List of available functions in add-ins file « LNHB_Tools_2020.xlam »

Usage: the **3** following functions are applied on a range of cells, containing the values and their absolute uncertainty which can be organized as follows:
- either on 2 rows, with the values in the first row and the associated uncertainties in the second,
- or on 2 columns, with the values in the first column and the associated uncertainties in the second,
- or on a single row, alternating the values followed by their uncertainty.

Note: in the case of a set of 2 values, these must be organized in columns (values in the first column, uncertainties in the second)

IntErr(Cell range) - e.g.: IntErr(A1:B6)
Calculates the internal uncertainty (abusively called "internal error")

WtdMean(Cell range) - e.g.: WtdMean(A1:B6)
Calculates the mean, weighted by the inverse of the variance for n samples
Nota: Values without uncertainty (or with null uncertainty) are not taken into account

WtdDev(Cell range) - e.g.: WtdDev(A1:B6)
Calculates the deviation of the weighted mean for n samples
Nota: Values without uncertainty (or with null uncertainty) are not taken into account

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SymVal(Range of 3 cells in a row) - e.g.: SymVal(A1:A3)
Returns IN DOUBLE DIGITAL FORMAT (2 values), value and uncertainty "symmetrized"
As input: value and asymmetrical uncertainties (val ; +unc1 ; -unc2)
Usage: select 3 adjacent cells, enter the formula and validate by pressing **CTRL-SHIFT-ENTER** to obtain the 2 values in the 2 consecutive cells.

Val_Unc(String) - *e.g.: Val_Unc("12.345 (12)") returns 12.345 and 0.012*
Returns IN DOUBLE DIGITAL FORMAT (2 values), value and uncertainty expressed as a string.
Usage: select 2 adjacent cells, enter the formula and validate by pressing **CTRL-SHIFT-ENTER** to obtain the 2 values in the 2 consecutive cells.

RndRslt(Value, Uncertainty) – e.g.: RndRslt(A1 ; B1)
Returns the rounded value of a result (or its uncertainty) according to its uncertainty
Cf. Technical Note LMRI n°38, 25/9/97, P. Blanchis: « Nombre de chiffres significatifs d'un résultat de mesure »
("Number of significant digits of a measurement result")
Usage: to obtain the rounded value, type RndRslt(Value ; Uncertainty) ; to obtain the rounded uncertainty, type RndRslt(Uncertainty ; Uncertainty)

RndRsltTxt(Value, Uncertainty, [SignifZero]) – e.g.: RndRsltTxt(A1 ; B1) or RndRsltTxt(A1 ; B1 ; False)
Returns IN TEXT FORMAT the rounded value of a result and its associated uncertainty.
If optional parameter "SignifZero" » is set to FALSE, then the non-significant zeros (the evaluator is the only judge of their utility!) will not be displayed.
E.g.: RndRsltTxt(12.30 ; 0.10 ; False) or RndRsltTxt(12.30 ; 0.10 ; 0) returns "**12.3 (1)**" when
E.g.: RndRsltTxt(12.30 ; 0.10 ; True) or RndRsltTxt(12.30 ; 0.10) returns "**12.30 (10)**"

RndRsltTxt2(Value, Uncertainty, [SignifZero]) – e.g.: RndRsltTxt2(A1 ; B1) or RndRsltTxt2(A1 ; B1 ; Faux)
Returns IN TEXT FORMAT the rounded value of a result and its associated uncertainty.
If optional parameter "SignifZero" » is set to FALSE, then the non-significant zeros (the evaluator is the only judge of their utility!) will not be displayed.
E.g.: RndRsltTxt2(12.30 ; 0.10 ; False) or RndRsltTxt2(12.30 ; 0.10 ; 0) returns "**(12.3 ± 0,1)**" when
E.g.: RndRsltTxt2(12.30 ; 0.10 ; True) or RndRsltTxt2(12.30 ; 0.10) returns "**(12.30 ± 0.10)**"

RndRsltK2(Value, Uncertainty) – e.g.: RndRsltK2(A1 ; B1) **/!\ Version for k=2 /!**
Returns IN TEXT FORMAT the rounded value of a result and its associated expanded uncertainty (for k=2)
E.g.: RndRsltK2(12.345 ; 0.0125) returns "**(12.345 ± 0.025)**"

RndRsltRel(Value, Uncertainty, [Unit], [SciFormat]) – e.g.: RndRsltRel(A1 ; B1)
Returns IN TEXT FORMAT the rounded value of a result and its associated relative uncertainty.
If the optional parameter "Unit" is set, the unit of the value will also be displayed.
If the optional parameter "SciFormat" is set to FALSE, then the result will not be displayed in scientific format (E+XX).
Otherwise this format is applied by default if the value is >= 1E4 or <= 1E-4.
E.g.: RndRsltRel(12345.6 ; 28.4) or RndRsltRel(12345.6 ; 28.4 ; ; True) returns "**1.2346E+04 ± 0.23%**",
when
E.g.: RndRsltRel(12345.6 ; 28.4 ; "MBq" ; False) returns "**12346 MBq ± 0.23%**".

RndRsltRelK2(Value, Uncertainty, [Unit], [SciFormat]) – e.g.: RndRsltRelK2(A1 ; B1) **/!\ Version for k=2 /!**
Returns IN TEXT FORMAT the rounded value of a result and its associated relative expanded uncertainty for k=2.
If the optional parameter "Unit" is set, the unit of the value will also be displayed.
If the optional parameter "SciFormat" is set to FALSE, then the result will not be displayed in scientific format (E+XX).
Otherwise this format is applied by default if the value is >= 1E4 or <= 1E-4.
E.g.: RndRsltRelK2(12345.6 ; 28.4) or RndRsltRelK2(12345.6 ; 28.4 ; ; True) returns "**1.2346E+04 ± 0.46% (k=2)**",
when
E.g.: RndRsltRelK2(12345.6 ; 28.4 ; "MBq") returns "**1.2346E+04 MBq ± 0.46% (k=2)**" and
E.g.: RndRsltRelK2(12345.6 ; 28.4 ; "MBq" ; False) returns "**12346 MBq ± 0.46% (k=2)**".

LWeight4(Tableau As Object) As Variant
Translation of the LWEIGHT software for EXCEL
Complete calculation: all iterations are performed
For the calculation with only one iteration, see function LWeight41()
The calculation is applied on an array of N data (value and absolute uncertainty) arranged vertically in 2 columns.
The result being also an array, you have to select **7** columns and (**N + 6**) rows, and validate the calculation formula by clicking on **CTRL-SHIFT-ENTER**, to define the results area.

LWeight41(Tableau As Object) As Variant
Translation of the LWEIGHT software for EXCEL
Only one iteration is performed
For the complete calculation, see function LWeight4()