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AENOR Mark N Specific Rules for plastic materials

Common requirements

Note: This document is a translation of the Spanish document RP 001.00 rev 13 approved by the Plastics Technical Certification Committee (CTC-001). Spanish version always prevails over this translation.

RP 001.00

Revision 13
Date 2020-09-30

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Index

1 Purpose and scope

Pursuant to paragraph 3.2 of the General Rules of the Certification of Products and Services with N Mark, hereafter the General Rules, the present Specific Rules describe, the common requirements for the Specific Certification scheme for plastic materials in scope of activity of the AEN/CTC-001.

The General Rules always prevail over the present Specific Rules.

The specific requirements for the granting, maintaining, marking and manufacturer internal control for each product are in the correspondent Specific Rules.

2 Documentation of reference

Below there are related the references and complete titles of the documents and standards that are mentioned in the rest of this Specific Rules. Hereafter may be mentioned only by reference (always without year).

— General Rules for the Certification of Products and Services with N Mark (2019-11)

— UNE-EN ISO 9001:2015 Management System for quality. Requirements

The relation of the Specific Rules applicable to the product certification can be request it to AENOR and/or the Secretary of the AEN/CTC 001.

3 Management Body

The management of the specific certification systems of plastic materials, is tasked under the terms provided in the statutes of AENOR and in the General Rules for the Certification of Products and Services with N Mark, to the Technical Committee of Certification of Plastics AEN/CTC-001, hereafter the Committee.

The work of the Committee is regulated by the Rules of the Technical Committees of Certification and the Specific Rules of the Committee.

AENOR ~~Technical Services~~ perform the functions of the Secretary of the Committee. Their contact details are:

Address:	Génova, 6 – 28004 MADRID – ESPAÑA
Phone number:	(+34) 914 325 989
E-mail address:	CTC001@aenor.com
	www.aenor.com

4 Scope of the application

The application must be extended to all production for the national market included in the scope of the UNE corresponding to the product for which the mark is requested, taking into account the established in each Specific Rules.

5 Conditions and minimum requirements for the granting of product N Mark certificate

5.1 Specific requirements for manufacturers of pipes and fittings

The Clients of the product N Mark certificate for different types of pipes shall not manufacture or sell non-certified pipes for the same application of certified pipes. If they manufactured or marketed products for another application not certified, must be comply each and every of the following conditions:

- There is some unequivocal differentiation in the product to avoid confusion with a certified product of similar application
- Must be used a different trademark
- It must be promoted in all commercial technical documentation clearly distinguished of the certificate pipe
- It must not mark the pipe with reference to the UNE

6 General Definitiones

In general terms, is understood as:

- **Organization:** Legal entity of identifiable group in any legally recognized legal forms, that request the certification of the products or services provided and with the consequent registration in the Register of AENOR.
- **Client:** Organization that request the certification of the products or services provided and with the consequent registration in the Register of AENOR, which has granted the AENOR certificate and the client to use the Product N Mark.
- **Period of manufacture:** The time between the start up of the machine and the stop. A new manufacturing period is determined by a change in the raw material, a change in size, or more than two hours stop.

- **Batch of raw material:** The clearly identifiable amount of material, with identical reference given by the supplier of the raw material. Range of product manufacturing: all those classes, types, as defined in the Standard of reference, in the applicable Specific Rules and in the specific annex of application.

The granting process shall comply with the established in chapter 4 of the General Rules and in the rest of this chapter.

7 Granting of the product N Mark certificate

7.1 Granting process

The granting process shall comply with the established in chapter 4 of the General Rules and in the rest of this chapter.

7.2 Application

The Organization that wants to be granted the product N Mark certificate, will direct the application forms on paper in duplicate, with own letterhead, or in electronic form, and according to the content of the application form (annex A), to the Secretary of the Committee.

It must be accompanied by the following documentation:

- Questionnaire of general information of the client and the manufacturer (Annex B).
- Descriptive Questionnaire of the Product (Annex C of the Specific Rules applicable), where relates the total range of the product for the requesting of the Product N Mark Certificate and the requested trademark.
- If considered necessary, the Secretariat of the Certification Committee may request an accrediting document of the ownership of the trademark requested by the client of the certificate.
- Information (catalogs, brochures, etc. ...) of the product or products for which is requested the certification.

The applicant shall complete one application for each factory and each product requested.

The Secretariat will study the documentation received and, if correct, it will be possible to continue the procedure.

If the request is refer to a product that already has the product N Mark certificate issued on behalf of another client, the Committee will established in each case the actions to be taken in order to ensure that the delivered product brings the same characteristics that the product that in its moment was subject to inspection and testing. These actions include the possibility of requiring of a new inspection and testing for the new application.

7.3 Initial Audit of the Quality System

AENOR will carry out an audit of the quality system in the manufacturer´s facilities, considering the established in Annex D of this document. They will verify that the client has implemented the quality system in its facilities at least six months before to submit the application.

AENOR will make a report in the format established by AENOR, which will be signed by the client and the audit team, in which will be reflected the checks carried out, and if apply of the nonconformities.

7.4 Initial Inspection

AENOR will carry out an initial inspection of product to the facilities of the manufacturer in order to:

- Verify the existence and the correct operation of the control equipment of the client.
- Verify that all the tests defined as an internal control of the manufacturer, are performed with the frequency set out in chapter 4 of the correspondent Specific Rules.
- Verify that internal control tests are performed according to the methods established in the standard of reference.
- Perform the tests defined in chapter 3 of the correspondent Specific Rules. This requires that the manufacturer has stock in its warehouse, of the entire range which the certificate is requested, referenced in Annex C.
- Evaluate compliance with the additional requirements set out in Annex D for those manufacturers with Quality System certified by AENOR.
- Choose and identify two sets of identical samples containing the amount needed for carry out laboratory test under chapter 3 of the applicable Specific Rules. One of these samples will be sent by the manufacturer together with the Sampling report completed during the inspection visit to the laboratory indicated by AENOR. The other samples will remain in the facilities of the manufacturer in case of needed additional tests.

Inspection date shall be agreed between AENOR and the client.

AENOR will make a report in the format established by AENOR, which will be signed by the manufacturer and the inspector, in which will be reflected the checks carried out, the selected samples and if and if apply of the nonconformities.

7.5 Tests

Upon reception the samples, the laboratory will perform the tests specified in the Specific Rules applicable.

The laboratory will issue a test report, sending the report to the Secretariat of Committee.

In the event that the value of the uncertainty of the test could compromise the conformity of it, the Committee will take the appropriate agreement that considers in each case.

If the result of any test does not comply, the Secretary of the Committee, previously reported by the laboratory, will notify the client the result and inform about the possibility of retest, if desired, on the samples that were referenced in the factory during the inspection.

If the client decides to perform the retests, he will send to the laboratory no later than fifteen days since the reception of the communication, the samples referenced during the inspection visit. The repetition of the mentioned tests will be in the same laboratory and may be witnessed by the client, in which case a representative of the Committee shall attend this repetition.

If the result of the first test and the retest are contradictory, the Committee may decide, if it considers it appropriate, how to get a third result to facilitate the adoption of an agreement.

7.6 Evaluation of test results

Chapter 3 of the Specific Rules of the N Mark for each product, contains the evaluation criterion for each test. In the case of pipes, the codes listed in the Specific Rules apply to the following criteria:

- **Criterion nº 1:** The test shall comply with the established in the Standard. Any value out of tolerance will not be allowed

- **Criterion nº 2:** If there is a pipe out of specification, the test shall be repeated with five pipes of the same class. If the result is repeated non-compliant in at least one measure, it shall indicate as a nonconformity indicating 5 values obtained, in otherwise, as a note.
- **Criterion nº 3:** It will allow a maximum of 10% of the measurements are out of tolerance, whenever the number of failures by default does not exceed 5%.
- **Criterion nº 4:** The test result is considered positive when any partial value is less tan stated in the standard or technical specification.

The number of thickness measurements performed for each straight section is a

Nominal diameter (mm)	Number of equidistant thickness measures
≤ 90	4
≥ 110 y ≤ 280	8
≥ 315	12

NOTE: The criterial to be applied when nothing is indicated in the product standard with respect to the significant figures, the final result of the test must be expressed with the same significant digits established by the product standard, and rounding rules will apply. to the nearest value as indicated below:

Digit < 5 the previous number is not modified

Digit ≥ 5 the previous number is increased by one unit

7.7 Agreements

The Secretary of the Committee after receiving reports from the audit of the management system of quality, if applicable, product inspection and testing, will prepare a confidential report to be presented to the Committee in order that it gives its opinion about the application to the General Manager of AENOR.

In case of granting, the client will follow to the maintenance procedure. In case of refusal, shall be communicated to the client the reasons and will give a deadline to submit a new application.

7.8 Granting of the Certificate for Certified Products

A certified product can be requested by another applicant.

The granting of this certificate does not require an initial product inspection visit, testing and sampling at the manufacturer´s facilities. However, six months after the granting, it will carry out an inspection visit at the manufacturer´s facilities, in order to verify the issues listed in paragraph 8.4 of this document.

For this purpose, in addition to fill in all the information required in paragraph 7.2, the client will provide the address of the store or stores of final product under the application, considering these sites as part of the facilities of the client. AENOR will have the same access that to the manufacturer´s facilities.

8 Maintenance of the producto N Mark certificate

8.1 Period of validity and renewal

The validity period of the N Mark Certificate is five years.

After this period, it will proceed in accordance with Chapter 6 of the General Rules for the Certification of Products and Services. AENOR N Mark.

8.2 Maintenance activities

The maintenance activities comply with the provisions in chapter 5 of the General Rules for the Certification of Products and Services. AENOR N Mark, and in the rest of this chapter.

8.3 Maintenance Audit of the Quality System

During the validity period of the Product N Mark Certificate, AENOR will carry out an annual quality audit visit at the manufacture´s facilities, as set out in annex D of this document.

AENOR will make a report in the format established by AENOR, which will be signed by the client and the audit team, in which will be reflected the checks carried out, and if apply of the nonconformities.

8.4 Maintenance inspection visit

The first maintenance inspection visit will carry out six months after the granting of the Certificate. In subsequent years, AENOR will carry out, at least an annual inspection to verify the issues listed in paragraph 7.4 of this document.

The quantity of tests to be performed will made according to the number of classes the manufacturer has in the certificate, with the minimum and maximum established in each Specific Rules.

If there is no production of the certified product, it is allowed a maximum period of 2 years during which AENOR will verify that the manufacturer maintains the capacity of manufacture the product even if there not available in stoke. After this period, the Committee will adopt a resolution.

If the certified product corresponds to several different client, during the inspection visit, AENOR will verify the existence of AENOR certified product, according to the range included in the certificate and the trademark of each client.

Sampling will be performed randomly from all available material with different trademarks.

In the event that client is not a manufacturer, the following issues will be checked during the inspection visit:

- Documentation control (AENOR Certificate, applicable Specific Rules, Standards, etc.);
- Purchasing management: review of orders, invoices, delivery notes;
- Customer complaints, non conformances, corrective actions;
- Preservation of product (In case of own warehouses).

Additionally AENOR will choose and identify two sets of identical samples containing the amount needed for carry out laboratory test under chapter 3 of the applicable Specific Rules. One of these samples will be sent by the manufacturer together with the Sampling report completed during the inspection visit to the laboratory indicated by AENOR. The other samples will remain in the facilities of the manufacturer in case of needed additional tests.

AENOR will make a report in the format established by AENOR, which will be signed by the manufacturer and the inspector, in which will be reflected the checks carried out, the selected samples and if and if apply of the nonconformities.

Inspection date will be determined by AENOR and notified to the manufacturer and/or client.

8.5 Tests

Upon reception the samples, the laboratory will perform the tests specified in the Specific Rules applicable.

The laboratory will issue a test report, sending the report to the Secretariat of Committee, which will send it to the client.

If the result of any test does not comply, the Secretary of the Committee, previously reported by the laboratory, will notify the client the result and inform about the possibility of retest, if desired, over the samples that were referenced in the factory during the inspection.

In the event that the value of the uncertainty of the test could compromise the conformity of it, the Committee will take the agreement it considers appropriate in each case.

If the client decides to perform the retests, he will send to the laboratory no later than fifteen days since the reception of the communication, the samples referenced during the inspection visit. The repetition of the mentioned tests will be in the same laboratory and may be witnessed by the client, in which case a representative of the Committee shall attend this repetition

If the result of the first test and the retest are contradictory, the Committee may decide, if it considers it appropriate, how to get a third result to facilitate the adoption of an agreement.

8.6 Evaluation of the test results

The assessment of the test results will be according to section 7.6 of this document.

8.7 Modification of the certified range

The client will request, by letter sent to the Secretariat of the Committee, the enlargement or reduction of its manufacturing range in order to modify the current certificate.

In the event that the modification leads to an extension of the certificate, the client shall attach a copy of the internal control records to verify that the product has been manufactured and the results obtained during the production are in conformity with the specifications.

The client will keep samples of the classes for which he has requested an extension in order to make them available AENOR at the next inspection visit.

Additionally, if six months have not passed since the granting of the N Mark Certificate for the product that is being subject to modification, AENOR will indicate the client that they must send samples to the laboratory for dimensional tests on them. These tests would

have been performed in the factory if those classes had been available at the time of the initial inspection. In addition, will be performed other tests in accordance to the total number of classes to be considering.

8.8 Sampling on the market

The Committee will prepare an annual monitoring scheme on the market for products with N Mark Certificate by taking samples in the manufacturers, distributors, wholesalers or users depending on the nature of the product.

The market monitoring scheme defines, among other things:

- Product or products affected
- Tests to be performed
- Sampling: Place where there will be carried out the necessary sampling for the product. AENOR may carry out a visit without notice to the manufacturer´s facilities independently of the annual follow up visit. During this visit, they will select over the certified range, the necessary samples in order to perform the tests of market control specified in the monitoring scheme. In case that the sampling is carry out in the facilities of Spanish distributors and if they do not have its own warehouse, the client will inform the Secretariat of the Committee about the distributors that sell the product in Spanish territory and AENOR will decide where they carry out the sampling. As in the previous case, the sampling and the tests to be done are specified in the monitoring scheme.

8.9 Control of the commercial documentation

In non-case advertising catalogs, Price lists, internet, or any other media, which could cause some confusion between certified and non-certified product is allowed.

The Committee will develop a systematic control of commercial documents used by clients, concerning the use of the N Mark associated to those certified products that considers appropriate or necessary.

8.10 Agreements

The Secretariat of the Committee, after receiving the reports from the audit of the quality system, product inspection and testing, shall prepare a confidential report for each meeting of the Committee. In this report it must indicate, if any, the nonconformities detected.

Where necessary in the opinion of the Committee, the General Manager of AENOR will be informed about the detection of nonconformities that might lead to the application of sanctions according to the Disciplinary Rules of AENOR.

9 Marking of the certified products

The logo of the Mark, with its dimensions, is defined in Annex A of the General Rules for the Certification of Products and Services with N Mark.

The Clients of the right of use de N Mark of product, will not be able to commercialize the certified product without the minimum marking, of indelible form, described in the applicable Specific Rules.

There is established a term of one month from the date of issuing the certificate to start marking the products.

10 Modification of the conditions under which the certificate is granted

The client of the certificate must communicate to the Committee any change in the conditions which the N Mark certificate of product was granted, such as change of name, address, factory, etc.

In each case the Committee will adopt the agreement considered as appropriated, which will be communicated to the client.

11 Laboratories list

- CENTRO DE ENSAYOS, INNOVACIÓN Y SERVICIOS (CEIS)
  Cr Villaviciosa de Odón a Móstoles, Km 1,5
  28935 MÓSTOLES (Madrid - Spain)
  Tlf.: (+34) 91 616 97 10
  Fax: (+34) 91 616 23 72

- Asociación para el Fomento de la Investigación y la Tecnología de la Seguridad contra Incendios (AFITI)
  C/ Río Estenilla, s/n.
  Pl Santa María de Benquerencia
  45007 TOLEDO (Spain)
  Tlf.: (+34) 902 112 942
  Fax: (+ 34) 901 706 587

- TECNALIA
  Pl Lasao. Área Anardi Nº 5
  20730 AZPEITIA (Gipuzkoa - Spain)
  Tlf.: (+34) 902 760 020
  Tlf.: (+34) 946 430 850

- AIMPLAS. INSTITUTO TECNOLÓGICO DEL PLÁSTICO
  C/ Gustave Eiffel, 4.
  Parque Tecnológico de Valencia - Apdo. 51
  46980 PATERNA (Valencia - Spain)
  Tel: (+ 34) 96 136 60 40
  Fax: (+34) 96 136 60 41

- APPLUS+ LABORATORIES
  Campus UAB - Ctra. de acceso a la Facultad de Medicina de la U.A.B.
  08193 BELLATERRA (Barcelona - Spain)
  Tlf.: (+34) 93 567 20 00
  Fax: (+34) 93 567 20 01

The Secretariat of the Committee will have the necessary data from other laboratories in case of be necessary to use for specific tests.

Annex A

Request form for AENOR certification for plastic products

Mr./s. ……., with identification nº or passport nº ……..……, in name and representation of the Organization ……..… with the fiscal nº or VAT Nº …… and address in ……..……...……..... ……...

IT SETS OUT

1. That it knows, and it is committed to accept the General Rules on the Certification of Products and Services, the AENOR N Mark Specific Rules to (Product) ……, as well as the commitments that in them are indicated.

2. That it is committed to pay the corresponding expenses accordingly with what it is established in the Certification Specific Rules Applicable.

3. That it is committed to accept, without any reservation AENOR agreements relative to the transaction of this request and the verifications and later controls that are consequently made.

By all it:

IT ASKS FOR

To be granted of the product N Mark certificate for the references indicated in the descriptive attached questionnaire, with Trademark(s) ……., Reference……, produced in the factory ……..…….. located ..... ……..... ……

Chosen lab: ……..……

……..…… on …… of …… 20…...

SIGNATURE AND STAMP

(Name, position, signature and stamp)

Annex B

General information questionnaire

Organization that request AENOR certification

1.1 Name of the Organization:

1.2 Address:

1.3 Phone number:

1.4 Organization fiscal number (VAT):

1.5 Contact person:

1.6 E-mail of the contact:

1.7 Phone number of the contact:

1.8 Contact person for invoicing:

1.9 It is requested PO number for invoicing: … No ☐ Yes ☐ Nº_____

Manufacturer company (one file per factory)

2.1 Name of the company manufacturer:

2.2 Address of the manufacturer:

2.3 Phone number:

2.4 Manufacturer VAT number:

2.5 Contact person in the factory:

2.6 E-mail of the contact:

2.7 Address of the factory (Street, city, country):

2.8 Is the manufacturer certified in ISO 9001:

2.9 If yes, please indicate the certifying body:

2.10 Indicate the total number of employees:

2.11 Are the products for which you request certification certified according any other standards?

The veracity of the information contained in this file is under responsibility of the applicant organization.

…….…… on …… of …… 20…..…

SIGNATURE AND STAMP

(Name, position, signature and stamp)

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Annex C

Description Questionnaire for the product

CLIENT:

MANUFACTURER COMPANY:

SITE OF MANUFACTURER:

PRODUCT:

STANDARD:

TRADEMARK(S):

DATE:

RANGE FOR WHICH THE MARK IS REQUIRED	
DIMENSIONS (See notes 1 y 2)	**OTHERS (SERIE, PN, SDR, APPLICATION CLASS, DESIGN PRESSURE, ETC) (See notes 1 y 2)**

1) and 2) Indicate the parameters that clearly define the product, as nominal pressure and outside diameter in case of pipes, thickness and width into sheets, etc.

For any modification in the manufacturing range, the client shall send on duplicate to the Committee Secretariat this updated descriptive questionnaire, with the new modifications. The Secretariat will inform the client about the processing to follow in each case.

…….…… on …… of …… 20……

SIGNATURE AND STAMP OF THE MANUFACTURER

Annex D

Requirements of the quality system and calibration

Any manufacturer organization that want to obtain the N Mark Certificate of product, shall be implemented, since at least six months before submitting the application, a quality management system applicable to the manufacture of the products for those that there has requested the certificate that fully comply with the requirements of the UNE EN ISO 9011:2015 and with the additional requirements of calibration listed in Annex D1 of this document.

For those clients of the certificate that have a quality management certification according with UNE EN ISO 9001:2015, issued by AENOR (or by any organization with which AENOR had established a recognition criteria) for the production site subject of the request, it not be necessary to carry out the quality audit visit whenever the certification includes in its field of activity the products covered by the application.

In the above mentioned conditions, AENOR will have access to the audit reports of the management system of quality of the Certified Body, and in case it is necessary they will request the manufacturer its translation.

Procedure for action in follow-up audits

To carry out the follow up audits of the quality systems of the clients of the Mark, two blocks that include the following sections of the referenced Standards are defined:

- **Block 1:** Sections 4, 5, 6, 7.1, 7.2, 7.3, 8.1, 8.2, 8.5, 8.6, 8.7, 9 y 10
- **Block 2:** Sections 4, 5, 6, 7.4, 7.5, 8.1, 8.2, 8.4, 8.5, 8.6, 8.7, 9 y 10

For the follow-up visits in even years, AENOR specially check the compliance with the points included in block 1, and in odd years, in block 2, with the exception of the initial visit and the fifth visit, where all applicable items listed in this annex be audited.

Annex D1

Minimum requirements for control of monitoring and measuring equipments

The values included in table 1 relate to the minimum to comply with the calibration requirements as set out in the implementation of the quality system. Compliance with theses minimum is one of the essential elements for obtaining and then maintaining the award of the product N Mark certificate.

There shall be a calibration plan, including a list of equipment used in the inspection and testing of certified products with the corresponding acceptance criteria.

These criteria were set taking into account if there are requirements for equipment in the reference standards. Otherwise will be established by the manufacturer, must ensure that the equipment is appropriate for each of the tests applied to the certified product.

The manufacturer shall make the appropriate calibration to ensure proper operation.

Any default on the period of calibration or verification set out in Table 1, should adequately justified to the Committee.

Also, in order to guarantee the adequate traceability of the measures for the equipment related in table 1, the following will be taken into consideration:

a) It will be sufficient justification of the correct traceability of the measures when the manufacturer uses:

   - Accredited calibration laboratorios
   - Test laboratories external to the accredited organization

b) When any of the two cases included in a) are present, the manufacturer must prove that, to the AENOR, the records to prove that:

   - The adequacy of the standards used in the calibration and the calibration procedures applied, including the qualification system of the personnel involved in the activity.
   - That the calibration records are adequate, including at least the following information:

- Number of the calibration certificate or the manufacturer's internal record
- Identification, where appropriate, of the laboratory that performed the calibration
- Calibrated equipment identification
- Traceability data relative to the pattern used in the calibration
- Method, conditions and date of calibration
- Result, uncertainty obtained and evaluation of this
- Signature of the person in charge of the calibration in the case that this is carried out internally by the manufacturer or the responsible of the calibration laboratory subcontracted for this purpose.

TYPE OF MAGNITUDE	INSTRUMENT	CALIBRATION FREQUENCY	CALIBRATION FREQUENCY STANDARD
LENGHT (DIMENTIONAL TESTS)	MICROMETERS	1 YEAR	STATIC STANDARD 10 AYEARS DINAMIC STANDARD 5 YEARS
	CALIBERS	1 YEAR	
	TRANSDUCERS	1 YEAR	
	CALIBERS FOR INT DIAM	1 YEAR	
	CIRCOMETERS	1 YEAR (Verification before its use)	
	COMPARATORS	1 YEAR	
TEMPERATURE	TERMOMETERS	1 YEAR	5 YEARS
	THERMAL PROBES	1 YEAR	
WEIGHT	SCALE	1 YEAR	10 YEARS
PRESURRE	MANOMETERS AND PRESSURE TRANSDUCERS	1 YEAR	5 YEARS
STRENGHT	DINAMOMETER	EXTERNAL CALIBRATION 2 YEARS	-

TABLE 1

Note 1: In order to assess the conformity of equipment calibration, it is recommended:

- Define a maximum allowable uncertainty under criterion 3 <T / U <10
- The resolution or scale division at the discretion of the equipment: U / E> 10; (30 <T / E <100)
- Metrological quality of the standards according the criterion: 3 <U / U0 <5

U = Uncertainty of calibration

U0 = Uncertainty pattern

T = Tolerance

E = Resolution or Scale Division

The above recommendations are based on the standards ISO 10012, EN 66180 and other publications

Informative Annex

To implement an appropriate calibration plan, should include the following items as defined below.

The following definitions are based on the "International Vocabulary of Metrology and fundamental and general concepts and associated terms (VIM)" (3rd edition, 2008 Spanish, translation of the 3rd edition of the VIM 2008). Spanish Centre of Metrology.

CALIBRATION: Operation under specified conditions established in the first stage, a relationship between values and their associated uncertainties as obtained from measurement standards and corresponding indications with associated uncertainties and. In a second step, using this information to establish a relation for obtaining a measurement result from an indication.

NOTE: A calibration may be expressed by a statement, calibration function, calibration diagram, calibration curve or calibration table. In some cases, it may consist of an additive or multiplicative correction of the indication with corresponding uncertainty.

VERIFICATION: Provision of objective evidence that a given item fulfills specified requirements.

The requirements may be specified, for example, manufacturer's specifications.

Not to be confused the calibration with verification. Not everyone verification is a validation.

When necessary, it should take into account the measurement uncertainty.

UNCERTAINTY (or measurement uncertainty): Non-negative parameter characterizing the dispersion of the values attributed to a measurand, based on the information used.

Measurement uncertainty includes components from systematic, such as components associated with corrections and values assigned to standards (patrons), as well as the uncertainty due to the efects definition. Sometimes the estimated systematic effects are not corrected, and instead are handled as components of uncertainty.

In general, for given information, it is understood that the measurement uncertainty is associated with a particular value attributed to the measurand. Therefore, a change in this value implies a modification of the associated uncertainty.

COMBINED MEASUREMENT UNCERTAINTY: Standard uncertainty obtained from typical individual uncertainties associated with the input quantities in a measurement model.

EXPANDED UNCERTAINTY OF MEASUREMENT: The product of a combined standard uncertainty and a factor greater than one.

The coverage factor is more than one for which a combined standard uncertainty is multiplied to obtain an expanded uncertainty (eg. K = 2). The factor depends on the probability distribution of the output variable in a model of measurement and probability of coverage selected.

TOLERANCE: For tolerance means the range of values of a quantity around its nominal value within which this magnitude is considered acceptable.

STANDARD (or measurement standard): Realization of the definition of a given quantity, at a given value and associated measurement uncertainty, taken as a reference, that is, they are objects (tools, equipment, etc.) that have the size of equipment being calibrated, has a value of reduced uncertainty (U0) and caters to calibrate and / or verify other instruments. This instrument or equipment, in turn, is calibrated with another team ensures the traceability of measurements to national or international standards.

EXAMPLE: Standard mass of 1 kg, with a typical uncertainty of 3 ug.

A standard is often used as a reference for measured values and measurement uncertainties associated to other quantities of the same kind, thus establishing metrological traceability through calibration of other standards, instruments or measurement systems.

There are standards recognized by the signatories of national or international agreements intended to be used on a national or global level, respectively.

Traceability (or metrological traceability): Property of a measurement result whereby the result can be related to a reference through a unbroken chain and documented calibrations, each of which contributes to the uncertainty of measurement.

MAXIMUM PERMISSIBLE ERROR: Maximum permissible error, this is end value of the measurement error with respect to a known reference value, permitted by specifications or regulations for measuring instrument or measuring system. It can also be defined as ACCEPTANCE CRITERIA, the establishment of a criterion (eg. Maximum values and / or minimum) that would ensure that the result, for example in calibration, is "reasonable" for the use of equipment calibrated.

Other definitions

RESOLUTION: Minimum variation of the measured quantity that gives rise to a perceptible change in the corresponding indication.

MEASUREMENT: Process of experimentally obtaining one or more values that could reasonably be attributed to a magnitude.

Also, a measurement involves a description of the extent compatible with the intended use of a measurement result, a method of measurement and a measurement system calibrated according to a procedure specified measurement, including the measurement conditions.

Measurand: Magnitude to be measured.

RESULT OF MEASURE: Result of a measurement, that is, set of values of a quantity attributed to a measurand, together with any other relevant information available.

MEASUREMENT ERROR: Difference between a measured value of a quantity and a reference value (the concept of error can be used when there is a single reference value, as in the case of a calibration using a pattern with a measured value has an uncertainty negligible extent, or when a conventional value is taken, in which case the error is known.

Metrological CHAIN Traceability: succession of standards and calibrations that relate a measurement result to a reference.

Metrological traceability chain is used to establish metrological traceability of a measurement result. The comparison between two measurement standards may be viewed as a calibration if it is used to check and, if necessary, correct the value and measurement uncertainty attributed to one of the standards.

VALIDATION: Check that the specified requirements are adequate for the intended use.

Eg. A measuring method typically used for measuring the mass concentration of nitrogen in water, can also be validated for measurement in human serum.

MEASURING INSTRUMENT: Device used to make measurements, alone or associated with one or more additional devices.

SETTING OF A MEASUREMENT SYSTEM: A set of operations performed on a measurement system to provide prescribed, corresponding to given values of the measured variable indications.

Eg. Setting zero (0) is the adjustment of a measurement system for the latter to provide a void indication when the measured variable has a zero value.

SENSITIVITY OF A MEASUREMENT SYSTEM: The ratio of the change in an indication of a measuring system and the corresponding change in the value of the measured quantity.