Explanation Reports
-Annual Report-

Annual Report : lay-out and underlying statistics

Explanation of the numbers

This report is made once a year and based on all data submitted during the annual cycle. Outlyers (results exceeding the mean +/- 7SD) are removed before the calculations. The first column lists all analytes in the scheme. Column 2 deals with accuracy: you can see your mean outcome in that year in comparison to the mean of all labs.
The third column deals with precision. From the four hidden duplicates the CV is calculated according to:

$$CV = \frac{\sqrt{\frac{\sum(\Delta)^2}{n}}}{\bar{x}\sqrt{2}} \times 100\%$$

CV = Coefficient of Variation
Δ = Difference in the duplicate
n = number of duplicates
$\bar{x}$ = mean of results
Again the lab's precision is compared with the median CV of other labs (precison of your lab and of all labs, respectively).
Column 4 deals with the linearity. For each laboratory the coefficient of regression r is calculated with the weighed amounts on the x-axis and the submitted results on the y-axis. The lab's r and the median r of all labs are listed.
Column 5 deals with the recovery. Linearity calculation in column 4 also revealed the relation y = ax + b between submitted results (y) and weighed amounts (x). The slope a is multiplied with 100% and is the recovery of weighed amounts. Again recovery of the lab and the median recovery of all labs is encountered.
The last column shows general data of all labs: the number of labs who submitted results (n) and the Interlab CV calculated according to

$$InterlabCV = \frac{\sqrt{\frac{\sum SD^2}{n}}}{\bar{x}}$$

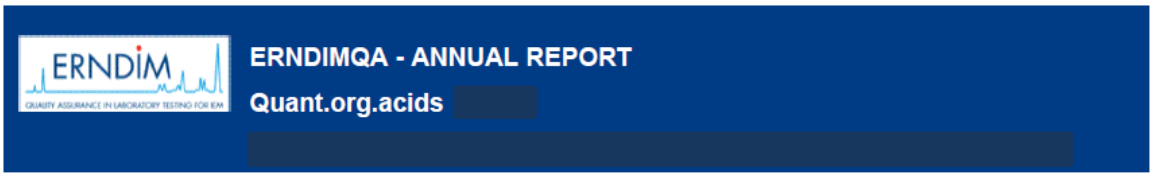
CV = Interlab CV in the respective specimens of the cycle
SD = standard deviation
n = number of specimens in a cycle
x = mean of results

The Interlab CV is an indication of the state of the art of harmonisation of results between labs and as such an indication how urgent efforts to achieve better standardisation are needed!

Flags Analytical Parameters

In the annual report (below) the four analytical parameters accuracy – precision – linearity – recovery are shown. Parameters that can not be calculated are marked with a flag:

- No results submitted: empty white box (example: Malic acid)
- Few Results (defined as <6 out of 8 results): **FR** in a white box (Mevalonic acid)
- Outlying Results (defined as 2 or more outliers): **OR** in a purple box (Glycolic acid)
- Outlying Results & Few Results (defined as <6 results from which at least one an outlier): **ORFR** in a yellow box (Ethylmalonic acid)
- Missing Pair (defined as the situation in which both results of a samplepair are missing or an outlier): **MP** in an amber box (Adipic acid)
- A red flags marks a result in the category “5% worst performances of all labs”. Numeric result in a red box (Suberic acid).



Methodset : GC-MS

	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data All Labs	
Analyte	Your Lab	All Labs	Your Lab	All Labs	Your Lab	All Labs	Your Lab	All Labs	n	Interlab CV
2-OH Glutaric acid	MP	152	32.0%	20.8%	0.877	0.980	89%	93%	77	35.6%
3 methylglutaric acid	MP	70.4	26.3%	15.0%	0.914	0.985	117%	101%	77	23.6%
3-OH-3 methylglutaric acid	FR	66.9	FR	24.7%	FR	0.983	FR	77%	65	62.4%
3-OH-Isobutyric acid	OR	136	OR	20.4%	OR	0.979	OR	71%	53	37.0%
3-OH-Isovaleric acid	FR	78.1	FR	39.3%	FR	0.940	FR	112%	73	55.5%
4-OH-Butyric acid	FR	72.8	FR	31.2%	FR	0.982	FR	70%	63	56.7%
Adipic acid	MP	178	31.6%	12.6%	0.950	0.993	85%	101%	85	26.4%
Creatinine		3258		3.4%		0.000		0%	67	5.25%
D,L- Glyceric acid	FR	278	FR	22.0%	FR	0.985	FR	83%	64	47.0%
Ethylmalonic acid	ORFR	50.0	ORFR	17.1%	ORFR	0.992	ORFR	99%	89	36.3%
Fumaric acid	MP	60.0	19.5%	14.5%	0.991	0.991	75%	100%	78	28.5%
Glutaric acid	MP	112	44.0%	13.1%	0.878	0.994	86%	101%	90	21.8%
Glycolic acid	OR	236	OR	20.6%	OR	0.963	OR	89%	77	38.0%
Hexanoylglycine	MP	17.0	29.3%	29.9%	0.949	0.950	111%	100%	64	37.2%
Keto-glutaric acid		198		21.4%		0.992		103%	73	40.1%
Malic acid		117		19.8%		0.995		81%	53	47.4%
Methylmalonic acid	305	330	31.2%	11.4%	0.995	0.996	95%	102%	104	27.6%
Mevalonic acid	FR	132	FR	21.7%	FR	0.992	FR	82%	56	46.1%
Pyroglutamic acid	353	322	61.6%	23.0%	0.879	0.980	106%	85%	73	44.2%
Sebacic acid	MP	55.4	15.2%	19.4%	0.987	0.987	91%	101%	83	35.9%
Suberic acid	123	172	11.5%	16.3%	0.992	0.990	64%	105%	84	32.4%
Tiglylglycine	MP	83.6	17.0%	24.9%	0.975	0.987	54%	85%	57	48.0%
Vanillactic acid		38.5		19.4%		0.975		98%	38	33.0%
Overall	260	270	29.0%	20.1%	0.944	0.940	88%	89%	71	37.7%

Flags Analytes

Acceptable performance of an analyte is marked with a green flag (analyte name in green box) and applies when at least 3 of the 4 analytical parameters show satisfying results:

- 4 satisfying parameters (no flags = approved): Methylmalonic acid
- 3 satisfying parameters (1 flag = approved): Tiglylglycine
- 2 satisfying parameters (2 flags = not approved): Suberic acid (2 red flags) and Glutaric acid (1 red and 1 amber flag).
- 1 satisfying parameter (3 flags = not approved): no example
- 0 satisfying parameters (4 flags = not approved): Glycolic acid

Poor Performance

The poor performance policy of ERNDIM is based on the number of flags for the analytical parameters in the annual report. The scientific advisor of the scheme sends a performance support letter to the laboratories with the highest number of flags.

Annual Report

A comment to the annual report can be downloaded from the bottom of the report.