

## Qalitex Urges Brands to Address Moisture Sensitivity Risks in Powdered Supplement Stability

Qalitex advises brands to address moisture risks in powdered supplements, warning that humidity exposure can undermine shelf-life and microbial stability.

IRVINE, CA, UNITED STATES, June 20, 2025 /EINPresswire.com/ -- <u>Qalitex</u> Laboratories, a provider of <u>scientific</u> <u>testing services for dietary</u> <u>supplements</u> and personal care products, has issued a technical advisory calling attention to the moisture sensitivity risks affecting powdered formulations. The company emphasizes that even when initial quality standards are met, fluctuations in humidity exposure during storage,



shipping, and handling can significantly compromise the long-term stability of powdered supplements.

From collagen powders to botanical greens and protein blends, the powdered supplement category continues to grow—but so do the challenges associated with maintaining product integrity under variable environmental conditions.

Why Powdered Supplements Are Uniquely Vulnerable to Moisture

Unlike tablet or capsule formats, powdered products often have a larger surface area and more direct environmental exposure once opened or even during minor packaging failures. Many are formulated with hygroscopic ingredients—those that naturally attract and retain moisture from the air. This sensitivity makes them particularly susceptible to clumping, degradation, microbial growth, and active ingredient instability.

Moisture uptake can lead to early product spoilage, caking, discoloration, or changes in taste and odor. In some formulations, it may also reduce the bioavailability of key nutrients or disrupt the function of added probiotics or enzymes.

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Stability claims are not just scientific—they're environmental. And if the environment changes, the science has to follow." Nour Abochama, Vice President for Operations at Even when stored in sealed containers, shifts in external humidity levels during transit or warehousing can lead to micro-permeation or condensation inside the packaging, especially when temperature changes occur in tandem.

"Moisture doesn't need a spill or a leak to become a problem," said Nour Abochama, Vice President for Operations at Qalitex. "For powders, even minimal humidity exposure over time can compromise stability and make shelf-life claims unreliable."

## Stability Testing Must Account for Hygroscopic Behavior

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<u>Current Good Manufacturing Practices (cGMP)</u> require dietary supplement manufacturers to validate that products remain within specification over their labeled shelf life. However, Qalitex Labs notes that standard accelerated stability testing may not always reveal the full extent of moisture-related degradation risks.

Many accelerated protocols are conducted under controlled humidity ranges that may not reflect the true exposure powders face in warm, humid climates or unconditioned storage facilities. Furthermore, real-time stability testing—which can capture gradual moisture uptake effects—remains underutilized in this category.

Formulas with plant-based proteins, collagen hydrolysates, marine extracts, or natural colorants are particularly vulnerable, as these components tend to be more sensitive to moisture-driven chemical or microbial changes.

## Packaging Considerations Are Only Part of the Equation

While moisture-resistant packaging plays an important role in mitigating risk, Qalitex cautions that packaging alone is not a fail-safe. Factors such as foil thickness, liner material, seal integrity, and resealability after opening all affect moisture ingress over time.

Additionally, the real-world handling of products—including consumer habits, storage near kitchen or bathroom environments, and repeated container openings—can rapidly alter the internal moisture profile of the product.

For brands distributing through e-commerce or into global markets, the risk increases. Transport routes that pass through multiple climate zones can lead to condensation inside containers, while last-mile delivery in hot or humid regions may exceed the product's validated stability conditions.

Microbial Risk in Powdered Products with Natural Ingredients

Moisture exposure not only affects physical and chemical characteristics but can also increase microbial risk. Qalitex has observed that products containing natural botanicals, fibers, or nutrient-dense blends may experience microbial growth under elevated humidity, even if initially within specification.

This presents compliance challenges for manufacturers and private-label brands alike, especially in light of increasing scrutiny from both the FDA and third-party platforms such as Amazon, which require detailed microbial stability documentation.

If moisture-driven microbial growth is detected post-launch, it can trigger product holds, recalls, or reputational risk—even when the original manufacturing lot met all safety requirements.

Shelf-Life Claims Must Be Substantiated in Context

Qalitex emphasizes that shelf-life labeling for powdered products must reflect not only the formulation itself but also the packaging and expected storage conditions. Claims such as "24-month shelf life" must be supported by data that consider worst-case humidity exposures and the full distribution chain.

Inadequate substantiation may be flagged during inspections, especially if the product experiences field complaints or adverse events related to spoilage, sensory changes, or instability.

For brands using co-manufacturers, it is also important to confirm that the provided shelf-life documentation accounts for moisture stability. In some cases, stability testing is conducted only under ideal storage conditions, which may not align with real-world exposures across different sales channels.

Recommended Practices to Mitigate Moisture Stability Risks To improve long-term quality and reduce the risk of degradation, Qalitex recommends the

following practices for brands manufacturing or distributing powdered supplements:

Include specific humidity challenge studies as part of accelerated and real-time stability protocols.

Validate packaging barrier properties through moisture vapor transmission rate (MVTR) testing. Consider desiccants or moisture-absorbing inserts in high-risk formulations or pack sizes. Train fulfillment and distribution partners on climate-sensitive handling and storage. Periodically test retained samples stored under ambient and worst-case conditions.

Abochama added, "We're seeing a rise in shelf-life disputes where moisture exposure was the silent factor. Proactively validating moisture tolerance isn't a luxury—it's part of responsible product stewardship."

Implications for Amazon Compliance and Retailer Documentation

In addition to regulatory requirements, third-party platforms such as Amazon may request documentation to verify that powdered products remain stable through the fulfillment cycle. This includes microbial testing, clumping assessments, and photographic evidence of product condition post-distribution.

Brands without detailed stability protocols that address moisture-related degradation may find themselves facing delays or removals during compliance audits, particularly if product complaints trigger internal reviews.

Qalitex advises maintaining detailed records of both laboratory stability data and packaging validation files, as these are commonly requested in Amazon's documentation review process.

Qalitex's Role in Supporting Moisture-Sensitive Product Validation Qalitex Laboratories continues to support dietary supplement brands in designing stability testing protocols that address real-world risks, including those associated with moisture uptake in powder formulations.

Through methodical evaluation of product composition, packaging interactions, and environmental factors, Qalitex helps ensure that shelf-life claims are grounded in scientifically validated data reflective of actual storage and transit conditions.

With this latest advisory, Qalitex underscores the importance of acknowledging and addressing moisture sensitivity as a central factor in the stability of powdered supplements—particularly as market growth, international expansion, and consumer expectations place new demands on long-term product quality.

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