



Global Sourcing Drives the Need for Independent Testing

Table of Contents

Does this sound familiar?..... 3

Hidden Costs..... 3

Why Independent?..... 3

Getting Started..... 4

Qualities of Independent Testing...4

Testing Facilities..... 5

Does this sound familiar?

A marketing leader in your organization identifies a product line extension that will broaden the breadth of your portfolio, allow you to enter target market segments, and give your customers products they've been clamoring for. All of this while making a decent margin. All you need to do is import it, mark it up and sell it. A commercial move that isn't a strain on your existing manufacturing organization and all that is required is a little paperwork and a distribution plan. That's all well and good until you start selling the product and start hearing feedback from the field that the product doesn't exactly work in the application and it goes into a highly specified industry that requires lot to lot traceability, etc. That's when this simple business model turns organizations upside down and the ancillary product line begins to pull resources away from your core business.

In a global economy, suppliers and customers are no longer separated by a short drive or flight, but by few continents. Shipments are planned months in advance and orders are taken by the container load. A company may use email as the primary source of communication. Specifications and drawings may be written in a different language or using different units of measure than the buying entity is accustomed. This creates tremendous risk for the buying and selling entities if the specifications of the product aren't clearly transferred between the companies. This creates an opportunity for supply chain hiccups, strained customer relations, organizational confusion, transportation expenses, and potential legal implications and overall reduced margins. One way to mitigate this risk is to establish an independent testing protocol ongoing basis. Most companies know this, but how many really act upon it to mitigate risk and ensure a high quality supply?

Hidden Costs

Typically, many of the drivers to in--source from other regions include cost, risk aversion, and raw material supply. Particularly, when cost is being assessed, the typical factors of freight, duty, and currency are included in analysis. However, one could argue that there is a significant factor of importing raw materials or finished goods that are not included in the calculation. This includes indirect manufacturing support (purchasing, QA, and trade compliance) that is in overhead rate that generally gets overlooked when it comes to in--sourcing. And, if the particular company is in--sourcing and distributing the product as a product line extension, the margins are typically smaller than manufacturing onshore.

Also, when the financial modeling has been completed and the focus shifts to commercialization, ongoing quality is often overlooked. A company may have done initial analysis to prove concept, but how are they assured that the newly imported materials are of the same quality that the prototypes were months earlier?

Testing serves as a reference point; a set of objective results for comparing your incoming products and ensuring the quality of your outgoing products. It is not difficult to do and it doesn't have to be expensive. It is a way to understand the properties of your products and those of your competitors, an important means toward gaining a competitive edge in the marketplace. You can design a program and get paid back for your investment with additional margin points and reduced material claims. The larger and more thorough the program is, the bigger the return on investment.

The testing part is simple. It is a tool for learning from your products and experiences and those of others in your field. It is a tool that provides a baseline for future decisions and growth.

Why Independent?

An independent, third party can play a key role in a company's quality system. It could serve as an arbitrator in & settle any "he said, she said" claims and have no bias. Also, an independent lab can ensure that the product you purchase is indeed the product you specified, including the chemical composition and performance. In each case, the results have always been eye opening for the client. In some cases, the study confirmed their current speculation based on field feedback. In other cases, it stopped the introduction of products before they

became an embarrassment to the company and created financial liability.

Additionally, independent testing can serve as a check and balance and against an organization's people and equipment that may or may not have the best practices in place. Independent testing of imported products also keeps an organization's R&D focus on the products they are manufacturing locally and doesn't misplace those valuable resources evaluating suppliers but rather focus on development of their own product lines.

From a cost standpoint, investing in testing machines and/or employee training may not be in the financial or capital budget from year to year. Therefore, establishing a protocol with an independent lab would provide a better return on investment. Additionally, the cost for consistent expertise is relatively trivial in comparison to the size of the financial investment that is already on the line.

Getting Started

So, where does one start? You may need to test characteristics when the product is applied on different substrates, depending on the end use of the product. You may also need to see how the characteristics change upon aging, either prior to application (as might be experienced sitting in a warehouse) or after application (how well it holds up in use).

The standard test methods of peel, tack, shear, & viscosity above are not exclusive; they are simply the most common. Other methods to measure the same or similar properties are available from ASTM, PSTC and TLMI. Test methods are also available from FINAT, AFERA and others. As the marketplace becomes more global, there is a move to find common ground among professional societies and establish methods accepted universally. Many of these organizations are working on harmonization of standard test methods.

Other specialized tests are also important when characterizing products that have been developed for a specific end use. Mandrel holding power; testing at high or low temperatures; testing after accelerated aging in heat, humid and UV environments; and SAFT (Shear Adhesion Failure Temperature) testing are just a few of the special end use tests that should be included in benchmark testing some products.

It goes without saying that all testing must be performed a number of times on a given sample to have assurances that the data produced is reasonably accurate and precise. Typically, most of these tests are conducted with a minimum of five replicates per sample, sometimes more, occasionally less.

Qualities of Independent Testing

In order to be accurate and significant, testing must possess at least four qualities.

1. Testing must be objective and quantifiable. To be objective is to be real. Successful companies have learned to be objective with their results. This "honesty" allows them to see clearly and plan for the future based on the knowledge they have gained. The properties tested must be quantifiable in a reproducible manner. Benchmarking is not a set of subjective impressions of how a product looks, feels, or smells. The quantification of the data demands that precision instrumentation be utilized. Furthermore, it is important that the equipment is accurately calibrated and recognized as suitable for the test. The reproducibility of the test methods must extend over time and with a diversity of operators.
2. The properties being tested must be significant. Each test performed must be relevant to characterize some real-world property of the product. If color or tensile strength or adhesion over time is important for the product, test it. If it's not, don't.

3. The product being tested must be representative of its group. If production material is the subject of the test, it must be a properly documented random sample. That is, its manufacturing control (date, lot number, etc.) is to be noted, but it should not be selected because it ran better than the product has for a long time. If it is a developmental product, it must represent material that at least can be reproduced.
4. All products should have similar histories. It would be unfair to compare a freshly manufactured product against one that has been in storage under unknown conditions for an extended period of time. This is where a testing protocol is critical to do it the same way every time and document that conditions haven't changed.

Testing Facilities

Testing of this nature requires precision instrumentation: an adhesion/release tester, a shear tester, timers, tack tester, roll down equipment, sample cutters, analytical balance, precision dies, an oven and micrometers, among others, and a room with a controlled environment to house them. It is critical that the equipment and environmental conditions specified in the test methods are used for each test. This assures a minimization of the measurement uncertainty. Through round-robin testing we've learned that improperly maintained or calibrated equipment and an uncontrolled environment can adversely affect data to a significant degree.

Decisions based on the results of a benchmark study are only as good as the data. The knowledge that all testing was performed according to standard methods on suitable, accurate equipment allows decisions to be made with confidence.

The testing you need to compete and grow can be performed at a competitive price through an independent testing facility. By contracting with an independent laboratory, recognized in their field of specialization, you can be assured of impartial results. If that laboratory is also nationally accredited, you are confident the results are accurate because the lab's competency has been reviewed by a recognized third party. You can also count on their expertise to help you interpret the results.

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