

THIRD QUARTER 2007

CALCIUM

Feed-grade calcium products are available in a wide variety of particle sizes, from liquid suspendable products to large particle products for laying hen diets.

DICALCIUM PHOSPHATE

Both 18.5% and 21% phosphorus products are available.

SODIUM BENTONITE

Bentonite products are available in a wide variety of particle sizes suitable for any purpose.

POTASSIUM

ILC Resources has both potassium chloride (KCl) and potassium magnesium sulfate (K/Mg/S) available.

All products are available in both bag and bulk.



And that ain't chicken feed!

Are we eating as well as chickens we feed? For that matter, how about hogs we feed? Do we eat better than they do? Or are we just piggin' out? What about cows we milk? Do we eat as well as they do?

Our first reaction is to defensively answer ... "Well, of course we do! We eat much better than animals." We would do well, however, if we'd take a closer look at this situation. Quite frankly, in general, we DO NOT eat as well as we feed our animals. This editorial is not designed to outline the right way to eat and give us all a perfect diet to follow. It is designed to stimulate some thought, however.

If we, as humans, were measured economically by what our bodies become based on how we eat, we might start to eat better. We demand laying hens to produce nutritious eggs that are symmetrically oval shaped with strong shells that don't break. We expect swine to grow efficiently and end up as healthy, lean, tasty pork. We require beef to do the same. Our dairy cows must produce milk that tastes good and is good for us. Similar statements can be made for other species of domestic livestock and poultry, as well. But why don't we demand the same for ourselves? I would suggest that the reason lies with our inability to realize any significant economic benefit associated with what we eat.

We are in a land of plenty. We are rarely confronted with hunger – true hunger. We, as people, are not measured based on the carcass characteristics and meat tenderness qualities we demand of livestock and poultry.

We know to get the required results from livestock, we must balance their daily diet to maximize performance and optimize economic returns. We pay close attention to feeding balanced amounts of protein, energy (fats and/or carbohydrates), vitamins, and minerals, plus provide clean, good quality water to drink.

Protein furnishes the building blocks for lean muscle growth. Carbohydrates and fats provide energy needed to produce necessary gain for meeting performance goals. Sometimes, it is necessary to limit energy intake. As an example, to prevent over-conditioning in a beef cow from affecting re-breeding, the rancher may cut back her

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Dical – is it 18.5% or 21.0% or ?

Sometimes our conversational language only adds to confusion and we end up understanding even less after we talk about something than we did before. Take the term dical for instance.

In talking about dical, different people hold a number of different meanings to the term. It might be in everyone's best interests to try to clarify some of this confusion.

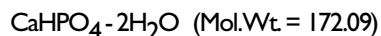
We may hear some people say they need a load of dical. Does that mean truly dicalcium phosphate running a minimum of 18.5% phosphorus (P) and about 18-22% calcium (Ca)? Or were they actually referring to *dical* that is 21.0% P and some 15-18% Ca? Gee, isn't "21-dical" actually monocalcium phosphate or simply monocal?

First, let's identify the profiles of both monocal and dical.

Monocal is monocalcium phosphate monohydrate. Its complex chemical formula is:



Dical is dicalcium phosphate dihydrate. Its complex chemical formula is:



There are obvious similarities in chemical structure, but at the same time very inherent differences in concentrations of

Ca and P. Chemically phosphoric acid (H_2PO_4) is reacted with calcium carbonate (CaCO_3) to produce either monocal or dical phosphate products or both. Distinctly different concentrations of Ca and P result from these reactions. In the case of monocal, Ca ranges from 15-18%, while P is a minimum of 21.0%. True dical, on the other hand, ranges from 20-24% calcium, while P is a minimum 18.5%. We frequently hear the term "21% dical" refer to monocal. We also hear "18.5% dical" being said for dical. This is most likely where the confusion lies. Both are being referred to as "dical." If the percentage would faithfully be used as well, the two "dicals" would be more easily understood from each other. Unfortunately, this is not always the case.

To further confuse matters, sometimes a particular phosphate company's brand name is used to refer to one or the other of these phosphate products. Although this tends to heighten company recognition and brand loyalty, it also may well add to misunderstandings and further confusion. Using a specific brand name in reference to its generic phosphate material is confusing, especially when actually ordering another company's product.

To help clear up this confusion, we strongly urge the use of numbers in conjunction with feed-grade phosphate ordering and discussions. These numbers are directly related to the percent-

age concentration of phosphorus.

- 18.5-dical is 18.5% phosphorus.
- 21-dical or *21-monocal* is 21.0% phosphorus.

This is not intended to endorse or refute any particular company or its brand name for feed-grade phosphate. It is only intended to help clarify the use of terms as we deal with either 18.5% dical or 21.0% dical. By stating the numbers that refer to the phosphorus concentrations in each we consequently eliminate misunderstanding.

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Is CaCO₃ Organic?

Issues pertaining to organic elicit emotional reactions from different groups of people. Some may respond passionately with enthusiasm embracing foods that have been grown organically. Others seem to be equally miffed as to its validity in the marketplace. This article is not espousing either side of any emotional concerns dealing with organic. The intended purpose of this article is solely targeting matters dealing with CaCO₃ qualifying as an acceptable ingredient in “organic food” production.

Universally in livestock and poultry feeding scenarios, supplemental calcium is an important part of dietary considerations. Rarely do nutritionists encounter practical feeding conditions that do not call for some supplemental calcium, usually from CaCO₃. This well-understood fact has become bedrock in most dietary formulations. But what about mounting focus on “organic” production in livestock and poultry feeding? Can calcium carbonate be used as an acceptable feed ingredient in organic production of livestock and poultry products?

Yes it can. It meets acceptable standards defined by NOP (National Organic Program). The National Organic Program was established in the 1990s and is under the direction of the Agricultural Marketing Service (AMS), an arm of the United States Department of Agriculture (USDA). This program establishes

national standards for the production and handling of organically produced products, including a National List of substances approved for use in organic production and handling.

The NOP standards are listed under Title 7 CFR § 205. Even more specifically, within the Code of Federal Registry, Part 205.605 deals with a list of allowed and prohibited substances for qualification as “Organic.” To quote directly from NOP standards:

**§ 205.605
Non-agricultural
(non-organic)
substances allowed
as ingredients
in or on processed
products labeled as
“organic” or “made
with organic (specified
ingredients or food
group(s))”**

The following non-agricultural substances may be used as ingredients in or on processed products labeled as “organic” or “made with organic (specified ingredients or food group(s))” only in accordance with any restrictions specified in this section.

- (a) Non-synthetics allowed:
Calcium carbonate.

By being on this allowable list of substances, ILC Resources’ calcium carbonate products

qualify as “organic.” Customers pursuing “organic” certification of their finished products containing our CaCO₃ have requested documentation from us stating product purity, including absence of adulterations. We confidently comply with these requests.

There is another aspect of consideration to this issue, however, that may result in disallowance. Upon customer request, we can “dust treat” our products with mineral oil. Mineral oil has been an acceptable dust control agent in vitamin/mineral supplementation for livestock production, in no way potentially causing harm to an animal. But, will this adulteration still qualify as organic? Unfortunately, the answer is no, it will not. Mineral oil for topical use in animal production is allowable for “organic” considerations. However, in a decision by the *National Organic Standards Board (NOSB)*, mineral oil for *internal treatment* (i.e. dust treatment of feed-grade CaCO₃) is disallowed as “organic.”

So, is CaCO₃ organic? Yes, according to NOP standards, it is listed as an allowable substance. ■

And that ain't chicken

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feed. Minerals form the basis of many structural components in body cells, plus help regulate many body functions. We properly supply adequate minerals to broiler chicks, growing pigs, and calves, along with dairy cows and feedlot steers too. Vitamins function mostly as “regulators” for various body functions. They “flip the switch, turning on the lights” so to speak. They are not only important in such functions as efficient growth and milk production but they help maintain a healthy immune system as well. Water is also a critical nutrient. Over 85% of the body is water. Most physiological reactions use water. It is paramount to provide livestock and poultry with not only adequate supplies of water, but from good quality, fresh sources. Interestingly, all of the animals we've been talking about do not have any requirement for Pepsi or Budweiser or iced tea.

Efforts are made to ensure proper diets are maintained to maximize animal performance and optimize economic return while maintaining good health. Nutritionists spend a great deal of time and effort fine-tuning feed rations. Companies supplying the many ingredients making up these balanced diets focus on furnishing the best quality and most consistent products possible. Feed companies and ingredient suppliers have technical experts on staff devoted to ensure that high quality standards are maintained.

Do you suppose most fast-food restaurants have qualified nutritionists on site to ensure the food they sell maintains only the highest of nutritional standards? I am not blaspheming any particular company in the business of serving human food.

I am suggesting, however, that we need to take greater personal responsibility to provide ourselves with nutritious, well-balanced meals targeting good health wherever we choose to eat.

When it comes to proper diet and health, for the most part we are left on our own to decide what is okay for us. I submit that much of our choices are based on taste and likes and infrequently on what is right. Unfortunately, the time that this focus changes may only be when good health is severely compromised. Usually this is just plain too late.

Humans need protein to replace body tissues constantly needing regeneration. Children in particular need protein for proper growth. People do need energy too. Whether we exercise hard or wave our hands and arms in gesturing or even sit idle, we do need energy. All internal and external activity requires energy. BUT, we need the right amount and type of energy balanced to our actual need, not based primarily on just eating what tastes good. We need minerals, from calcium and phosphorus to the trace minerals zinc and copper, with many others included as well. The greater extent that foods are refined, the more important it is to seek

supplementation to balance lost nutrients. We must provide ourselves with adequate supplemental nutrition to ensure vital pathways to good health. We cannot rely on just any food to supply all these -- certainly not most of the so-called fast foods alone. Thus, effort and planning should go into how we supply ourselves with protein and energy matched to actual need and not taste alone. While we are at it, we should consider drinking more water and a whole lot less pop, beer, iced tea and coffee too. We have all heard that “moderation” is wise advice. It fits here.

As a nutritionist, do I live the lifestyle I am advocating here? I am guilty too often of not following through on what I know I should. Have I made some positive changes in my diet and lifestyle? Yes, I have. I strongly urge us all to consider a healthier daily intake of food. “Taste” alone is not the best indicator of what is right. We should strive to balance our diets like we do for our livestock and poultry. A well balanced meal is not only nutritious but can be tasty to boot. And, “that ain't just chicken feed.”

The implication that chicken feed is cheap and thus worthless is grossly wrong by today's standards. If anything, much food available to us in today's society may be relatively cheap and worthless while chicken feed is valuable. We should demand our own meals to be no less.