



National Standards Authority of Ireland

IRISH STANDARD

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ICS 39.060

**SAMPLING SCHEMES FOR THIRD PARTY
CONFORMITY ASSESSMENT OF FINENESS IN
PRECIOUS METAL ARTICLES**

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TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

CEN/TR 14547

November 2005

ICS 39.060

English Version

**Sampling schemes for third party conformity assessment of
fineness in precious metal articles**

Méthodes d'échantillonnage pour une évaluation de
conformité du titre des articles en métaux précieux par une
tierce personne

Probenahmeverfahren für die Konformitätsbewertung des
Feingehaltes von Gegenständen aus Edelmetall durch
Dritte

This Technical Report was approved by CEN on 8 August 2005. It has been drawn up by the Technical Committee CEN/TC 283.

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Foreword

This Technical Report (CEN/TR 14547:2005) has been prepared by Technical Committee CEN /TC 283, "Precious metals - Applications in jewellery and associated products", the secretariat of which is held by UNI.

Section one: General

1 Scope

This Technical Report specifies an acceptance sampling system of single sampling plans both for inspection by attributes and for inspection by variables. The attributes plans are of the accept-zero form, i.e. no lot is accepted if the sample from it contains one or more nonconforming articles. (For the purposes of this Technical Report, a nonconforming article is a precious metal article containing less than the nominal proportion by weight of the precious metal). The variables plans generally require smaller sample sizes than the attributes plans, but require the precious metal content of all the sampled articles to exceed the nominal content by at least a specified amount.

The objective of this Technical Report is to provide accept-zero schemes and procedures for assuring an upper limit to the long-term percentage of nonconforming precious metal articles in the market place (i.e. the percentage of articles reaching the market place that contain less than the nominal proportion of precious metal) by means of the lowest practicable sample sizes. The upper limit provided by this Technical Report is 1,47% nonconforming. The objective is achieved in three ways:

- a) the sample size reduces as the total number of articles accepted in all the lots since the last non-acceptance increases;
- b) if quality is consistently high, then subject to certain conditions it will be possible to switch from sampling by attributes to sampling by variables;
- c) under sampling by variables, further reductions in sample size may be achieved by switching from the unknown standard deviation method (the "s" method) to the known standard deviation method (the " σ " method) if there is sufficient evidence that the process standard deviation is constant.

This Technical Report is designed for use under conditions where:

- d) articles are of a similar type, weight and nominal precious metal content, all supplied by the same supplier;

NOTE Where any of these factors differ, this Technical Report should be applied to each combination of type, weight range, nominal precious metal content and supplier separately.

- e) the cost to the supplier for marking for fineness increases with the number of articles inspected and the cost of inspection of each article;
- f) for sampling by attributes, it is possible to accurately determine whether the sampled articles are conforming or nonconforming with regard to precious metal content;
- g) for sampling by variables, the precious metal content by weight for each sampled article is measurable on a continuous scale (usually in parts per thousand, expressed as a real number), and the precious metal content from article to article is distributed according to a normal distribution, at least to a close approximation;
- h) for sampling by variables under the " σ " method, the process standard deviation is stable.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3534-1:1993, *Statistics - Vocabulary and symbols - Part 1: Probability and general statistical terms*

ISO 3534-2:1993, *Statistics - Vocabulary and symbols - Part 2: Statistical quality control*

ISO 5479, *Statistical interpretation of data - Tests for departure from the normal distribution*

ISO 5725-6, *Accuracy (trueness and precision) of measurement methods and results - Part 6: Use in practice of accuracy values*

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