

# THE COLOR OF PEANUT BUTTER

## MORE THAN MEETS THE EYE

Did you know that Americans consume more peanut butter than any other country?

Over 90 million jars are sold annually - that's one about every three seconds! About 75 percent of all American families purchase peanut butter, enough to make 10 billion peanut butter and jelly sandwiches a year. That's about 500 million pounds of peanut butter, or three pounds per person every year and consumption is increasing.

Whether you always buy your favorite brand or shop for the best price, one thing you will notice – the color of peanut butter from jar to jar and from producer to producer does not vary much. That doesn't happen by accident.

For the past 50 years, there have been standards for grading peanut butter established by the United States Department of Agriculture (USDA), and peanut butter color is an essential factor in the ultimate determination of its final grade.

There are many factors that define the different qualities of peanut butter. There are different types, textures and styles of peanut butter outlined by the USDA.

Aside from the types, textures and styles, there are three different grades that have to be determined. Color accounts for twenty percent of the total score when establishing the grade of peanut butter. The USDA has established color standards for visually establishing peanut butter that classifies as Grade A, Grade B, or substandard. The process involves setting up specific lighting, viewing conditions, product application and preparation method.



### Sunland Inc.

Sunland, Inc. was formed in 1988 by a group of dedicated peanut farmers in eastern New Mexico to market the Valencia peanuts they grew. Sunland's market reaches from the retail store in Portales, NM, to around the world. In addition to processing raw, roasted, salted and unsalted peanuts, Sunland is the only manufacturer of peanut butter in the state of New Mexico.

Like all peanuts, Valencias are legumes, more closely related to peas and beans with one important difference: they grow beneath the ground. Valencias are smaller, sweeter and have more intense flavor than other varieties of peanuts. They have three to five kernels in each shell and are grown almost exclusively in eastern New Mexico and west Texas.

In fact, 90 percent of the Valencia peanuts produced in the US are grown within 120 miles of the Sunland plant. The peanuts destined for New Mexico's only peanut butter plant are shelled and roasted, and most of the red skins removed. Then the peanuts go through several grinding and mixing areas. Not a single additive is put into the natural peanut butter made at Sunland.



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## Color Quality Control

"The USDA provides four color chips for peanut butter and we try to match our peanut butter color to chip number three, with a plus or minus tolerance of .5," said Samantha Rector, Quality Control Supervisor, Sunland, Inc. "The private label peanut butter we make for other companies may require a different color match. We needed a way to take the subjectivity out of color matching, which was done visually according to USDA standards. I may see a batch of peanut butter color as too dark, while someone else may see it as too light."

"We learned of a new and more reliable method that had been developed by Konica Minolta to speed up the color evaluation process on peanut butter while at the same time making the process more consistent and less subjective," said Rector.

The Konica Minolta CR400/410 series of colorimeters have the ability to program the USDA grades and color matching data of peanut butter into the instrument.

"Now we can take a measurement of either roasted peanuts or peanut butter in seconds, rather than relying on time-consuming visual evaluation. We have eliminated the need for special sample preparation to color standards and for special lighting and viewing conditions required to evaluate peanut butter visually."

## Consistency is the Goal

The CR-410 colorimeter is a sophisticated color measurement instrument that can be held in just one hand. The CR-400 series of colorimeters provides all the capabilities needed to measure, compare, and pass/fail up to 100 targets and 1000 samples. Available in a choice of apertures (8mm or 50mm), the CR-400 series is ideal for measuring reflected color and color difference of ingredients, raw materials, finished products, powders, pastes, and opaque liquids.

The CR-410 used by Sunland can accurately and consistently measure peanut butter in a standard attachment and report a single number corresponding to established USDA Peanut Butter Standard Color chips. The reported color numbers will indicate whether the product is USDA Grade A, Grade B or substandard grade, and in the case of Sunland, report a variance from the programmed color requirement for their peanut butter. The CR-400 Peanut Butter Color Index Meter comes with SpectraMagic NX QC software. Sunland has the capability to store information from every batch in SpectraMagic NX to keep track of product statistics batch to batch. A custom output report can be printed for every batch.

Sunland measures the color of peanuts at the grinding stage and at the final peanut butter stage just before it is put into jars.

"Measuring ground peanuts helps us know where the color is before processing into peanut butter," said Rector.

Peanut butter samples are put into Petri dishes and placed on top of the Konica Minolta CR-410 and measured. Color is adjusted by controlling the temperature at the roaster, according to the results of the measurement.

"Colorants are never used to adjust color; it's all pure Valencia peanuts," said Rector. "The Konica Minolta CR-410 Colorimeter has definitely saved us a lot of time and cost by eliminating trial and error and increased our productivity too."

So the next time you crack open a new jar of peanut butter, take a good look at the color. A lot of science went into ensuring that you are getting a consistent, high quality product, courtesy of Konica Minolta.

