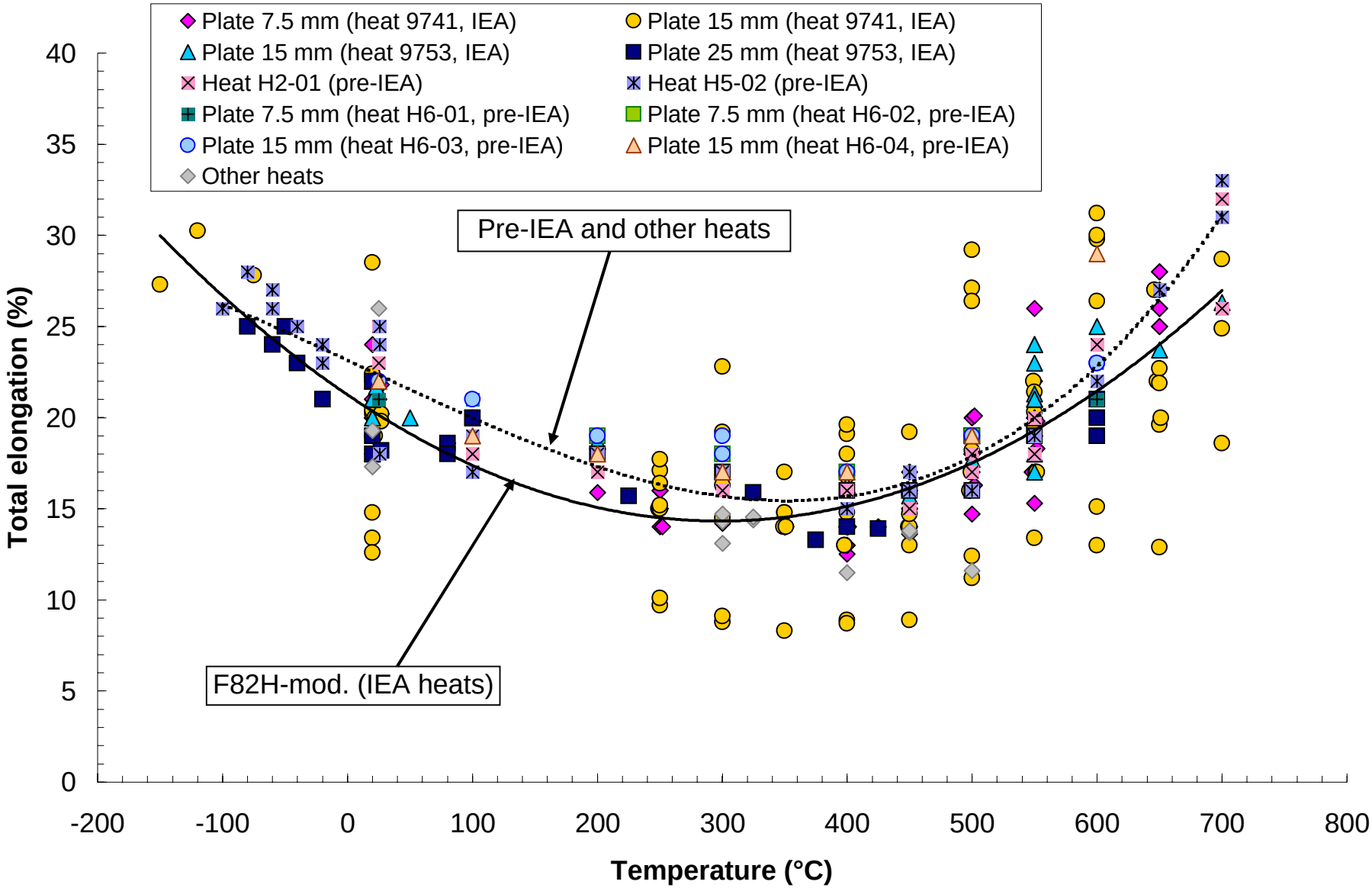
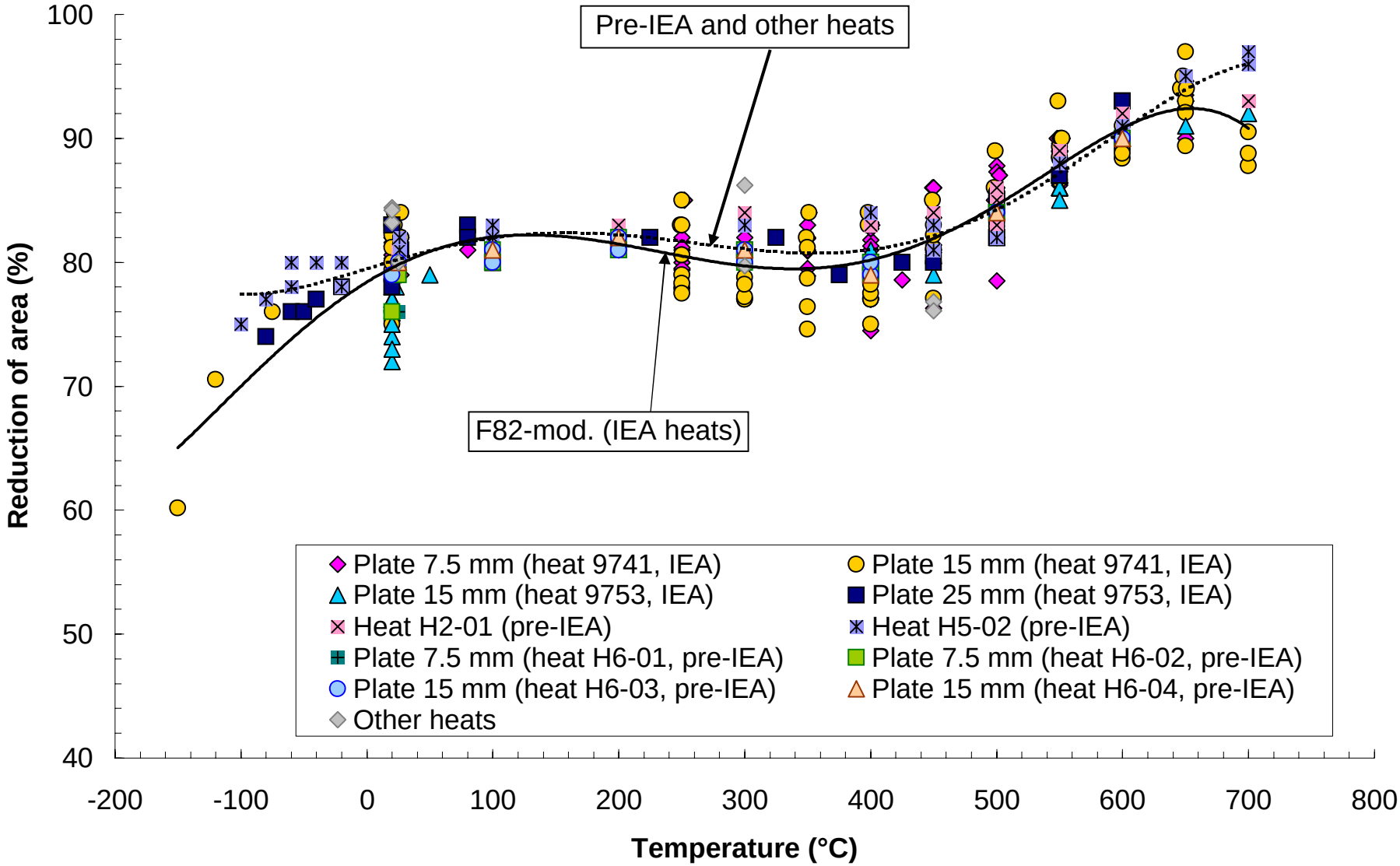
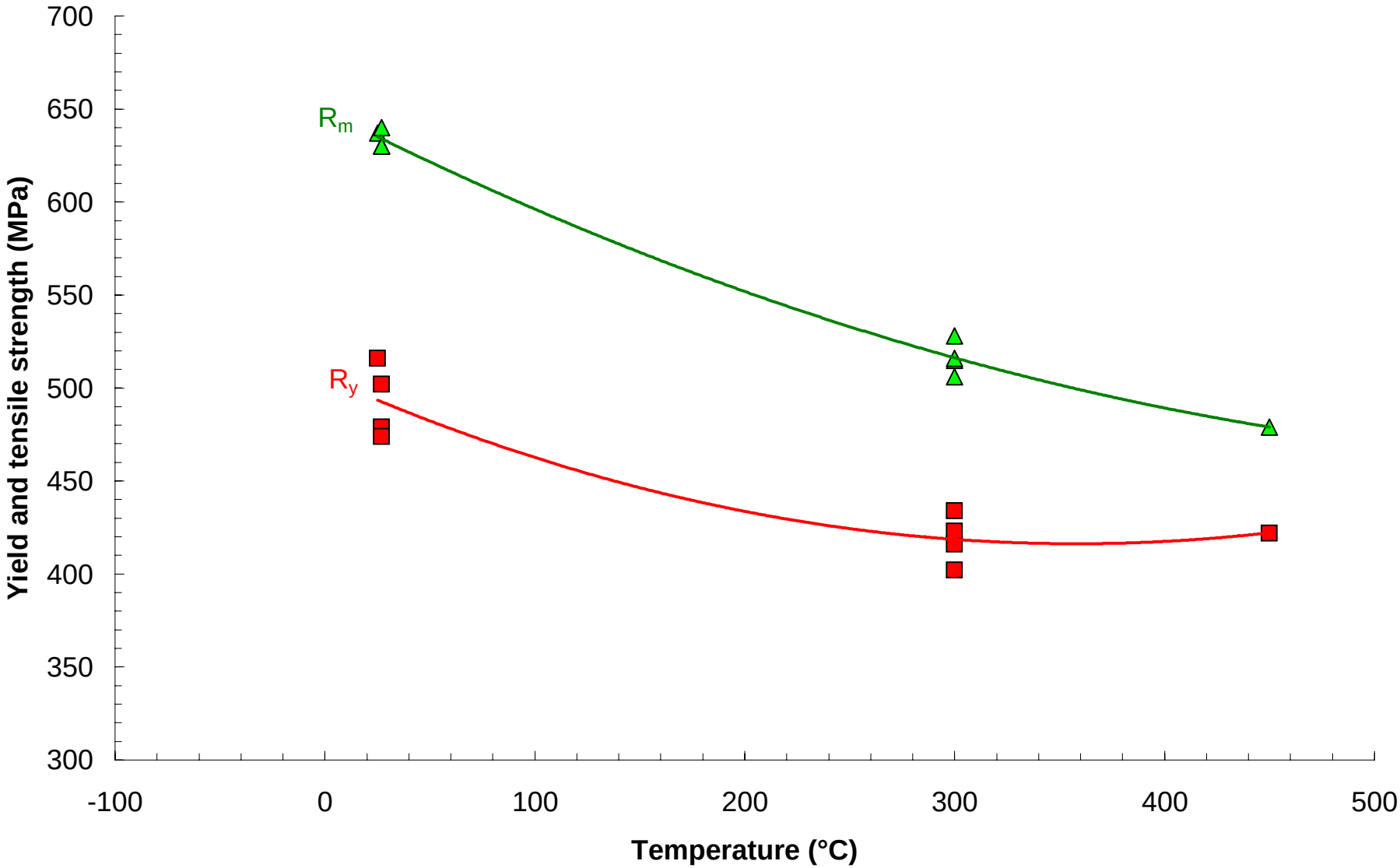


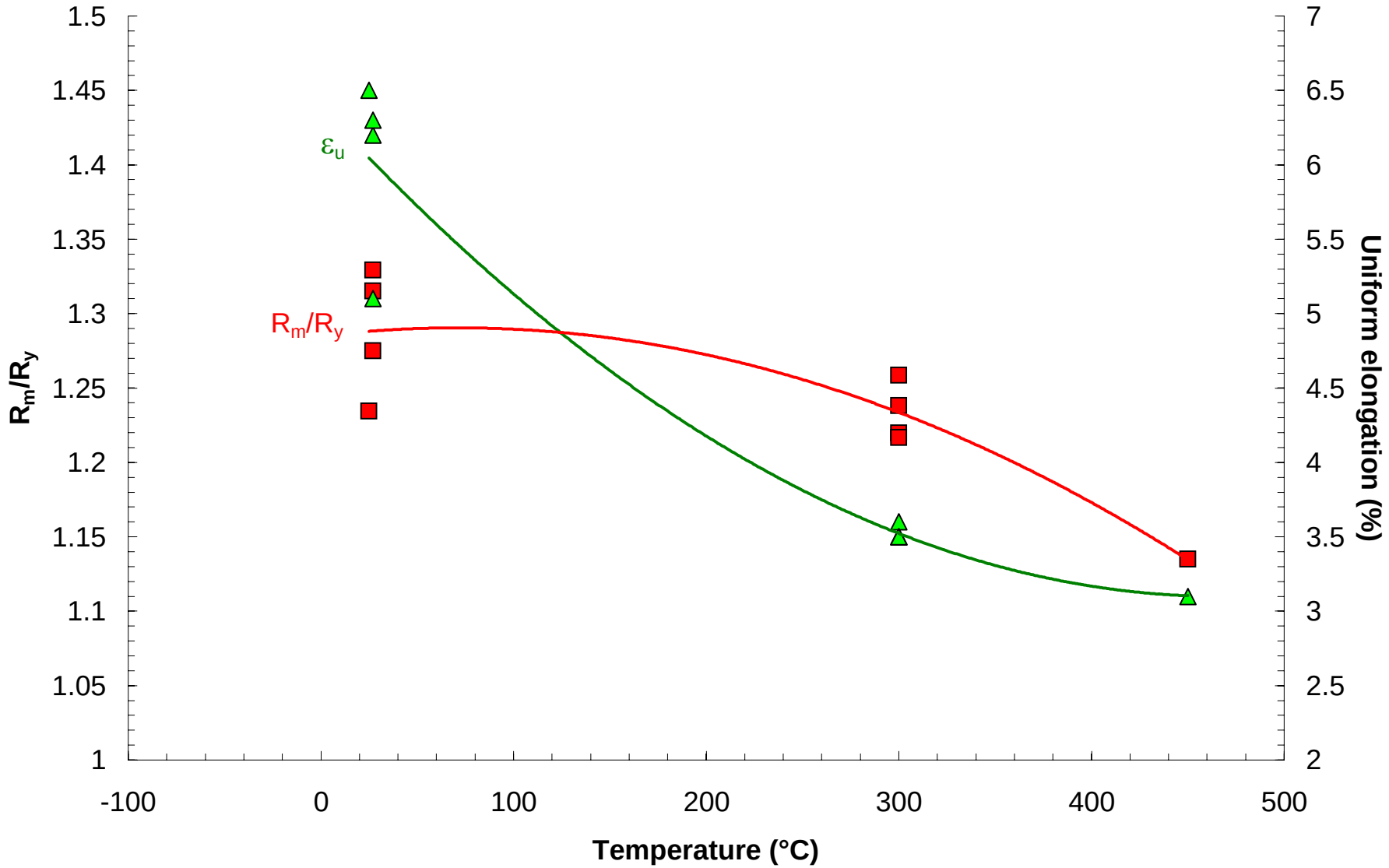
Plate 7.5 mm (heat 9741, IEA)
Plate 15 mm (heat 9741, IEA)
Plate 15 mm (heat 9753, IEA)
Plate 25 mm (heat 9753, IEA)
Heat H2-01 (pre-IEA)
Heat H5-02 (pre-IEA)
Plate 7.5 mm (heat H6-01, pre-IEA)
Plate 7.5 mm (heat H6-02, pre-IEA)
Plate 15 mm (heat H6-03, pre-IEA)
Plate 15 mm (heat H6-04, pre-IEA)
Other heats
Pre-IEA and other heats
F82H-mod. (IEA heats)
Total elongation (%)
Temperature (°C)
0
5
10
15
20
25
30
35
40
-200
-100
0
100
200
300
400
500
600
700
800

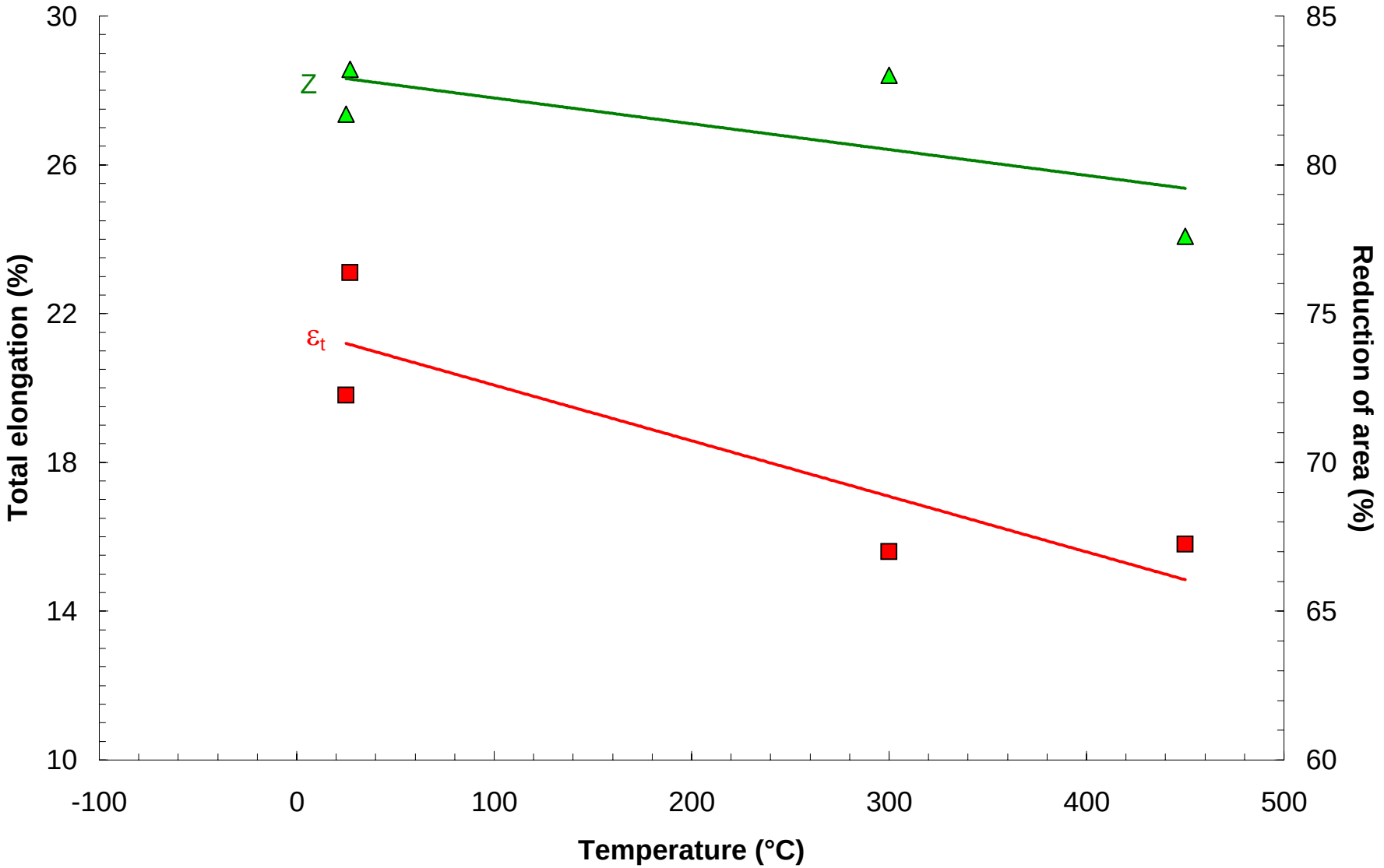

Pre-IEA and other heats
F82-mod. (IEA heats)
Reduction of area (%)
Temperature (°C)
100
90
80
70
60
50
40
-200
-100
0
100
200
300
400
500
600
700
800
Plate 7.5 mm (heat 9741, IEA)
Plate 15 mm (heat 9741, IEA)
Plate 15 mm (heat 9753, IEA)
Plate 25 mm (heat 9753, IEA)
Heat H2-01 (pre-IEA)
Heat H5-02 (pre-IEA)
Plate 7.5 mm (heat H6-01, pre-IEA)
Plate 7.5 mm (heat H6-02, pre-IEA)
Plate 15 mm (heat H6-03, pre-IEA)
Plate 15 mm (heat H6-04, pre-IEA)
Other heats

ANNEX 7

Tensile properties of JFL-1 in the unirradiated condition

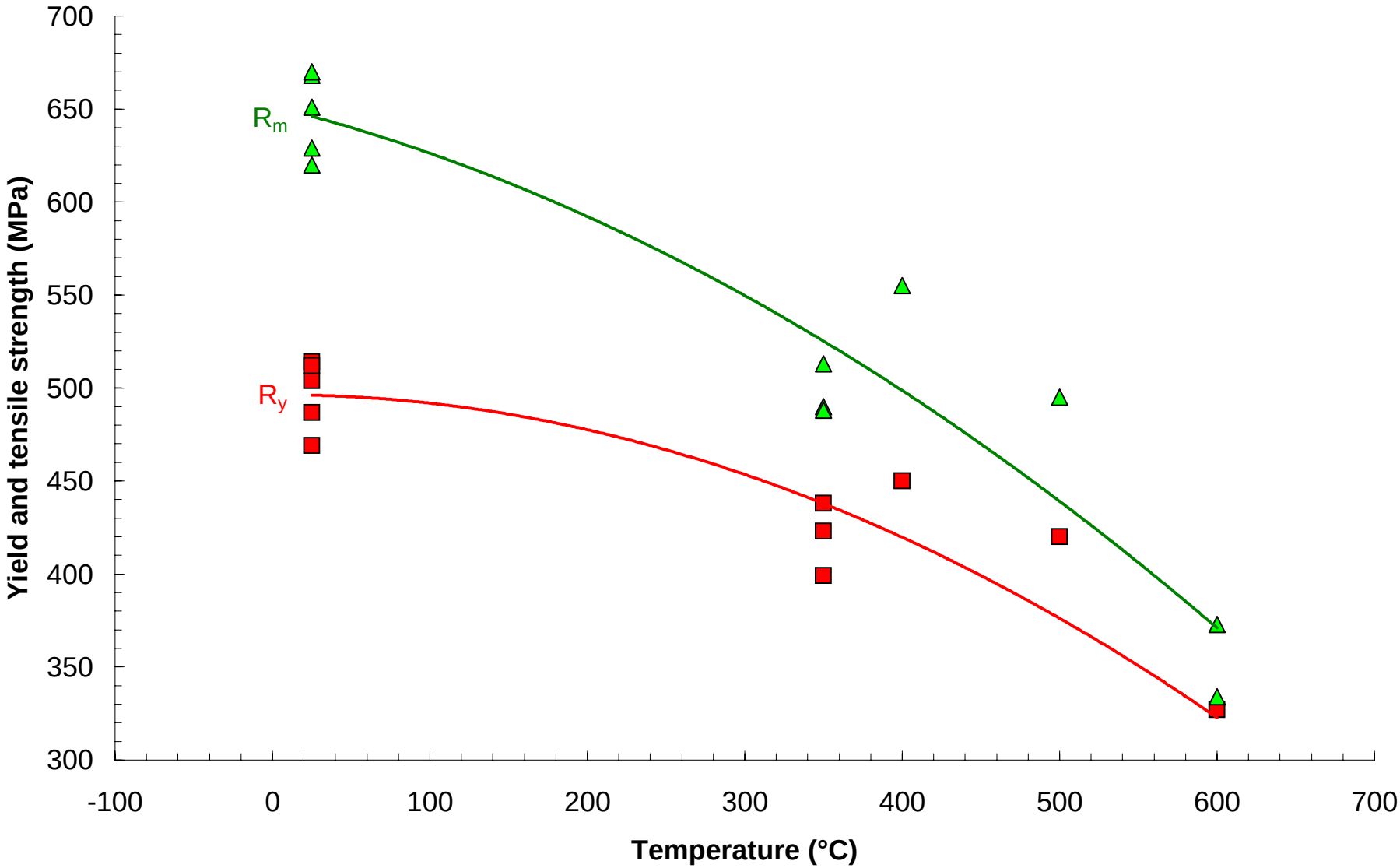

700
650
600
550
500
450
400
350
300
Yield and tensile strength (MPa)
R_m
R_y
-100
0
100
200
300
400
500
Temperature (°C)

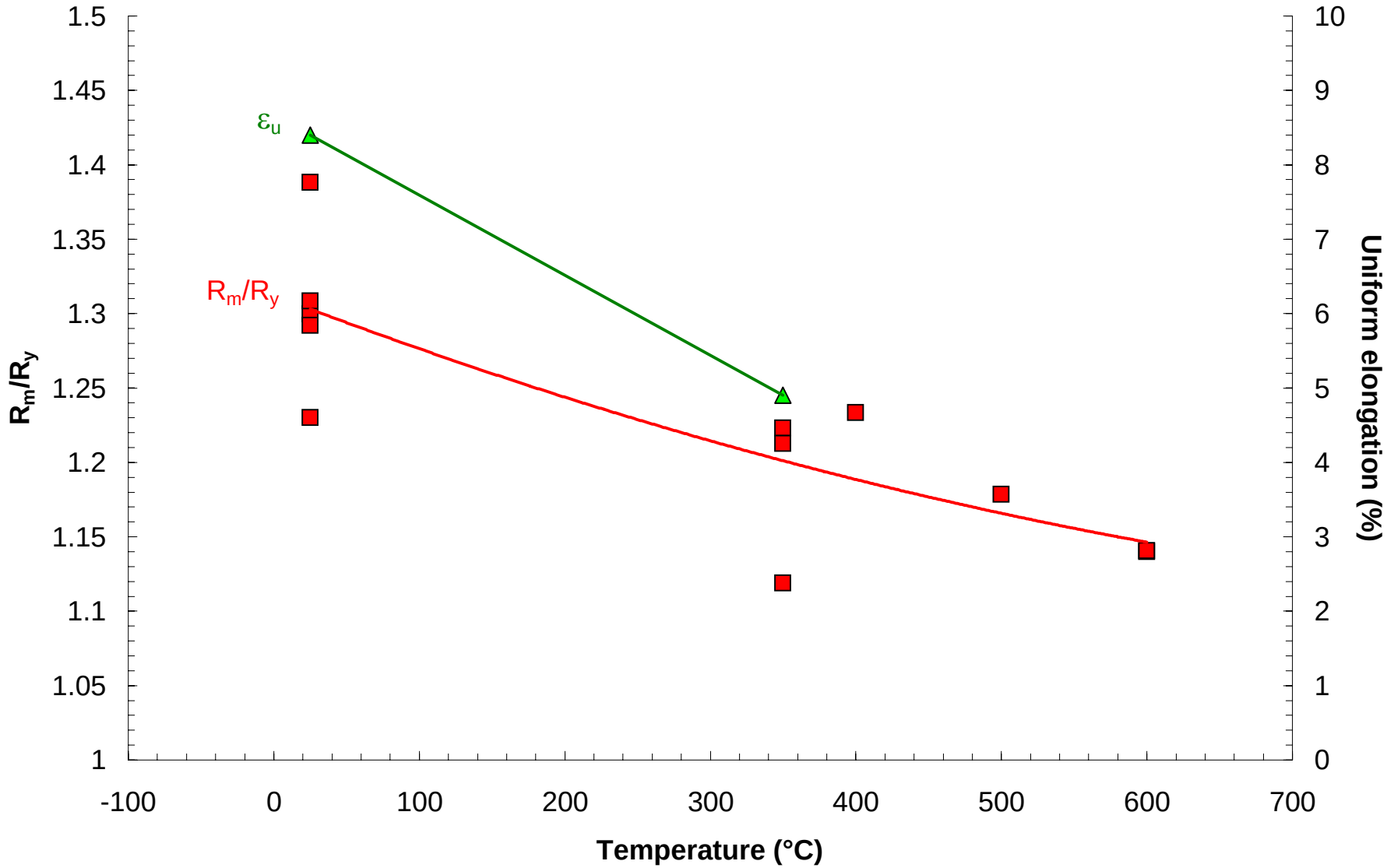

1.5
1.45
1.4
1.35
1.3
1.25
1.2
1.15
1.1
1.05
1
R_m/R_y
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
Uniform elongation (%)
-100
0
100
200
300
400
500
Temperature (°C)
ε_u
R_m/R_y

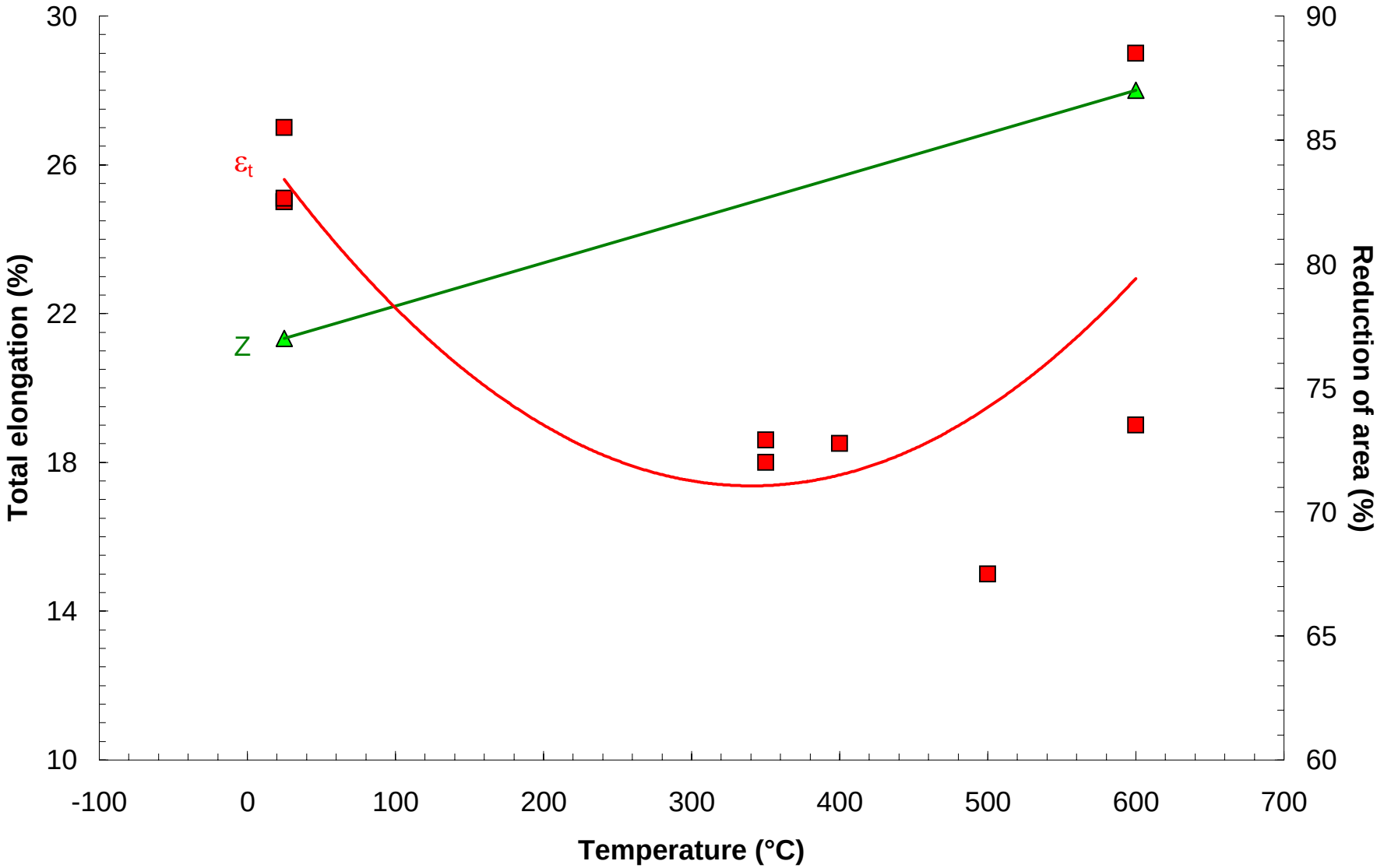

30
26
22
18
14
10
85
80
75
70
65
60
-100
0
100
200
300
400
500
Z
ε_t
Total elongation (%)
Reduction of area (%)
Temperature (°C)

ANNEX 8

Tensile properties of CLAM in the unirradiated condition

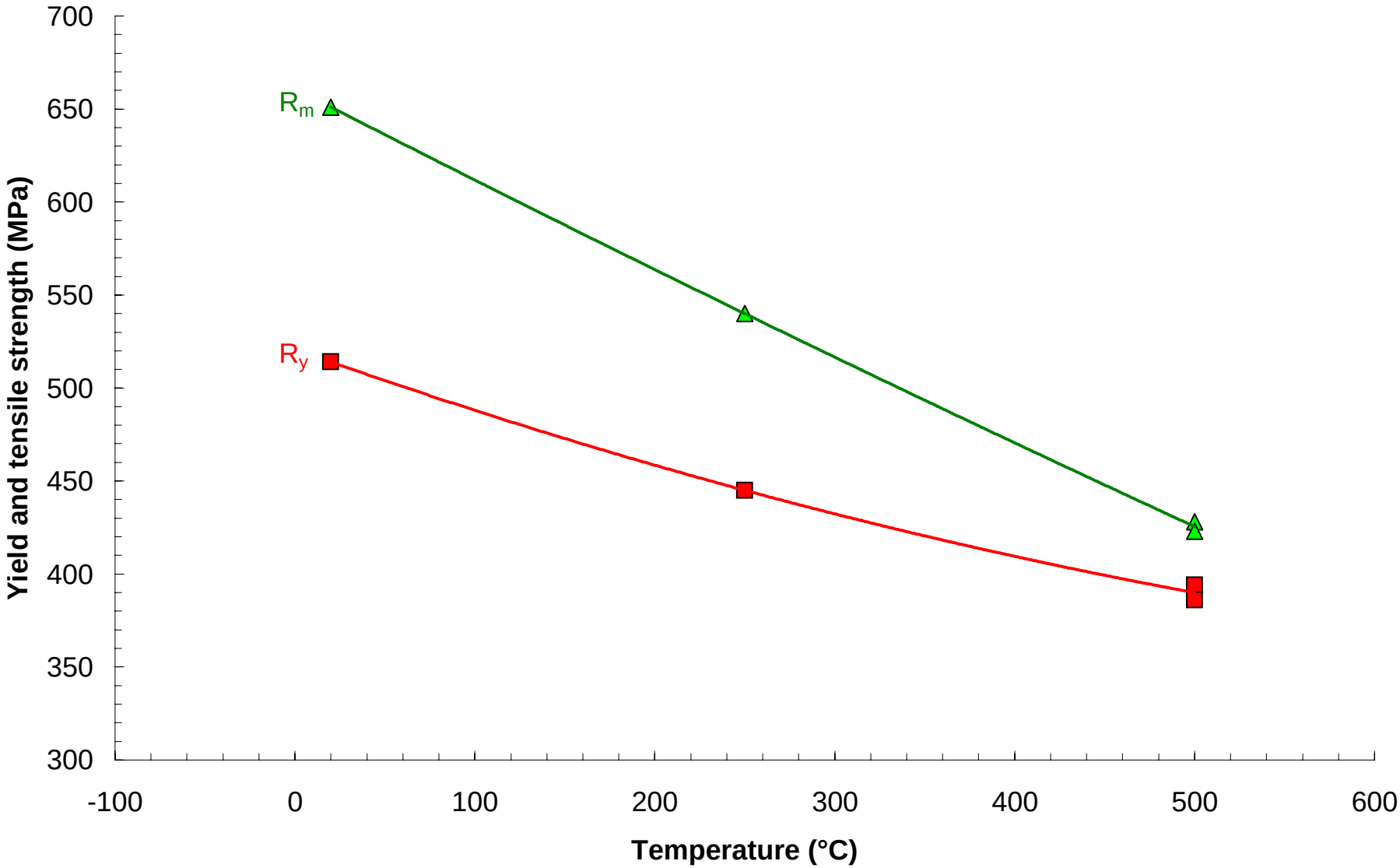

Yield and tensile strength (MPa)
700
650
600
550
500
450
400
350
300
Rm
Ry
-100
0
100
200
300
400
500
600
700
Temperature (°C)

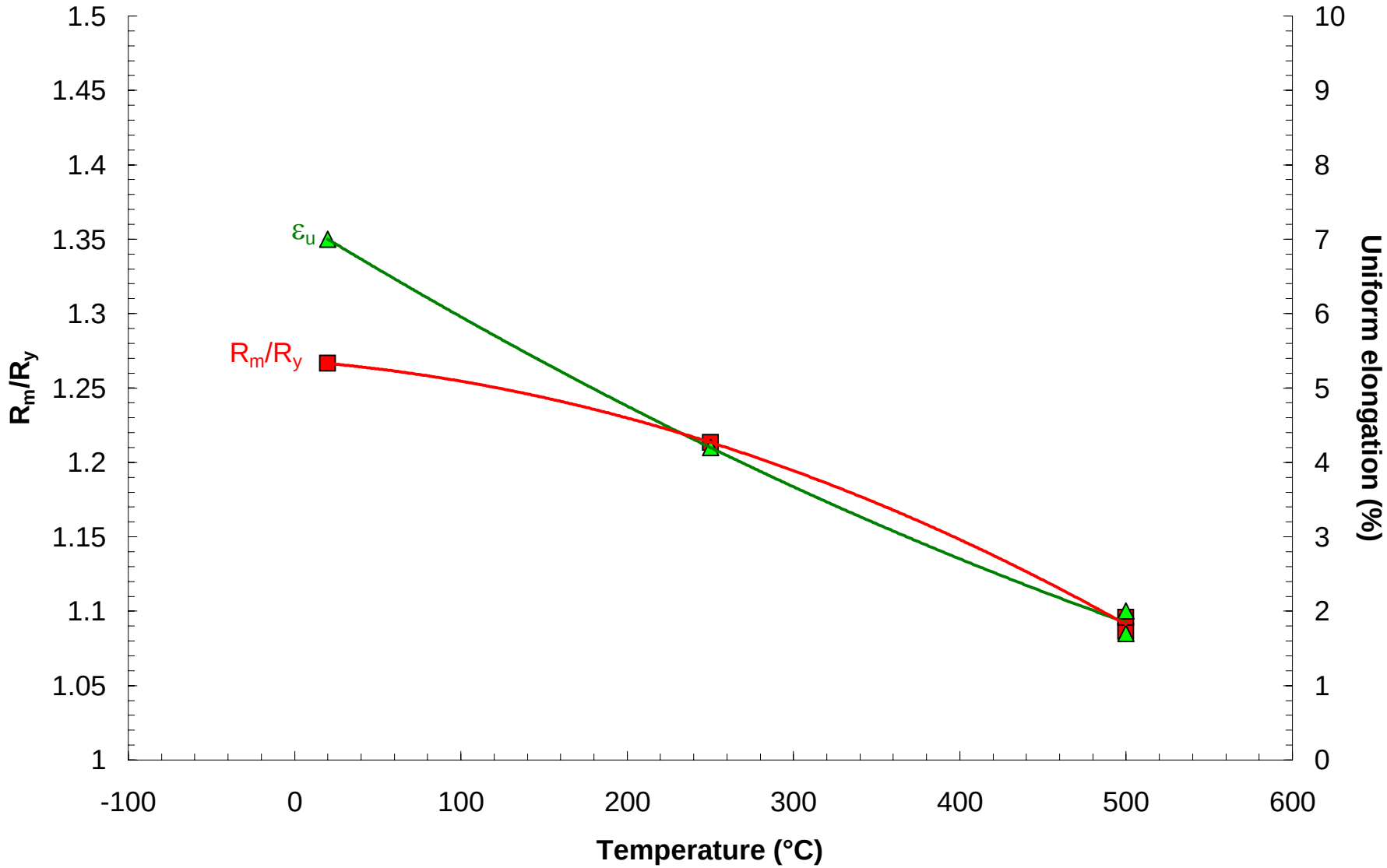

1.5
1.45
1.4
1.35
1.3
1.25
1.2
1.15
1.1
1.05
1
R_m/R_y
ε_u
R_m/R_y
10
9
8
7
6
5
4
3
2
1
0
Uniform elongation (%)
-100
0
100
200
300
400
500
600
700
Temperature (°C)

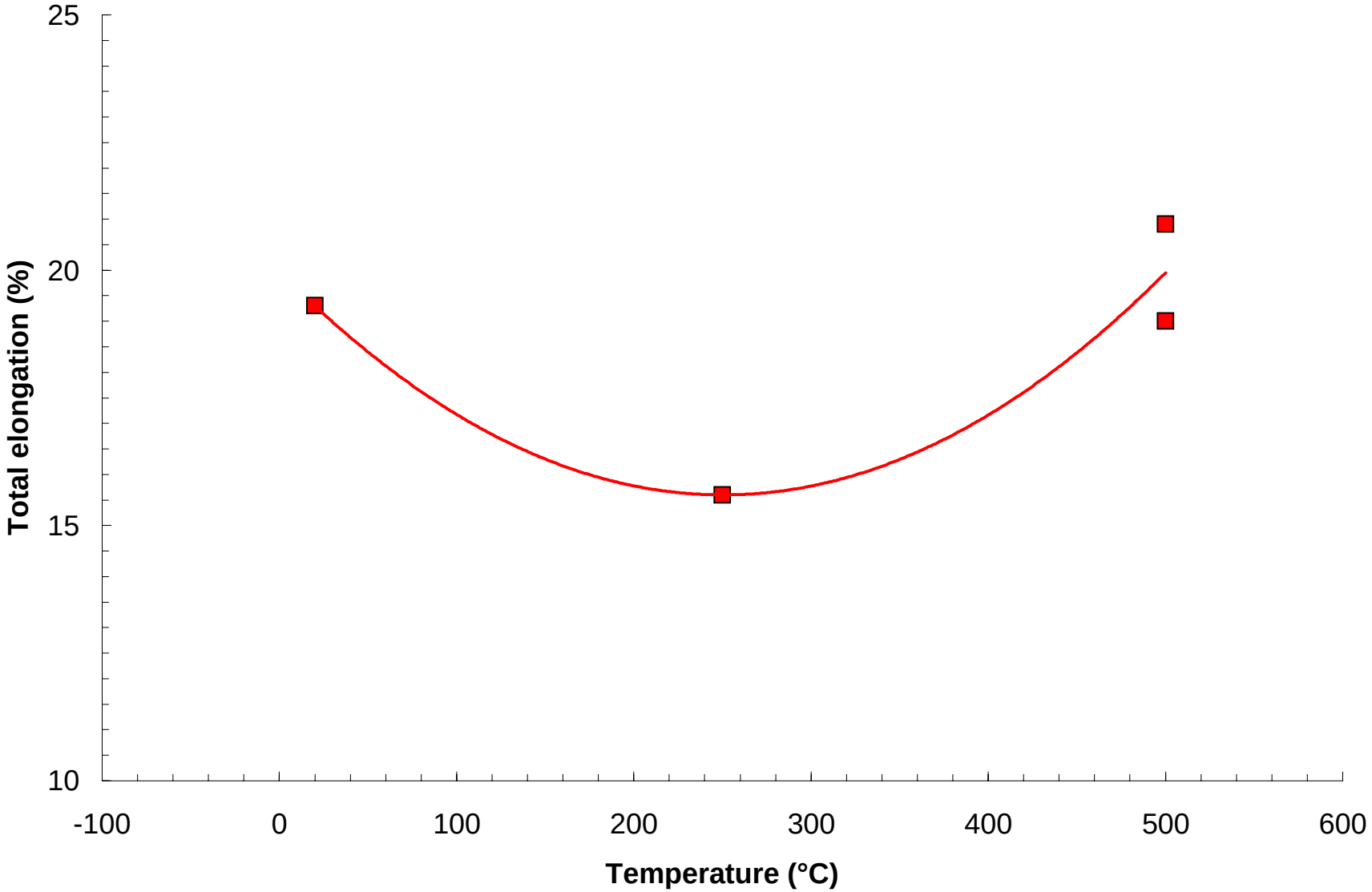

30
26
22
18
14
10
Total elongation (%)
90
85
80
75
70
65
60
Reduction of area (%)
-100
0
100
200
300
400
500
600
700
Temperature (°C)
εt
Z

ANNEX 9

Tensile properties of OPTIFER in the unirradiated condition


700
650
600
550
500
450
400
350
300
Yield and tensile strength (MPa)
R_m
R_y
-100
0
100
200
300
400
500
600
Temperature (°C)


1.5
1.45
1.4
1.35
1.3
1.25
1.2
1.15
1.1
1.05
1
R_m/R_y
10
9
8
7
6
5
4
3
2
1
0
Uniform elongation (%)
ε_u
R_m/R_y
-100
0
100
200
300
400
500
600
Temperature (°C)


25
20
15
10
Total elongation (%)
-100
0
100
200
300
400
500
600
Temperature (°C)