

## What's In That Supplement? Common Excipients and Additives

Theresa Dale, PhD, CCN, NP

If you are recommending that your patient take supplements to create a healthier body and mind, you need to know the facts about the supplement manufacturing process and labeling codes.

Are your supplements healthy or toxic?

Unfortunately, most supplements, including those sold to health providers, contain excipients. Excipients are used in the manufacturing process and are non-nutritive substances in nutritional products.

All tablets have them, most encapsulated supplements have them too. The list of excipients include an array of substances that are known to be associated with health issues. The substances are classified as binders, disintegrants, fillers (diluents), colorants, flavors, sweeteners, preservatives, lubricants, flavors, printing inks, glidants (flow agents), coating agents, and emulsifying agents. Some mineral supplements contain heavy metals from the earth.

It's important that you know the facts about these ingredients, some of which may cause health problems, in order to choose supplements wisely.

Lets take a look at some of the worst ingredients/excipients in supplements today, what they are used for and human health concerns about ingestion.

Magnesium Stearate, Stearic Acid And Calcium Stearate

These stearates are flow agents, which are made by hydrogenating cottonseed or palm oil. They are used throughout the supplement industry as lubricants or flow agents. They are added to the raw materials in supplements so that production machinery will run at maximum speeds. These fatty substances coat every particle of the nutrients, so the particles will flow rapidly. This ensures that production schedules will meet profit targets.

Concentrated doses of stearic acid suppress the action of T-cells, a key component of the immune system, according to findings reported in "[Molecular basis for the immunosuppressive action of stearic acid on T cells](#)," which appeared in the journal *Immunology* in 1990.

Excessive ingestion of magnesium stearate adversely affects the normal functioning of T-cells, which are very important for the body's immune responses. High amounts of magnesium stearate act as an immunosuppressor. Thus, prolonged administering of magnesium stearate at a high dosage weakens the immune system over a period of time.

Cottonseed oil has the highest content of pesticide residues of all commercial oils; cotton crops are heavily sprayed. In the hydrogenation process, the oil is subjected to high heat and pressure in the presence of a metal catalyst for several hours, creating a hydrogenated saturated fat. Hydrogenated vegetable fats contain altered molecules derived from fatty acids that may be toxic.

The metal catalyst used in the hydrogenation process may also contaminate the stearates produced (see Erasmus, Fats and Oils).

While toxicity is one problem, decreased absorption is another.

#### Absorption Decreased

One of the reported dangers of magnesium stearate is the decreased absorption of Vitamin B2, B3, Vitamin A, Vitamin E, and Zinc.

Researchers report that tablets without magnesium stearate have a 90 percent absorption rate, while those laced with magnesium stearate show a 25-30 percent absorption capacity. This is the reason why some people complain of absorption problems after taking magnesium stearate containing products. This would be very serious for a patient with any health issue, as it would be compounding the problem. A quick search on the web will turn up many manufacturers data sheet on magnesium stearate. Here is one manufacturer's data sheet on magnesium stearate: [www.hummelcroton.com/msdsp/mgstear\\_p.html](http://www.hummelcroton.com/msdsp/mgstear_p.html). (Ed. note: this company manufactures and distributes specialty inorganic and organic chemicals, it is not a supplement manufacturer)

#### Section XV. Regulatory Information

- OSHA Status: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
- TSCA Chemical Inventory: This compound is on the EPA Toxic Substance Control Act (TSCA) inventory List
- California Proposition 65: To the best of our knowledge, this product contains no levels of listed substances, which the state of California has found to cause cancer, birth defects or other reproductive effects.
- SARA 313 Title III:
  - Section 302 Extremely Hazardous Substances: None
  - Section 311/312 Hazardous Categories: None
  - Section 313 Toxic Chemicals: None

[pb]Some supplement manufacturers pass off magnesium stearate as a benign form of magnesium. Magnesium stearate is the magnesium salt of stearic acid, which is also used in supplements for the same purposes. The argument is made that small amounts of these substances do no harm. And in fact, looking at the same data sheet:

#### Section XI. Toxicological Information

- RTECS Number: Not Established
- Routes of Exposure: Eye contact. Ingestion. Inhalation. Skin contact.
- Toxicity Data: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated for Magnesium Stearate.
- Chronic Toxic Effects: This product has no known chronic effects. Repeated or prolonged exposure to this compound is not known to aggravate medical conditions.
- Acute Toxic Effects: Irritating to the skin and eyes on contact. Inhalation will cause irritation to the lungs and mucus membrane. Irritation to the eyes will cause watering and redness. Reddening, scaling, and itching are characteristics of skin inflammation. Follow safe industrial hygiene practices and always wear protective equipment when handling this compound.

But the question is, do you really want even small amounts in your supplements every day?

Remember, the sole purpose of using these substances is a flow agent ~ to make the machines go faster. Supplements can be made without them; it just takes more time, care, and attention to detail.

### How Much Hydrogenated Lubricant Oils Are You Getting With Your Supplements?

Up to 5% of the average 1000 mg capsule or tablet is magnesium stearate. That's 50 milligrams. Suppose you take 8 capsules or tablets a day. That's 250 a month - or 12,500 mg of this hydrogenated oil, nearly half an ounce. That works out to about 6 ounces of hydrogenated oils a year, from just 8 pills a day. Many people take more supplements, and ingest pounds of this toxic oil we try to avoid in our diets - while directly inhibiting the utilization of the nutrients they're supplementing!

Remember, the sole purpose of using these oils is to make the machines go faster. Supplements can be made without them - it just takes more time, care and attention to detail.

### Sodium Benzoate: A Poisonous Preservative

Sodium Benzoate and Potassium Sorbate are used as preservatives in most of the liquid vitamin products including expensive longevity juice formulas sold in health food stores or by multi-level-marketing distributors. Usually these juice products have claims that they are the secret of peoples in a far away place who live to be 150 years old! These people did not live to be 150 years of age drinking juices that have sodium benzoate in them!

What does a preservative do? It kills everything alive in the product so it can sit on a shelf in a warehouse or store for weeks or months without spoiling.

Affects on humans are noted in a publication from the United Nations Environment Programme and WHO (see reference below) states the following symptoms: Urticaria, asthma, rhinitis, or anaphylactic shock following oral, dermal or inhalation exposure to benzoic acid and sodium benzoate. \*

The Material Safety Data Sheet on sodium benzoate states: Ingestion: If swallowed, call a physician immediately; Induce vomiting. Give oxygen or artificial respiration as needed. The Chemical Analysis Data Sheet on sodium benzoate states: Store away from food and beverages.

### How about a Labeling Law!

You would certainly think that allowing toxic ingredients in supplements would be against some law, right? Did you know that, in California and other states, if a supplement contains less than 5 ppm of heavy metals (lead, mercury, nickel, etc) that a manufacturer doesn't need to list it on the label?

Due to the fact that supplement manufacturers for the most part are numb to the fact that additives and excipients in vitamins and minerals cause health issues, we need to go beyond reading labels and read the laws. Labeling laws state that if a product has less than 5 ppm of heavy metals, flow agent, filler, binder (excipients); they don't have to be disclosed on the label. Just because these additives are not listed on the label doesn't mean that the products do not contain them.

### References:

- \*(Maibach & Johnson, 1975; Clemmensen & Hjorth, 1982; Larmi et al., 1988; Ring, 1989; Gailhofer et al., 1990; Aberer et al., 1992; Lahti et al., 1995; Anderson, 1996; Bindslev-Jensen,

1998; Coverly et al.,1998). ([http://www.who.int/ipcs/publications/cicad/cicad26\\_rev\\_1.pdf](http://www.who.int/ipcs/publications/cicad/cicad26_rev_1.pdf))