



DAIRY INGREDIENTS FAX

California Polytechnic State
University
San Luis Obispo, CA

Published by the Dairy Products Technology Center - Dairy Ingredients Applications Program

Energy and Protein Bars: Formulating with Skim Milk Powder



Are you an athlete that needs an energy boost prior to a work out, an on-the-go person that needs to grab a quick meal or a health conscience person that is trying to meet daily nutritional needs? If you answered yes to any of these

questions you are probably a person that is contributing to the 500 million dollar per year energy bar market (*Food Product Design*, Sept 1999).

Energy bars provide protein, complex carbohydrates, fiber, good types of fats, vitamins and minerals. The bars currently in the market contain the following nutrition specification ranges: calories - 170 to 270, carbohydrate - 21 to 53 gm., fat - 3 to 11 gm., protein - 4 to 17 gm. As you can see there is quite a wide range in values. The values depend on product serving size and what the bar is trying to achieve (energy and/or protein). Typically the recipes have been formulated to contain protein that represents about 20% of the Daily Value per serving (about 10 grams of protein). Added value components include various herbs and nutraceutical supplements such as ginseng, antioxidants, bee pollen and isoflavones, to name a few. A claim such as high in protein, excellent source of calcium and provides 22 vitamins and minerals are frequently found on energy bar labels. Many protein/energy bars are still following the ever popular 40-30-30 (40% carbohydrate, 30% protein, 30% fat); however, some high protein bars are claiming protein levels as high as 64% of the Daily Value (30 grams protein).

Skim milk powder (SMP) is currently being used in energy/protein bars to supply protein, calcium and energy. There are also marketing advantages to using SMP such as promoting the product as being a complete protein (providing all the essential amino acids) and increasing the nutritive value due to the calcium content. Formulating with SMP delivers a clean flavor contributing a dairy note that will compliment other flavors. SMP, which contains approximately 36% protein, is often used in combination with food ingredients to deliver a higher protein product. Good tasting, nutritious, high protein bars have been developed using SMP in combination with other proteins such as whey. Formulating with SMP also helps contribute to the brown color in a baked granola type of bar. The lactose and protein present in the SMP contribute to the Maillard browning reaction. The amine group of the protein reacts with lactose and other carbohydrates during the baking process to deliver flavor and color. SMP also promotes good water retention characteristics which affects the texture by keeping the product moist. Skim milk powder gives food formulators an ingredient to provide a balance of flavor, nutrition and functionality that will assist in delivering a good tasting marketable energy/protein bar.



More Calcium for Kids

In the November issue of *Pediatrics*, the American Academy of Pediatrics encourages pediatricians to recommend milk, cheese, yogurt and other calcium rich foods. The Academy published a policy statement recommending children to get calcium through food first since the eating patterns they develop during childhood are usually the eating patterns they will follow throughout their life. The current recommendations are as follows: 800 mg of calcium each day for children or the equivalent of three 8 ounce servings of milk or other dairy foods each day; 1,200 - 1,500 mg of calcium or the equivalent of at least four 8 ounce servings from the Milk Group for adolescents.

Government studies have shown that more than half of children in America do not meet current calcium recommendations. Although the trend seems to be in calcium fortification, the scientific community believes that milk and dairy products are the best source of calcium (*Dairy Foods*, Nov., 1999). The calcium in cow's milk is readily absorbed due to the added vitamin D, which promotes calcium absorption.

More and more dairy products are being marketed toward children. According to the November issue of *Dairy Foods*, children have an increased influence on purchasing decisions. Food manufactures have taken note of this and are developing and marketing products with flavors that are more creative and fun, colors that are bright and bold, packages that are interactive and use licensed characters and humor. By making these products nutritious and convenient, they get the parents stamp of approval. Successful children's dairy food products include Yoplait's Go-Gurt portable yogurt, Dean's Milk Chugs and Sargento's MooTown String Cheese.

A perfect example of a new product introduction targeted for children is Dannon® Danimals® Drinkable Lowfat yogurt. The formula, package design and graphics were developed with kids in mind. The yogurt is packaged in a unique bubble bottle shape, brightly colored with animal characters in a 3.5 oz size. Of course the product is a hit with parents because it is portable and nutritious.

I wish to receive/continue to receive Dairy Ingredients Fax **YES** **N**
Please add names of those at your company that would like to receive a copy of Dairy
Ingredients Fax
Name(s) and fax # _____

Return Fax: 805-756-2998

For more information please contact Carolyn Podgurski at 805-756-7148 or E-mail cpodgurs@calpoly.edu



