

Comparison between prEN 473 Currently Submitted to Formal Vote and ISO 9712:2005

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Abstract. ISO 9712:1999 and EN 473:2000 were quite similar but EN 473:2000 generally was considered as an improved ISO 9712.

The five years revision process of ISO 9712 that started in September 1999 (few months after the publication of the standard....) with a clause by clause comparison of EN 473 and ISO 9712 had as a goal to achieve a single harmonized global standard that could be used by all. Unfortunately it appears that if the revision of ISO 9712 benefited in some points from significant European input the resulting ISO 9712:2005 was not yet at the level required. This was the reason for which CEN/ TC138 decided by resolution 309/2005 taken on 2005-09-12 the revision of EN 473:2000.

The decision was taken by weighted vote: 10 positive votes, 1 abstention, 1 against. The following CEN members, Austria, Belgium, France, Germany, Lithuania, Italy, Netherlands, Poland, Spain, Sweden and UK are committed to participate actively in the development of the project.

Consequently this means that a majority of CEN/TC138 members are of the opinion that the revision of EN 473 is not to address harmonization but a better standard given an appropriate answer to the needs of the industry and organizations with particular interests in NDT and to take into account the evolution of the market; but never the objective of CEN/TC138 was the systematic research of divergence between EN 473 and ISO 9712. May be in the near future ISO 9712 should be revisited to align with changes if it brings forward an improved standard. This convergence step by step could constitute the best approach.

My proposal today is to underline and explain the divergence between PrEN 473 and ISO 9712.

▪ SCOPE

Unlike prEN 473, ISO 9712 has no requirement concerning other NDT methods or new techniques within an established NDT method. prEN 473 allows that the system described in the European standard can also apply for new methods or techniques provided a comprehensive scheme of certification exists and the method or technique is covered by European, international or national standards, or the new NDT method or technique has been demonstrated as effective through a formal qualification carried out in accordance with CEN/TR14748 “*NDT-Methodology for qualification of non destructive tests*”.

▪ TERMS AND DEFINITIONS

- *NDT training (3-20)*

PrEN 473 specifies “test specimens used for training purposes shall not be used for examination”.

- *Qualified supervision (3-25)*

The proposed definition causes concern. The supervision may be made by certified or non certified personnel. In the latter case it may be questionable to know who assesses that the non certified personnel possesses the skill, knowledge...prEN 473 specifies now “non certified personnel who in the opinion of the certification body possesses the knowledge...”

▪ **GENERAL PRINCIPLES**

-*Employer (5-2-4)*

prEN 473 recommends that the responsibilities of the certificated persons be described in a documented procedure insofar as the employer shall be responsible for issuing the operating authorisation.

-*Candidate (5-2-5)*

prEN 473 requirements are more precise : “candidates may be self employed or non employed so long as they provide verifiable documentary evidence that the required experience has been gained under qualified supervision, provide documentary evidence of satisfactory completion of a course of training approved by the certification body, provide documentary evidence of vision satisfying the requirements of 6-3, undertake to abide by a code of ethics published by the certification body (EFNDT has developed codes of ethics for certification body and certificated personnel. The document will be considered by CEN/TC138 and probably published as technical report, then it will be inserted in EN 473 by amendment).

▪ **TRAINING**

In prEN 473 the candidate shall provide proof that he has satisfactorily completed a course of training in the method and level for which the certification is sought, which is in accordance with the syllabus content of *CEN ISO/TR 25107 “Guidelines for NDT training syllabus”* and it is recommended that the NDT personnel training follows the guidelines given by *CEN ISO/TR 25108 “ NDT- Guidelines for NDT personnel training organizations”*.

Unlike ISO 9712, prEN 473 now permits that up to 50% of the required training duration may be acquired by practical training agreed by the certification body.

Minimum training requirements

- unlike prEN 473, ISO 9712 has no requirements for level 3 basic knowledge(direct access to level 3).
- As the CEN ISO/TR 25107 was published by CEN and ISO it was recommended to take into account the recommendations given by this document elaborated by the experts in charge of the standardization within CEN/TC138 and ISO/TC135 of the various NDT methods and techniques. On the other hand, the experience gained during courses showed that the minimum training recommendations which was required in the former version of EN 473 notably for AT and UT are too less for a good level of competence of the NDT personnel and it is considered that the proposed requirements are absolutely the minimum required time for an appropriate training.

- Time reduction: prEN 473 specifies that in any case the maximum reduction may be 50%.

The minimum training requirements are as follows:

Method	Level 1 (h)		Level 2 (h)		Level 3 (h)	
	prEN473	ISO9712	prEN473	ISO9712*	prEN473	ISO9712**
AT	64	40	64	104	48	150
ET	40	40	40	104	40	150
LT	A	8	8	24	8	36
	B	16	14	24	45	66
	C	16	18	32	54	78
MT	16	16	24	40	32	60
PT	16	16	24	40	24	60
RT	72	40	80	120	72	160
UT	64	40	80	120	72	160
VT	16	16	24	40	24	64

Direct access to level 2 examination requires the total hours shown for level 1 and level 2

* inclusive of level 1

** inclusive of level 2

▪ INDUSTRIAL NDT EXPERIENCE

prEN 473 allows the certification body to require a minimum period of experience prior to examination (a fraction of X% of the total requirement as appropriate). ISO 9712 permitted 0% experience before examination. There is no harmonization of experience required before examination, probably neither 0% nor 100% may have been ideal but certification bodies should follow the same rule.

In the event that a part of the experience is sought following successful examination the results of the examination shall remain valid for :

- prEN 473 : only 2 years
- ISO 9712 : up to 5 years

there appears to be too much latitude in ISO 9712.

▪ QUALIFICATION EXAMINATION

• level 1 and level 2

In prEN 473 the written tests of the examination are assessed by comparing the replies given by the candidate against answer keys approved by the certification body.

An examiner shall not be the only examiner for any candidate he has personally trained for that particular examination or who is employed in the same facility as the examiner.

• level 3

prEN 473 recommends that level 3 examination be set and grading by at least 2 examiners.

In Pr EN 473, for a candidate who has already drafted an NDT procedure in a level 3 examination, the certification body may replace the drafting of a procedure with the critical of an existing NDT procedure containing errors and/or omissions and covering the relevant method and sector.

- *practical examination*

prEN 473 requires that test specimens shall contain discontinuities types as they are defined in CEN/TS 15053 “NDT-Recommendations for discontinuities types in test specimens for examination”. Specimens used for training purposes shall not be used for examination.

In prEN 473 an effort of clarification was made and the following is specified :

- For level 2 examination the candidate shall draft NDT instruction applicable for level 1. This instruction deals with the test of a specimen chosen by the examiner except for AT the required test instruction may deal with test specimen which shall not be tested during practical examination.
- X radiographs in table 2 are considered as 1 specimen.

▪ REVALIDATION

Unlike ISO 9712, prEN 473 specifies the conditions for revalidation in the case of invalidation of the certification. For revalidation after a significant interruption the individual shall pass a recertification examination.

▪ RENEWAL

Unlike ISO 9712, prEN 473 specifies that failure in the recertification examination (required if the clause 9b is not satisfied) shall result in the individual being considered as initial candidate for certification in the sector, method and level concerned.

prEN 473 specifies also that the renewal files presented up to 12 months after the expiration date may be considered by the certification body but after these twelve months the candidate shall recertify.

▪ RECERTIFICATION

- *level 1 and level 2*

Unlike ISO 9712, prEN 473 allows only one retest of the recertification examination. In this case no examination exemptions shall be awarded by virtue of any other valid certification held.

Unlike ISO 9712, prEN 473 allows the recertification in the light of the demonstration during an audit of continued competence on the work performed.

- *level 3*

ISO 9712 requires the demonstration of continued practical competence at level 2. prEN 473 does not insofar as one of the most important parameter included in the structured credit system for level 3 recertification concerns the industrial activity (§7 table C1). On the other hand, in prEN 473 level 3 certificate holders seeking recertification shall complete a written examination

which includes questions on the application of the test method in the sector concerned (at least 4 of which shall require narrative answers which demonstrate an understanding of current NDT techniques, standards, codes or specifications and applied techniques.

Unlike ISO 9712, prEN 473 allows only one retest of the recertification examination.

▪ SECTORS

Unlike ISO 9712 the annex giving the reference list of sectors will be **normative** and in the product sectors composite materials were introduced.

▪ RELATION BETWEEN EN 473 AND THE ESSENTIAL REQUIREMENTS OF EU DIRECTIVE 97/23/EC

EN 473 has been prepared under a mandate given to CEN by the European Commission and European Free Trade Association to provide a means of conforming to essential requirements of the New Approach Directive (97/23/EC) (PED).

Compliance with the clauses of EN 473 given in table ZA confers, within the limits of the scope of this European Standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

The methodology for “Approval” of NDT personnel is not specified in Directive 97/23/EC and it was agreed that guidance was required in order to ensure a consistent approach to the application of the Directive and the implementation of working group pressure guideline 6/13 by Recognised Third Party Organisations (RTPO). As a result a code of practice was developed by CEN/TC138 as Technical Report CEN/TR 00138123.

CONCLUSION

Today prEN 473 and ISO 9712 are more close than ever.

During their work for revisiting EN 473 the CEN/TC138 members demonstrates:

- interest for compliance with ISO 9712 where possible,
- concern for reducing latitudes for the main requirements by reference to technical reports or specifications prepared by the experts of the technical committee;
- concern in drafting the new EN473 suitable for adoption as future ISO 9712 by the introduction of technical elements that will be acceptable by other countries.

We feel that the world wants and expects to see some positive leadership from CEN/TC138 (well-organized and technically competent) bringing forth an advanced standard that the world can use as a model.

prEN 473 brings to many countries worldwide the appropriate answer for certification of NDT personnel so countries outside the EU can easily adopt EN 473 insofar as many requirements are defined by technical reports some of them published by ISO.