SARTORIUS

Application Highlight

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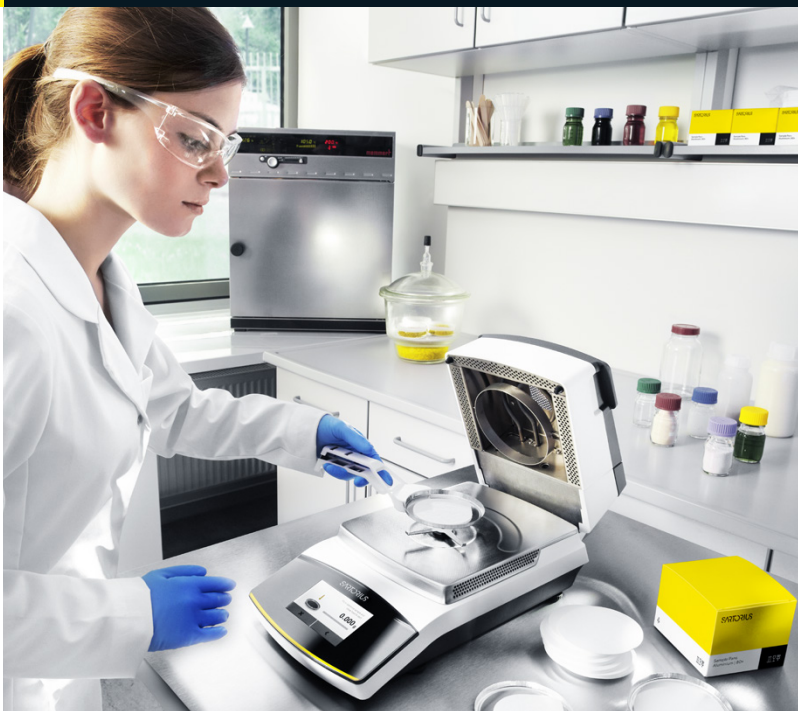
Monitoring Moisture in the Cosmetics Industry

Maintain Moisture in Your Process At Optimal Levels



Abstract

Moisture content determination is a vital measurement in the production and processing of most materials. Product quality and ability to process materials efficiently can be directly impacted by the control of moisture content. The presence of excessive moisture or lack of sufficient moisture can directly alter the physical properties of most materials at every stage of the production cycle. From incoming raw materials, to material processing, through final product, moisture determination is a key factor used in the quality control and quality assurance of most products.

The specific benefits of moisture determination within the Cosmetics Industry vary greatly depending on the products being manufactured. The Cosmetics Industry encompasses such a wide variety of products that it only stands to reason that why these companies test for moisture are also quite varied. While the specific benefits of moisture determination will change from company to company there are basic reasons why companies in all industries find it advantageous to do moisture testing. Quality control, cost savings, eliminating production issues and legal requirements are the most common reasons. In most cases, the single biggest reason that the cosmetics industry monitors moisture has to do with quality issues. Some examples are set forth, here, with an emphasis on the Cosmetic industry.

Quality

Quality issues such as product consistency, texture, moistening characteristics, and shelf life can all be greatly affected by moisture content. Water can be a key ingredient in many types of cosmetics. While, in other products small amounts of moisture can have adverse effects on a product's quality. Two anonymous "real-world" customers who take vastly different approaches to moisture are illustrated below.

Customer A

This customer makes a lot of oil-based body lotions, moisturizing creams, washes, serums, and styling products. They test mostly raw ingredient powders for moisture out on the production floor just prior to batch drying them. Adjustments are made to the drying process based on the initial moisture reading of the powder. The powders are checked when they come out of the batch dryer to verify that they are within spec. Then they are blended with various oils to make finished product. If the powders were to be blended with higher than the target moistures the product formula may be off. This can affect how they spread on the skin. Also, most of these oil-based products are clear in their packaging. Too much moisture can make the product appear cloudy. Similar moisture issues can occur in perfumes. Although, most of those are not oil-based, but alcohol-based. This customer uses the MA 160 for Moisture Testing.

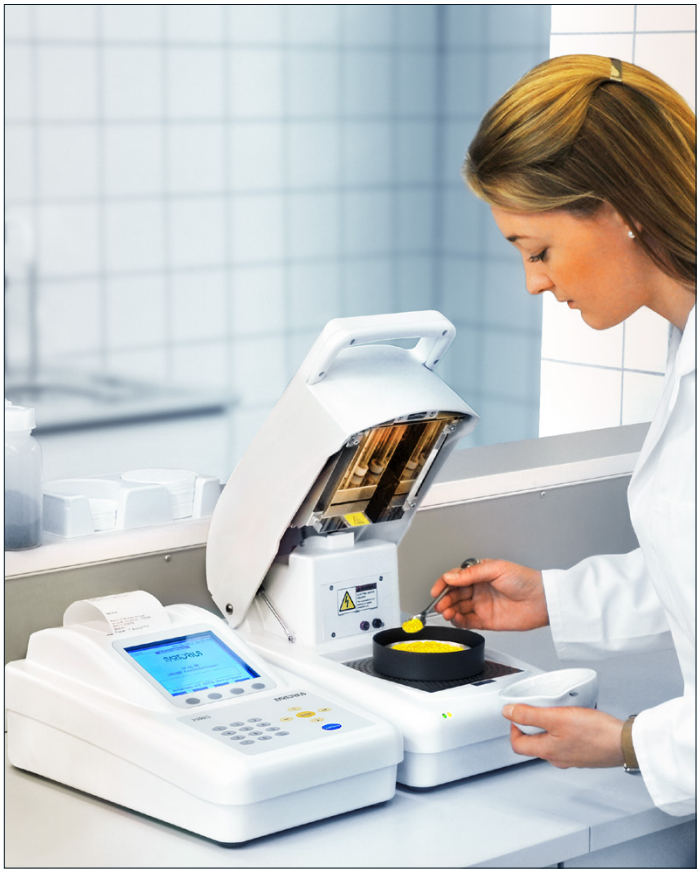
Customer B

This customer makes mostly water-based products. They use water as a solvent to dissolve ingredients. Controlling the amount of moisture in the raw ingredients is critical to how the final product turns out. This company makes a lot of skin care products. Moisture must be controlled in these products to ensure consistency, texture, and moistening characteristics. They manufacture shampoos and cleansers that require tight moisture specifications to guarantee they will suds properly. Typically, cosmetic companies who make water-based products are dealing with a higher percentage of moisture. We tested samples for this customer on site as well as in our Lab. They ranged anywhere from 8% solids to 60% solids. They use our Mark 3 LTE in a quality control lab rather than out on the production floor.

Below are actual test results on products common in the Cosmetics industry.

Table 1. *Correlation results between convection of vacuum oven and the Mark 3 HP Moisture Analyzer*

Type Material	Oven Reference	Mark 3 HP Results	Test Times	Std. Dev.
Nail Polish	31.28% S	31.31% S	5.4 min.	0.073
Nitro-Base Solution	27.70% S	27.68% S	7.0 min.	0.120
Polish Remover	0.273% S	0.268% S	15.3 min.	0.034
Talc	0.070% M	0.069% M	2.4 min,.	0.004
Styling Spritz	9.43% S	9.44% S	5.5 min.	0.070
Anti-Bacterial Soap	43.52% S	43.497% S	5.6 min.	0.121
Body Lotion	17.51% M	17.45% M	12.0 min.	0.160
Collagen Slurry	93.54% M	93.55% M	11.6 min.	0.030
Body Wash	21.57% S	21.62% S	11.5 min.	0.151

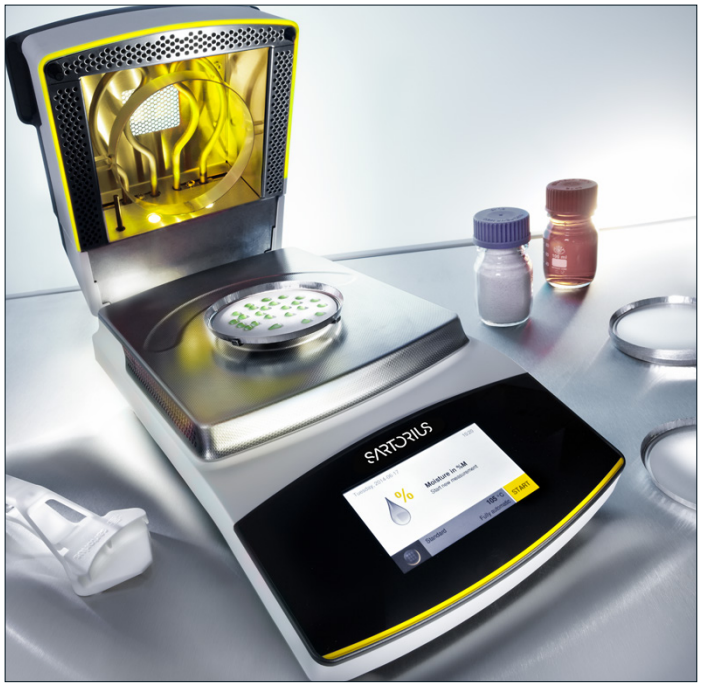


Maintain moisture at optimal levels in your production process.

Production
Product flow (piping, equipment, packaging). Minimize drying delays. Increased throughput. Waste reduction. Man/hr reductions correcting problems.

Legal
Certain products are required to be tested for proper moisture limits due to labeling, federal/state/local, or industry regulations. (Food, Chemical, Wastewater)

Cost
Water is an inexpensive ingredient. Maximizing water content when selling or verifying materials are within limits (incoming inspection) when purchasing goes directly to the bottom line. (All products sold by weight or concentration).



Monitor the moisture for good quality of cosmetic products.

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