



Introduction

Supply chain traceability has always been a critical element of importers' due diligence efforts. However, with the passage of the Uyghur Forced Labor Prevention Act (UFLPA) (Public Law 117-78), traceability has become even more important for entities seeking to access the U.S. market. The UFLPA establishes a rebuttable presumption that the importation of any goods, wares, articles, and merchandise mined, produced, or manufactured wholly or in part in the Xinjiang Uyghur Autonomous Region (XUAR) of the People's Republic of China, or by entities on the UFLPA Entity List, are prohibited entry into the United States under 19 U.S.C. 1307.



Isotopic testing has emerged as a potential tool for companies seeking to determine the geographic origin of materials used in their products, and U.S. Customs and Border Protection (CBP) supports its use in supply chain tracing for managing overall trade fraud risks.

Scope

This document addresses the use of light stable isotopic analysis to verify the growing region of certain commodities or products, particularly cotton. For the purposes of this document, all commercial providers of this service will be referred to as "isotopic test providers," regardless of their business model (e.g., the use of subcontractors for certain portions of the analysis). Some providers may use additional testing technologies to verify the origin. This document does not address these other technologies. Care should be taken to understand the overall degree of confidence that a test provider can achieve, regardless of which or how many tests are performed.

Overview of Isotopic Testing for Origin Determination

Isotopic testing is a scientific method that identifies the atomic structure of naturally occurring materials, or a "fingerprint" of the material, affected by local environmental conditions. For example, in the case of cotton, it is the environmental conditions experienced by the plant during growth, not the seed's origin, that will determine the isotopic fingerprint of the cotton fiber. When that fingerprint is compared to a library of like materials from various geographic areas, the test can determine that the raw material is consistent with the claimed geographic origin.

The process to complete an isotopic test is time-intensive and requires sophisticated instruments and analysis. Isotopic testing is a complex process, and requires scientific expertise, advanced equipment, and trained experts. Furthermore, testing results are not instant, and timeframes vary based on complexity. For this reason, CBP continues to encourage the inclusion of testing early in an importer's due diligence program.

CBP's Use of Isotopic Testing

CBP leverages isotopic testing to determine risk in suspect supply chains and to inform agency screening efforts on high-risk cargo, such as shipments from the XUAR. For example, U.S. Department of Agriculture Cotton and Products Annual Report # CH2021-0039, April 1, 2021, estimated that cotton from the XUAR accounted for roughly 87% of China's production and 23% of the global supply in 2020 and 2021. This is one area where CBP is evaluating the risk of XUAR materials used in imported products.

To address these risks, CBP is enhancing its isotopic testing capabilities at three of its laboratories. As a result of these efforts, CBP will not only be able to conduct more tests, but also obtain results more rapidly. However, even with these additional investments, CBP will have limited testing resources and does not have the capacity to test all U.S imports. This is why CBP continues to encourage the inclusion of private sector testing in importer due diligence programs to help identify and manage risk.

Recommended Isotopic Testing Standards

CBP cannot recommend specific isotopic test providers; however, the Agency suggests that manufacturers and importers choose their test provider carefully. Some considerations for choosing a test provider include:

- At a minimum, all laboratory work should conform to best practices detailed in the Forensic Isotope Ratio Mass Spectrometry (FIRMS) Network Good Practice Guide for Isotope Ratio Mass Spectrometry. Similarly, data interpretation should take into account the guidance presented in the FIRMS Guidance for the Forensic Interpretation of Isotope Ratio Data.
- Ideally, laboratories performing chemical analysis for origin verification should be either accredited or actively seeking accreditation under the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17025.¹ The scope of accreditation for these laboratories should include specific methods as required by the analysis performed (e.g., determination of light stable isotope ratios). Accrediting agencies for ISO/IEC 17025 differ between countries, but ISO/IEC accreditation should be by an accreditation body that is a signatory to the International Laboratory Accreditation Cooperation-Mutual Recognition Arrangement (ILAC-MRA).
- The test provider should have a statistically significant number of materials in its in-house reference library in order to confidently verify origin.² Materials in the reference library



¹ As this is a relatively new field for commercial work, importers should be aware that accreditation is a multi-year process.

² This should not be taken to imply that the largest reference library is necessarily the best. Collections constructed with proper library planning may allow for higher confidence results from fewer absolute numbers of library materials. Importers may wish to discuss the various approaches to library building with test providers.

should have known provenance and should represent all commercially relevant growing regions being tested.

- The test provider should have the statistical modeling capability necessary to interpret isotope ratio data and provide a geographical assignment. In some cases, the statistical interpretation may be cited separately from laboratory analysis on an ISO/IEC 17025 scope of accreditation.
- Any laboratory performing instrumental analysis should participate in regular proficiency testing conducted by an ISO/IEC 17043 (or similar) Conformity Assessment sample provider.
- The isotopic testing provider should be willing to provide all relevant accreditation certificates and proficiency testing reports to CBP upon request.
- The isotopic test provider should be able to produce a detailed chain of custody for any submitted sample, from receipt of the sample through disposition.

Method of Testing

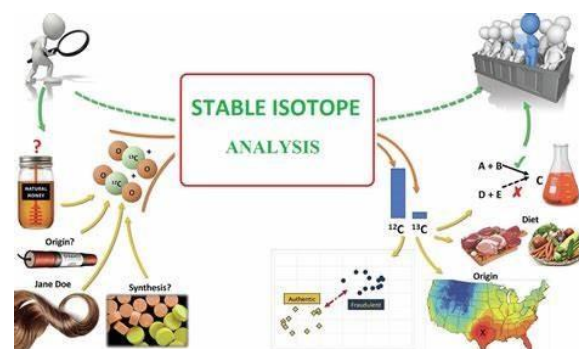
Each provider performing isotopic testing for origin verification will have an in-house method of testing and data interpretation, as no national or international standard method (ISO) or American Society for Testing and Materials (ASTM) currently exists. However, a chemical testing laboratory should be able to perform specific methods for the stable isotope ratio analysis of oxygen, hydrogen, and carbon by isotope ratio mass spectrometry (IRMS). Similarly, data analysis should be capable of taking isotope ratio data and, through the use of statistical modeling, determine if the sample is consistent with its claimed origin.

For blended fiber materials (e.g., cotton/polyester), the test provider should have methods for the isolation of cotton from non-cotton materials and should clearly identify which blended fiber materials can be analyzed, and which cannot.³ All methods used for laboratory analysis and data interpretation should be fully validated.

Test Report and Data Elements Suggested

At a minimum, isotopic test reports provided to CBP should meet all reporting requirements listed in ISO/IEC 17025. In addition to all data elements specified by the standard, the report should contain:

- a complete description of the product tested, including both a written description and color photographs that capture any unique branding or other images on the product as well as all labels attached to the product;
- the sample's claimed geographic origin(s);
- analytical results for the product tested (i.e., whether the sample is consistent with the claimed origin(s));



³ Different isotopic test providers may have different capabilities regarding blended fiber materials.

- the specific method used by the laboratory and the statistical testing uncertainty, confidence interval of determination, or similar statistical value demonstrating the analytical confidence associated with the origin determination; and
- a unique identifier to enable CBP to contact the test provider to verify the contents and authenticity of the report. Ideally, CBP should be able to verify the authenticity of a submitted report with the test provider via the provider's website or a similar mechanism.

If a specific test report pertains to multiple shipments, it can be used as evidence for multiple shipments; however, it is the importer's responsibility to show how the product description and unique identifier in the test report applies to multiple shipments, such as same style and lot number, same purchase order, or same contract number. Sufficient evidence of this could include same style number, same purchase order, or same contract number.

FREQUENTLY ASKED QUESTIONS

Why should the trade community utilize isotopic testing?

CBP encourages the trade community to use origin verification testing, which includes isotopic testing, to better understand their supply chains, demonstrate due diligence, and assist with determining the source of raw materials in final products. Although the use of isotopic testing represents an important development in global supply chain traceability, relying entirely on this tool is neither feasible nor effective. Testing should be considered one component of an importer and manufacturer's supply chain tracing and risk management program.

Why doesn't CBP do more testing for determining admissibility of cargo?

Due to the cost and time frame to conduct isotopic tests, it is neither feasible nor effective to use isotopic testing as a single or exclusive tool to determine release of cargo. CBP leverages testing to determine risk in suspect supply chains to aid the Agency's screening efforts for high-risk cargo. While technology plays an important role in CBP's forced labor enforcement efforts, isotopic testing alone cannot be used to clear shipments and is only a single part of an applicability review package to assess compliance with U.S. trade law.

Does CBP accept isotopic testing reports as evidence of origin, and how should the trade community submit a test report?

Yes. CBP will accept any information as part of an applicability package, to include isotopic testing reports. The recommended standards outlined in this guidance will ensure your test conforms to isotopic testing best practices and ensures the origin testing you conduct as part of due diligence has a higher likelihood of being more accurate. Importers can submit isotopic testing reports to the port of entry or the importer's assigned Center of Excellence and Expertise with all other supply chain tracing documents while responding to forced labor detentions. All isotopic testing reports and information relating to such should include chain of custody information for the sample tested⁴ and evidence that the tested sample relates to the shipment under review.

⁴ Chain of custody from point of collection of product sample to the vendor test provider.

Are isotopic testing reports alone sufficient to release detained cargo subject to UFLPA review?

No. Isotopic testing reports are just one consideration that CBP may evaluate during reviews of supply chain documentation, but they are generally not sufficient to obtain release of detained cargo without other information. Additionally, although test results may provide substantial confidence of potential origin from a certain region, they are not foolproof. Origin assessment by scientific testing is, by its nature, the result of expert analysis of scientific data and is considered evidence, not fact.

If isotopic testing is insufficient to prove origin, why should I use it?

It is the importer's responsibility to exercise reasonable care when importing products into the United States and to provide all documentation necessary for CBP to determine whether all applicable legal requirements have been met. Although isotopic testing is not a legal requirement, it can assist importers and manufacturers with their internal supply chain validation efforts to prevent products made with forced labor from being used in the manufacturing process.
