

# ILPS & ELMA: Harmonization of Lecithin Analytical Methods | Project #

## Conclusion

Even though there are official methods for lecithin analyses, the laboratory results of the various laboratories are often quite different.

In order to harmonize the Lecithin Analytical Methods, this project was initiated.

### Name of the project:

**ILPS & ELMA:** Harmonization of Lecithin Analytical Methods  
Round Robin test on Lecithins (ILPS-ELMA)

**Status:** closed

Stage 1 was initiated in 2020.

Stage 2 was initiated in August 2021 and closed in June 2022.

### Synopsis:

The Harmonization of Analytical Methods had following objectives:

- (1) That methods used for lecithin analysis are aligned more between different laboratories.
- (2) To explain differences in analysis results reported by different laboratories.
- (3) To determine a given deviation per analytical result, analysed by different laboratories.

### **Outcome:**

Despite the supply of a homogenous sample and providing improved harmonized analytical methods, the laboratories reported significant differences in analysis on typical lecithin parameters.

The harmonised methods reduced the degree of freedom and interpretation of the available AOCS & DGF and ISO methods specific for lecithin.

But the differences in analytical results using the harmonized methods observed after stage 2 are still too significant to be robust.

The harmonization of the analytical methods showed that no satisfying improvement could be achieved by making the current methods more specific and reduce the degree of freedom and interpretation, for example standardizing the sample preparation.

The difference in the results seems to be related to the use of different chemicals, equipment, (for example: the use of specified glass filter crucible of different origin, type of viscometer or due to manual and automatic titration performed) but also the working method of the lab technician will have to be compared between the laboratories in order to explain differences.

### **Conclusions of the working group:**

For closing the gaps in the analytical results, the sample preparation, chemicals used, equipment, beside training for the employees that performs lecithin analysis needs to be harmonized (verified by a ring test).

But the practical limitation is that not every laboratory is equipped similar depending on their geographic location, legal and internal requirements and regulations, budget, available laboratory equipment, supplier availabilities for equipment and chemicals needed and preferences.

To achieve further harmonization there is a need to be harmonized globally more in equipment, chemicals used and employee training for the current available analytical methods (AOCS, DGF, ISO)

This is practically impossible for an association like ILPS or ELMA, therefore the project was closed

### **Recommendation of the working group:**

Decimals indication in reporting figures per analytical result have to be in line with the accuracy (standard deviation) of the current available analytical methods.

For example, Acetone Insoluble-% is reported often in 2 decimal places, the impression is created that the analysis is very accurate. As indication: Lecithin Sample A had an average Acetone Insoluble-% of 62,9% with a St. Dev of 0,9%.

**Acetone insoluble:** round to the full, no decimal reporting e.g. 60%

**Moisture** (loss in drying): one decimal reporting e.g. 0.9%

**Toluene insoluble / Hexane insoluble:** round to one digit, one decimal reporting e.g. 0.2%

**Acid value:** round to the full, no decimal reporting e.g. 30 mgKOH/g

**Peroxide value:** round to one digit, one decimal reporting e.g. 0.9 meqO<sub>2</sub>/kg

Next to the above 5 listed parameters, for Purity criteria for Lecithin (E 322) regulated by No. 231/2012/EU, you can also find below some added recommendations.

**Gardner Colour:** round to the full, no use of + or -, e.g. 12

**Viscosity:** round to one digit, one decimal reporting e.g. 12.5 Pa.s