

Certified Laboratories (Criteria)

DEFINITION AOCS Certified Laboratories are those laboratories recognized to be proficient in the use of AOCS methodologies for the analysis of soybean meal, as determined by criteria established by the AOCS Examination Board. Certification entitles a laboratory to recognition as a National Oilseed Processors Association (NOPA) “Official referee laboratory for soybean meal.”

SCOPE This procedure applies to any laboratory seeking AOCS certification. Both independent and industrial laboratories may apply for certification. There must be no conflict of interest when analyses are performed at industrial laboratories.

PROCEDURE

1. Application

- (a) Any laboratory wishing to be considered for Certified Laboratory status must first be able to demonstrate the ability to perform the required analyses. This includes:
 - Having an existing facility in which to perform the appropriate analyses at the time of application.
 - Having all apparatus and reagents required by AOCS methodology at the time of application.
 - Being willing to allow members or designated representatives of the AOCS Examination Board to inspect the laboratory facilities.
 - Having demonstrated proficiency in the AOCS Laboratory Proficiency Program series in the Unground Soybean Meal series by qualifying for Approved Chemist status for at least the immediately previous year. Proficiency is defined as having reported all results for required constituents for every sample in the program year and having achieved a score of less than 1.4 in those series. Any missing sample results will make chemists ineligible for Approved Chemist status.¹
- (b) The laboratory must retain on staff at least one (1) AOCS Examination Board Approved Chemist, approved in the AOCS Unground Soybean Meal series.
- (c) The laboratory must complete the application form and certified lab checklist and submit the application and administrative fee.² Request for application must be made in writing to: AOCS Headquarters, 3356 Big Pine Trail, Ste C&D, Champaign, IL 61822 USA. Applications must be received at AOCS Headquarters on or before **July 30**, annually.
- (d) New laboratory applicants will need to be inspected at their cost upon receipt of application.

2. Certification

- (a) Laboratory certification will be based on the acceptance of a satisfactory application, proficiency in the Unground Soybean Meal series of the AOCS Laboratory Proficiency Program for at least the year immediately preceding application, the Approved Chemist staff position requirement, and successful participation in the AOCS Certified Labs program (traditionally called “AOCS Examination Board blind check sample program”) for unground soybean meal.
- (b) Each program year, 12 samples taken from six lots of unground soybean meal are sent to participating laboratories. The referee samples must be analyzed using the current version of methods as outlined in the National Oilseed Processors Association (NOPA) “Trading Rules for the Purchase and Sale of Soybean Meal”.³

Moisture	AOCS Method Ba 2a-38 (Reapproved 2024)
Protein	AOCS Method Ba 4f-00 (Reapproved 2024)
Fiber	AOCS Method Ba 6-84 (Revised 2024)

- (c) Laboratory performance is evaluated based on both the reported results for each sample (“Individual Sample Assessment”) and the laboratory’s average constituent bias for moisture, protein, and fiber (“Average Constituent Bias Assessment”) over the program year. The average and standard deviation of the data from the twelve samples from six lots will be used to assess the performance of each individual laboratory.
- (d) After all results have been received in a program year, two rounds of outlier removal on all the data from all of the laboratories are carried out using Fixed Program-specific Biases. Fixed Program-specific Biases are used

to ensure the same standard is rigorously applied each year. The Fixed Program-specific Biases for Moisture, Protein, and Fiber, respectively, are 0.225, 0.503, and 0.300. The correctness of these Fixed Program-specific Biases is confirmed each year by evaluating the program year data using other statistical approaches.

- (e) **INDIVIDUAL SAMPLE ASSESSMENT:** a single sample is considered “deficient” if the z-score of any of the reported laboratory values for that sample fall outside ± 1.96 standard deviation units from the grand mean with outliers detected and eliminated. For each lab, the number of samples with any reported values for protein, moisture, or fiber content falling outside ± 1.96 standard deviation units from the grand mean with outliers detected and eliminated is totaled and each such sample is reported as “|Z-score| > 1.96”.

To qualify for or maintain their status as a Certified Lab, the absolute values of z-scores of no more than five samples may be greater than 1.96 (the z-score at the 95% confidence limit). A currently certified laboratory which is not on probation will be placed on probation if the absolute values of z-scores of six or more samples are greater than 1.96. A laboratory which is on probation will fail to be certified if the absolute values of z-scores of six or more samples are greater than 1.96.

AVERAGE CONSTITUENT BIAS ASSESSMENT: The Average Constituent Bias for a laboratory is defined as the average of Deviations of the values reported during the year for each constituent (Moisture, Protein, and Fiber). The Average Constituent Bias is calculated for each constituent for each lab, every program year to yield an objective measure of the performance of each lab compared to the other labs in the program. The Average Constituent Bias for a lab is the average of deviations of all twelve samples for each constituent. The deviations are obtained by subtracting the Average (also called the grand mean) of each sample from the values reported by the lab. The Program-specific Biases for each constituent are used to calculate the standard error of the bias for that constituent in that program year.

ACCEPTABLE BIAS: The Acceptable Bias is calculated as follows for both the 95% percentile point and the 99.7% percentile point:

$$(\text{percentile point} \times \text{Program-specific Bias}) / (\text{number of reported values})^{1/2}$$

Where, percentile point = 1.96 for 95% coverage
2.97 for 99.7% coverage

A currently certified laboratory which has an Average Constituent Bias outside the 95% confidence limit for protein, moisture, or fiber will be placed on probation. A laboratory which is on probation and has an Average Constituent Bias exceeding the 99.7% confidence limit will fail to be certified.

- (f) A laboratory cannot fail to be certified without first being placed on probation. Any laboratory that has failed to be certified shall not be eligible to participate in the AOCS Examination Board blind check sample program (Certified Laboratory) the following year. *Recertification:* A laboratory that has failed to qualify for certification shall be eligible to apply for recertification if the chemist on staff has fulfilled the performance requirements for Approved Chemists in the Unground Soybean Meal LPP series during the year following failure to qualify for certification. The laboratory will be certified on probation the first year after failing to qualify for certification. If a laboratory subsequently fails to be certified a second time, it shall not be eligible to apply for recertification until after two (2) years following the second failure to qualify for certification and the chemist on staff has fulfilled the performance requirements for Approved Chemists in the Unground Soybean Meal LPP series for two years following failure to qualify for certification; these years may be concurrent. Likewise, after a third failure to qualify for certification, a laboratory shall not be eligible to apply for recertification until after three (3) years following the third failure to qualify for certification and the chemist on staff has fulfilled the performance requirements for Approved Chemists in the Unground Soybean Meal LPP series for three years following failure to qualify for certification; these years may be concurrent.
- (g) Probation, recertification, and failure to qualify for certification
- i. A laboratory on probation can remain on probation indefinitely if they have an Average Constituent Bias exceeding the 95% confidence limit but within the 99.7% confidence limit.
 - ii. A laboratory on probation can come off probation when fewer than six of their reported samples in a program year are deficient (that is, the absolute values of z-scores of no more than five samples are greater than the z-score at the 95% confidence limit (1.96)) and their Average Constituent Bias for all constituents are less than the 95% confidence limit.
 - iii. A laboratory on probation will fail to qualify for certification if either the absolute values of z-scores of six or more samples are greater than the z-score at the 95% confidence limit (1.95) Individual Sample

- Assessment as outlined in (e), or their Average Constituent Bias for the program year exceeds the 99.7% confidence limit as outlined in (e).
- (h) All new laboratories and laboratories seeking recertification following failure to qualify for certification that comply with the program requirements will be considered certified on probation for the first year of participation after meeting the requirements.
 - (i) Participant results will be made available by August 1 of each year.⁴ After August 1, those laboratories on probation or failing to qualify for certification may appeal to the AOCS Examination Board between August 1 and August 31 by following the appeal procedures outlined below. The finalized listing of Certified Laboratories will be made public by October 1.⁵
 - (j) A laboratory whose AOCS Approved Chemist leaves the employ of the Certified Laboratory will remain certified for a period of up to one year. During this time, a chemist in their laboratory must qualify for AOCS Approved Chemist status in the Unground Soybean Meal LPP series.
3. Transferability of laboratory certification—AOCS Certified Laboratory status is not transferable. Each individual facility must pursue certification for their site. For companies having more than one site of analysis, each site must qualify for certification without regard to whether other sites owned or managed by the company have qualified as Certified Laboratories.
4. Foreign approval—Laboratories outside the USA wanting to become AOCS Certified Laboratories must comply with the criteria outlined in this procedure. However, if circumstances warrant special consideration, the need for special consideration will be determined by consensus of the AOCS Examination Board. Special consideration will be given only by consensus of the AOCS Examination Board and only to the extent that the integrity of the Program is not compromised.
5. Appeal procedures—
Appeals will be considered for the following issues:
- (a) Data entry errors shown to be made by AOCS.
 - (b) Failure of a plant sending a referee sample to the lab to provide specific instructions requesting a “NOPA Referee” analysis. The lab can request that the data from that analysis be removed, and their status be recalculated.
 - (c) Failure of AOCS to contact the lab and plant when a result is sent to AOCS without using the official form, “Report of Referee Analysis by AOCS Certified Laboratory” and to arrange for a replacement sample to be routed to the lab through the plant. The lab can request that the data from that analysis be removed, and their status be recalculated.
 - (d) Errors in sample instructions.
- Appeals will not be considered for the following issues:
- (e) Failure of lab to request a replacement sample from the plant if the NOPA sample bag was not in good condition or not airtight on receipt.
 - (f) Participant data reporting errors.
 - (g) Statistical methods used for data analysis.
 - (h) Failure of participant to adhere to posted deadlines, including requesting a replacement sample from the plant if the NOPA sample bag was not in good condition or not airtight on receipt.
 - (i) The Examination Board shall, in its sole discretion, determine whether or not any other circumstance or grounds for appeal shall be considered if not specified above.

Certified Lab Appeals:

- (a) Appeal proceedings and the identities of labs on probation and having failed to qualify for certification are strictly confidential.
- (b) After the AOCS Examination Board meets at the end of each program year (June 30), laboratories placed on probation or determined to have failed to qualify for certification are notified of the adverse decision and their right to appeal.
- (c) A written appeal is due by four weeks from the date of notification or August 31, whichever is later. The laboratory making an appeal (the “Appellant”) should mail their appeal to the Director of Technical Services and the AOCS Technical Services Manager responsible for administration of the Certified Labs program. There is no standard appeal form, but the appeal must include the basis for the appeal and all supporting documentation necessary to conduct a thorough review.
- (d) The written appeal is forwarded to the full Examination Board, who meet and discuss each appeal, then vote on each appeal. Any member of the examining Board having a direct economic or personal interest in the outcome of the proceeding shall be recused.

- (e) The Chair of the Examination Board tallies the votes and notifies Director of Technical Services and the AOCS Technical Services Manager responsible for administration of the Certified Labs program of the outcome. A simple majority is required. The Appellant is then notified by email from AOCS of the decision.
- (f) In the event the Appellant is dissatisfied with the outcome of the Examination Board's vote, it may request an oral hearing before the Examination Board to appeal a status of "On Probation" or "Failed to qualify for certification".
- (g) If the Appellant elects for an oral hearing, AOCS will schedule a call or online appeal meeting.
- (h) The following further conditions apply if the Appellant elects:
 - i. The Appellant has the right to be represented at the hearing by another person, including an attorney.
 - ii. The Appellant has the right to submit evidence and arguments against the decision.
 - iii. The Appellant has the right to call and cross-examine witnesses (if applicable).
- (i) At the conclusion of the hearing, the Examination Board will consider all testimony and evidence offered and make its final determination. A simple majority is required. The Appellant will be provided a written decision identifying the Examination Board's reasoning for its decision. The Appellant has the right to appeal an adverse decision in writing to the AOCS Governing Board within ten (10) days of receiving the Examination Board's decision. The decision of the AOCS Governing Board is final and may not be appealed.

NOTES

- ¹ AOCS Criteria M 5a-2023. A direct link to purchase AOCS Criteria M 5a-2023 is accessed by selecting the Individual Methods option on www.aocs.org/attain-lab-services/methods.
- ² The application and administrative fee is subject to change at the discretion of the AOCS Examination Board.
- ³ NOFA Trading Rules for the Purchase and Sale of Soybean Meal also list AOCS Method Ba 3-38 as the Official Method for the analysis of oil content in soybean meal, but the results for oil content are not included in the AOCS Certified Labs data analysis.
- ⁴ The Final reports from the AOCS Laboratory Proficiency Program are typically emailed to participants in early June of each year.
- ⁵ Certified Laboratories listings are published yearly in *INFORM*, on the AOCS web page (www.aocs.org), and in the *NOFA Year Book and Trading Rules*.