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DG-JRC – Institute for Advanced Materials
Joint Research Centre

**RESULTS OF THE DESTRUCTIVE EXAMINATION
OF THE ENIQ PILOT STUDY:
DEFECT CATALOGUE**

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FOREWORD

This report contains macrographs of realistic defects and replica's of the artificial defects which were inspected in the framework of the ENIQ pilot study.

More information on the test pieces and the defects (among which dimensions) can be found in the following ENIQ reports:

- Assessment of the results of the qualification part of the pilot study (post-destructive examination), ENIQ Report 16, EUR 19023 EN, Published by the European Commission, Brussels-Luxembourg, 1999
- Assessment of the ISI simulation part of the ENIQ pilot study, ENIQ report 17, EUR 19025 EN, Published by the European Commission, Brussels-Luxembourg, 1999

In Table 1 an overview is given of the different defects shown in this defect catalogue.

Table 1: Overview of different defects used during the first ENIQ pilot study and given in this defect catalogue

Test piece	Used for	Defect number	Type of defect according to fabrication method used	defect simulated
1	Open trials	1.1	Realistic	IGSCC
1	Open trials	1.2	Realistic	IGSCC
2	Open trials	2.1	Realistic	IGSCC
2	Open trials	2.2	Realistic	IGSCC
3	Open trials	3.1	Artificial (PISC Type A)	Fatigue crack + manufacturing porosity's
3	Open trials	3.2	Artificial (PISC Type A)	Fatigue crack
3	Open trials	3.3	Artificial (PISC Type A)	Fatigue crack
3	Open trials	3.4	Artificial (PISC Type A)	Fatigue crack
3	Open trials	3.5	Artificial (PISC Type A)	Fatigue crack
4	Blind trials	4.1	Artificial (PISC Type A)	Fatigue crack
4	Blind trials	4.2	Realistic	Manufacturing porosity's (not examined destructively)
4	Blind trials	4.3	Artificial (PISC Type A)	Fatigue crack
4	Blind trials	4.4	Artificial (PISC Type A)	Fatigue crack
4	Blind trials	4.5	Artificial (PISC Type A)	Fatigue crack
5	Open trials	5.1	Artificial (PISC Type A)	Fatigue crack + manufacturing porosity's
5	Open trials	5.2	Artificial (PISC Type A)	Fatigue crack + manufacturing slag
5	Open trials	5.3	Realistic (lack of fusion)	Manufacturing defect
5	Open trials	5.4	Artificial (PISC Type A)	Fatigue crack

5	Open trials	5.5	Realistic	Manufacturing defect (lack of fusion)
5	Open trials	5.6	Artificial (PISC Type A)	Fatigue crack
5	Open trials	5.7	Realistic	Manufacturing defect (slag)
6	Open trials	6.1	Artificial (PISC Type A)	Fatigue crack
6	Open trials	6.2	Artificial (PISC Type A)	Fatigue crack
6	Open trials	6.3	Artificial (shrinkage buttering)	Fatigue crack
6	Open trials	6.4	Artificial (shrinkage buttering)	Fatigue crack
7	Open trials	7.1	Artificial (narrow slot)	Fatigue crack
7	Blind trials	7.2	Artificial (narrow slot)	Fatigue crack
7	Blind trials	7.3	Artificial (PISC Type A)	Fatigue crack
7	Blind trials	7.4	Artificial (narrow slot)	Fatigue crack
7	Blind trials	7.5	Artificial (PISC Type A)	Fatigue crack
7	Open trials	7.6	Artificial (narrow slot)	Fatigue crack
8	Blind trials	8.1	Artificial (PISC Type A)	Fatigue crack
8	Blind trials	8.2	Artificial (PISC Type A)	Fatigue crack
8	Blind trials	8.3	Artificial (PISC Type A)	Fatigue crack
8	Blind trials	8.4	Artificial (PISC Type A)	Fatigue crack
9	Blind trials	9.1	Realistic (implant)	IGSCC
9	Blind trials	9.2	Realistic (implant)	IGSCC
9	Blind trials	9.3	Realistic (implant)	IGSCC
9	Blind trials	9.4	Realistic (implant)	IGSCC
10	First set ISI	10.1	Realistic (implant)	IGSCC
10	First set ISI	10.2	Realistic (implant)	IGSCC
10	First set ISI	10.3	Realistic (implant)	IGSCC
10	First set ISI	10.4	Realistic (implant)	IGSCC
11	First set ISI	11.1	Realistic (mechanical fatigue)	Fatigue crack
12	First set ISI	12.1	Realistic	IGSCC
12	First set ISI	12.2	Realistic	IGSCC
12	First set ISI	12.3	Realistic	IGSCC

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Copies of this ENIQ report can be obtained by writing to the following address:

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ABSTRACT

In the present report a catalogue of defects is given. These defects were inserted in the different test pieces used during the first ENIQ pilot study. This pilot study has revealed features of qualification that require further work and the report discusses this. In addition, the pilot study showed the need for a number of Recommended Practices on different aspects of qualification according to the ENIQ Methodology to clarify how it should be carried out. It also provided information on how these should be written.

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