 UNIVERSITAT DE BARCELONA	Facultat de Química Departament Química Analítica Mat Control	PNT/MAT/007/01
		Data analysis/evaluation of PTS results
		Pag. 1 de 7

Title: Data analysis and evaluation of proficiency testing scheme results

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  UNIVERSITAT DE BARCELONA	Facultat de Química Departament Química Analítica Mat Control	PNT/MAT/007/01
		Data analysis/evaluation of PTS results
		Pag. 2 de 7

1 Objective

Establish the main steps to analyze results of PTS statically and evaluate the performance of each participant.

2 Scope

This document applies to all data analyzes done to evaluate the performance of each participant in PTS.

3 Definitions

Participants are laboratories entities that apply to the PT, receive the item and report the result.

Types of Assigned value

Known values (KV) with results determined by specific proficiency test item formulation (e.g. manufacture or dilution).

Certified reference values (CRV) – as determined by definitive test or measurement methods (for quantitative tests).

Reference values (RV) – as determined by analysis, measurement or comparison of the proficiency test item alongside a reference material or standard, traceable to a national or international standard.

Consensus values from expert participants – expert should have demonstrable competence in the determination of the measurand(s) under test, using validated methods known to be highly accurate and comparable to methods in general use. The experts may, in some situations, be reference laboratories.


Consensus values from participants – using statistical methods described in ISO 13528 and with consideration of the effects of outliers.

4 Related Procedures

Not Applicable

5 Responsibilities

The technical responsible is responsible for receive de data from participants, organize in excel sheets, insert data in software, apply statistical tools and evaluate the results with critical view.

 UNIVERSITAT DE BARCELONA	Facultat de Química Departament Química Analítica Mat Control	PNT/MAT/007/01
		Data analysis/evaluation of PTS results
		Pag. 3 de 7

6 References

Not Applicable

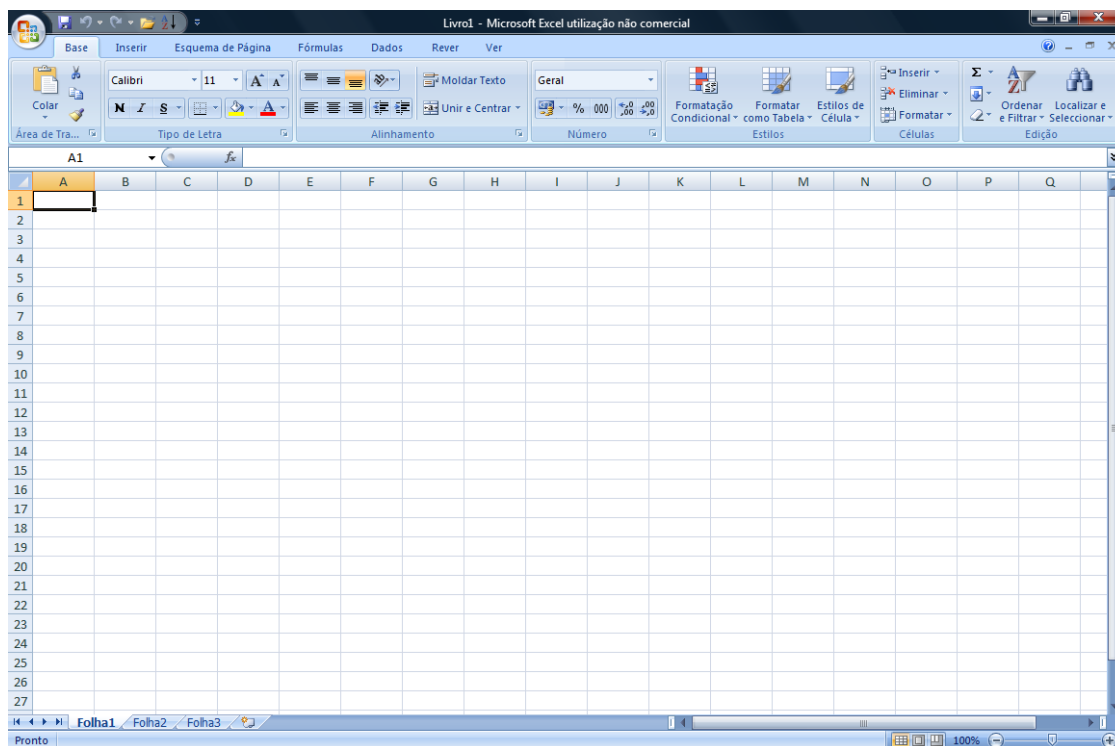
7 Instructions

7.1 Receiving data from participant

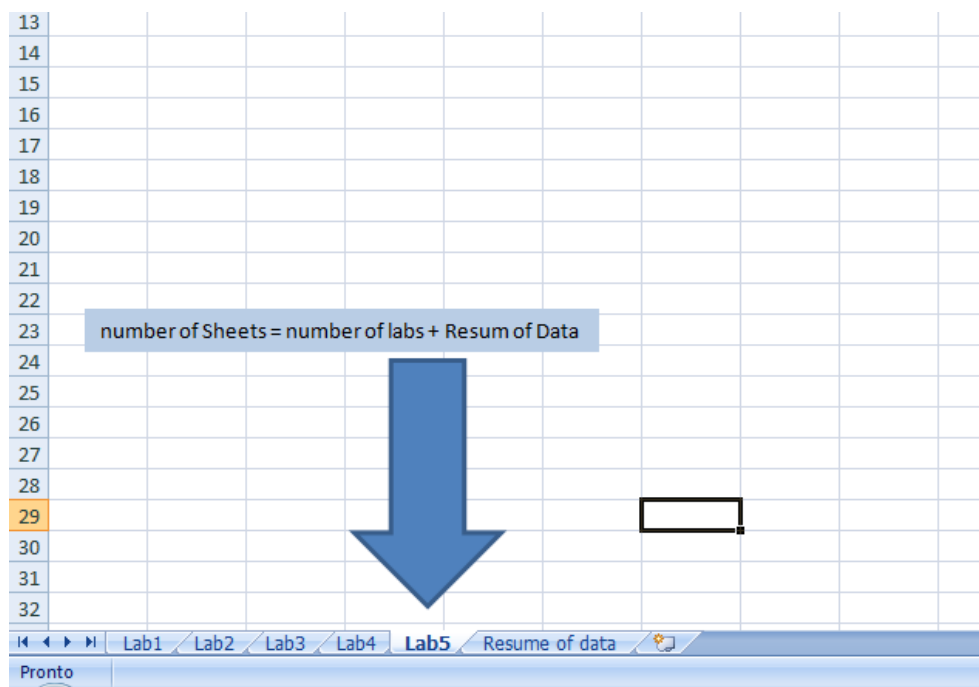
The results are sent by email from the participants in a excel sheet.

The technical responsible for the analysis of data shall organize all results in an only excel file, according instructions:


1. Open a New excel file and call it “Data Treatment”.

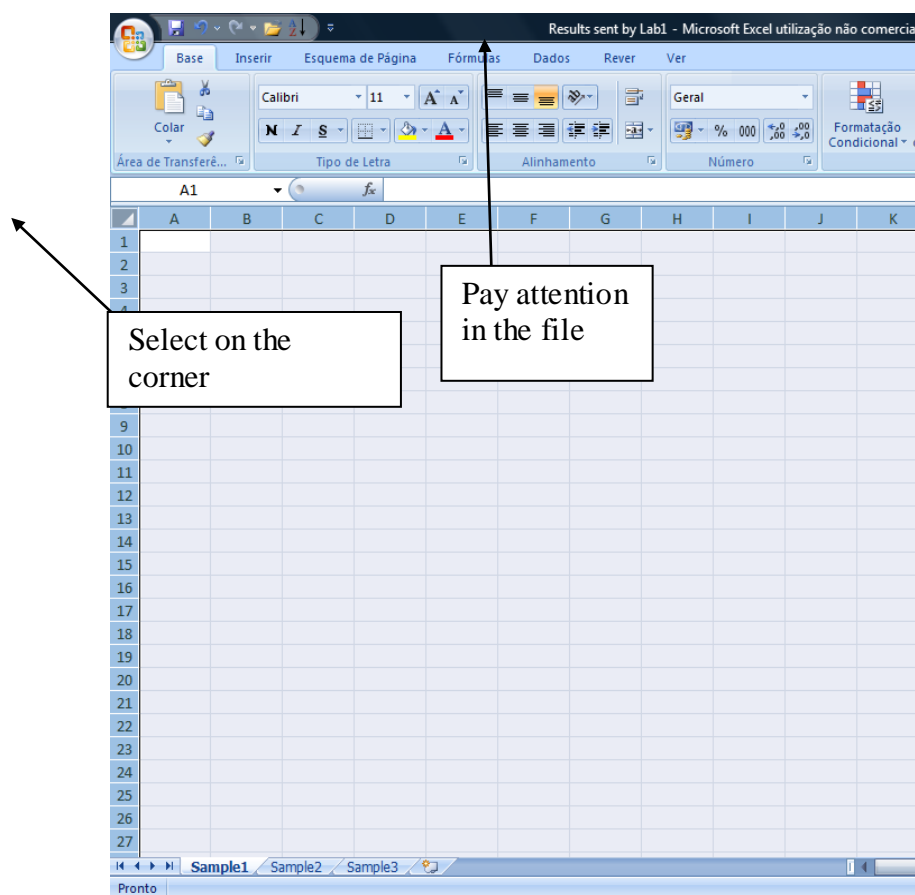


2. Add and Rename sheets according number of laboratories. Add one sheet for “resume of data. Pay attention for rename without space, e.g, Lab1, Lab2, Lab3



3. Open excel file sent by laboratory number one, call it here “Results sent by Lab1”
4. In “Results sent by Lab1” select on sample sheet to open, e.g, **Sample 1**.
5. Click on the corner between “**Colum A**” and “**Line 1**” to select all data and copy it. Never select area by yourself.

 UNIVERSITAT DE BARCELONA	Facultat de Química Departament Química Analítica Mat Control	PNT/MAT/007/01
		Data analysis/evaluation of PTS results
		Pag. 5 de 7




6. Go to file “Data treatment”.
7. In sheet “Lab1”, click in cell A1 and do Paste/Paste Special/Values.
8. Come back to file “Results sent by Lab1”. Do steps 4 and 5 for sample 2.
9. Go to file “Data treatment”.
10. Go in sheet “Lab1”, Column A in the first free line after sample 1 data. Paste/Paste Special/Values.
11. Repeat steps 4 to 10 until all samples from Lab 1 be transferred.
12. Close the file “Results sent by Lab1”.
13. Repeat steps 3 to 12 for all labs.

7.2 Resume of Data

In the file “Data treatment”, sheet “resume of data”, fills cells:

Cell A1 – write “Parameter 1”

Cell B2 – fill – “2”

 UNIVERSITAT DE BARCELONA	Facultat de Química Departament Química Analítica Mat Control	PNT/MAT/007/01
		Data analysis/evaluation of PTS results
		Pag. 6 de 7

Cell C2 – fill – “3”

Cell D2 – fill – “4”

Cell A3 – write “Lab1”. Select and apply for other lines according number of laboratories.

	A	B	C	D	E	F	G	H
1	Parameter1							
2		2	3	4				
3	Lab1							
4	Lab2							
5	Lab3							
6	Lab4							
7	Lab5							
8	Lab6							
9	Lab7							
10	Lab8							
11	Lab9							
12	Lab10							
13	Lab11							
14	Lab12							
15	Lab13							
16	Lab14							
17	Lab15							
18	Lab16							
19								
20								
21								
22								
23								
24								
25								
26								
27								

Cell B3 – apply function VLOOKUP (BUSCARV in Spanish)

VLOOKUP function to search the first column of a *range* of cells, and then return a value from any cell on the same row of the range.

This function required 4 arguments:


lookup_value Required. The value to search in the first column of the table or range. The **lookup_value** argument can be a value or a reference.

table_array Required. The range of cells that contains the data. You can use a reference to a range (for example, **A2:D8**), or a range name.

col_index_num Required. The column number in the **table_array** argument from which the matching value must be returned. A **col_index_num** argument of 1 returns the value in the first column in **table_array**, a **col_index_num** of 2 returns the value in the second column in **table_array**, and so on.

range_lookup Optional. A logical value that specifies whether you want **VLOOKUP** to find an exact match or an approximate match:

If **range_lookup** is either TRUE or is omitted, an exact or approximate match is returned. If an exact match is not found, the next largest value that is less than **lookup_value** is returned.

	Facultat de Química Departament Química Analítica Mat Control	PNT/MAT/007/01
		Data analysis/evaluation of PTS results
		Pag. 7 de 7

If **range_lookup** is FALSE, the values in the first column of **table_array** do not need to be sorted. If the **range_lookup** argument is FALSE, **VLOOKUP** will find only an exact match. If there are two or more values in the first column of **table_array** that match the **lookup_value**, the first value found is used. If an exact match is not found, the error value #N/A is returned.

lookup_value - Name of parameter. Ex: “benceno”.

table_array - Go to Lab1 sheet, select column A to F* (this should include the name of parameters and all replicates).

col_index_num - B2

range_lookup - FALSE

In cell B3 shall appear:

=VLOOKUP("benceno",'Lab1'!A:F,B2,FALSE) .

Fix Table array and line of col_index_num:

=VLOOKUP("benceno",'Lab1'!\$A:\$F,B\$2,FALSE)

Extend in the vertical for all labs and change manually the number of lab.

Extend each line in horizontal to cover all replicates.

In this point, there is a resume for the parameter “benceno” for all labs and replicates.

To do another parameter:

Copy resume for one parameter already done, e.g. “benceno”.

Paste beside. Keep the direction (line) for laboratories.

Go to “Replace”. Replace “benceno” for “tolueno”, e.g.

In this point is done the tolueno resume.

7.3 Data treatment

The resume of data done in item 6.2 is used in the software Tool4PT version 1.06.09.
See software procedure (spanish).