

UNECE WP 6 MARS meeting

Number of samples in market surveillance actions

Proposal for a contribution to the GMSP

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Introduction

Conformity rates of products are influenced by:

- Technical regulations requirements
- Standards (TRs referring to these standards)
- But also intensity and rigor of market surveillance actions
(e.g. if we test 10 products of a lot of 1000 products or just 1)

Introduction

Current technical regulations/standards/market surveillance requirements do not require the number of samples taking during market surveillance actions.

E.g.

-GMSP on page .. Says:

.....

-EMARS on page .. Says:

.....

Introduction

From previous research and papers we found that:

- Conformity rate (%) shall be a certain acceptable number such that society accepts it and fair competition is guaranteed. We suggested 85 % for household and similar products.
- It is possible to define an optimum for the costs if we set a conformity rate of 85 % which requires a certain number of products to be tested per lot or number of products on the market.

Introduction

This presentation suggests to find a justification for the number of samples taking during market surveillance actions.

It is meant to spur discussion on the topic by providing some initial thoughts and discussion within the MARS group and outside.

Suggestion

Eco-design COMMISSION REGULATION (EU) 2016/2282

ANNEX III: Product compliance verification by market surveillance authorities

May be used for taking samples and it is a starting point for a process to add it to the GMSP Procedure.

GMSP Verification Procedure

Pre-requirement

For the product we want to test, two sets of requirements should be defined

Set A: essential requirements

Set B: non-essential requirements

1. The MS authorities shall verify one single item per product: Sample Size = 1.
2. The product shall be considered conforming if both sets of requirements A and B are fulfilled.
3. If the set of requirements A is NOT achieved, the product should be considered non-conforming.
4. If the set of requirements B is NOT achieved, MS authorities shall select three additional items of the same product for testing.
 - The product shall be considered conforming if all these three items fulfill both sets of requirements A and B.
 - Otherwise the product shall be considered non-conforming.

When testing a product there are two possible types of errors whose probability we want to minimize.

They are:

- Type I error: non-conforming lot to be falsely declared as conforming
- Type II error: conforming lot to be falsely declared as non-conforming

Example:

We are inspecting a “High risk” product, i.e., the minimal tolerable percentage conforming items in the lot is 95%.

Statistical analysis shows (see the chart on the next slide) that:

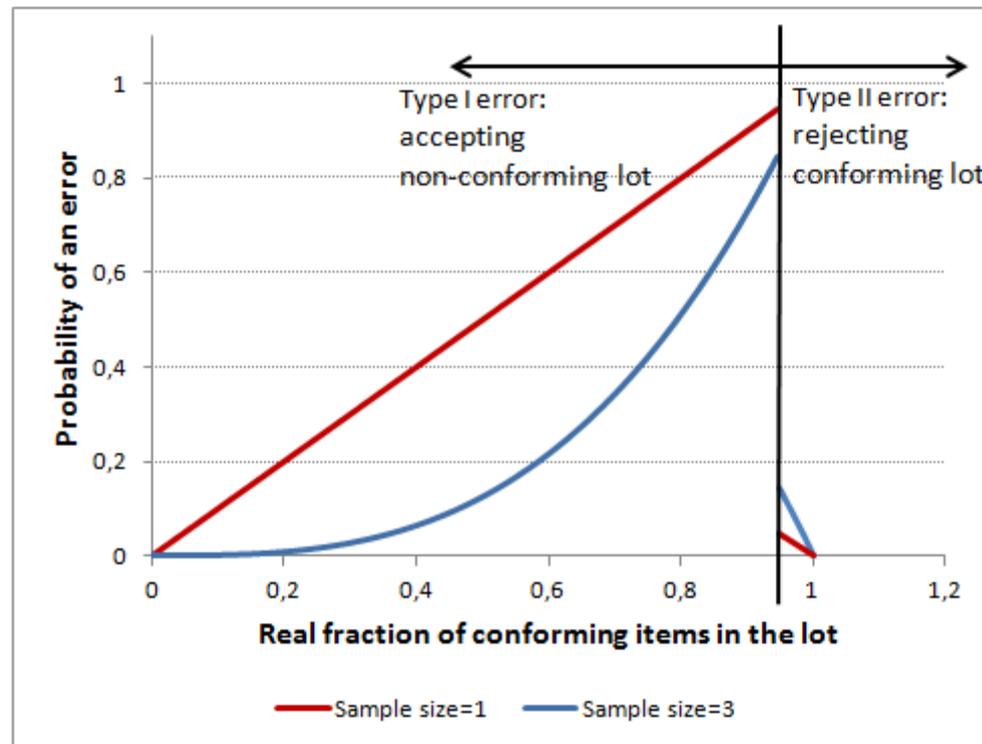
- The probability for accepting non-conforming lot is bigger with sample size = 1.
- The probability for rejecting conforming lot is bigger with sample size = 3.

Example:

We are inspecting a “High risk” product, i.e., the minimal tolerable percentage conforming items in the lot is 95%.

Statistical analysis shows (see the chart below) that:

- The probability for accepting non-conforming lot is bigger with sample size = 1.
- The probability for rejecting conforming lot is bigger with sample size = 3.



Example (continues):

Let us assume that the cost for inspection is 100 Euro per item.

We say that inspection money is “wasted” if an Type I or II error occurs.

Statistical analysis shows (see the chart below) that the expected waste of money is bigger sample size = 3, and that is why the initial inspection is with such sample size.

If the product doesn't pass the initial inspection, then sample size = 3 is applied because then the measurement error is smaller.

