APPLEGATE
CHANGING THE MEAT WE EAT™

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FSIS Docket Clerk
Department of Agriculture
Food Safety and Inspection Services
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3 Nov 2011

Re: Petition to amend 9CFR424.21(6)(c) chart of approved substances and/or Directive 7120.1 "Safe and Suitable Ingredients Used in the Production of Meat, Poultry and Eggs Products" to include natural curing systems, such as vegetable and fruit juices, as curing agents

Dear Administrator:

In recent years, the meat industry has come to recognize and embrace a new curing system that uses vegetable derivatives, either dried or liquid, that naturally contain high amounts of nitrates and some nitrites. In fact, using vegetable derivatives and sea salt to cure meats is no longer limited to a few small organic and natural meat processors, but has also been adopted by major conventional meat companies, such as Hormel and Oscar Meyer. In fact, even FSIS recognizes that some natural ingredients, such as sea salt, contain naturally occurring nitrites that serve as curing agents.

This petition requests that the USDA/FSIS add curing agents made from vegetable juices to the chart of approved substances in the preparation of meat products, 9CFR424.21(6)(c) and/or the Directive 7120.1 "Safe and Suitable Ingredients Used in the Production of Meat, Poultry and Egg Products" as an alternative ingredient for the purpose of curing meats.

Background

Any meat product cured without the addition of sodium nitrite or nitrate, has to follow 9CFR317.17(a), (b), and (c). However, most alternatively cured products are cured using ingredients that contain naturally occurring nitrates or nitrites, such as celery or Swiss chard. Both the processor and the USDA recognize that these ingredients have naturally occurring nitrates, which can aid in producing meat products that have the same characteristics as those that have been cured using the approved method of adding sodium nitrite. Because these meat products were not produced using traditional sodium nitrite that is produced from a chemical

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process (see appendix A), they must be labeled as "Uncured" along with the qualifiers required in 9CFR317.17. . Having a cured product labeled as "uncured" is contradictory and causes confusion among consumers.

The following points outline the consumer issues that are driving the request for clearer labeling:

- Current labels require naturally cured products to state that there are no nitrates or nitrites added. This statement implies that the product does not contain nitrites or nitrates, In fact, consumers, and some experts, refer to naturally cured products as "nitrite free." As a result, we receive repeated questions from consumers who ask the question as to "whether the product contains nitrites/nitrates or not". Many of those same consumers feel deceived that our products, which are cured with vegetable juice and sea salt, actually do contain nitrites.
- Media articles (see appendix B) have conducted tests of "natural" products claiming to have no nitrites added, and have discovered that many of these products contain nitrite levels comparable to conventional products cured using sodium nitrite. Not only do these tests show there are residual nitrates and nitrites in both categories of meat products, but that the "natural" products contain at least as much as those made conventionally. A higher level of residual nitrites in naturally cured products is probably caused by not using reductants (cure accelerators), commonly used in conventional meat products, which help reduce the amount of residual nitrites. 9CFR424.21(6)(c) as currently written, does not allow naturally cured meat products to use a reductant, because natural cures are not listed in the chart of approved substances.

With today's interventions used in meat production, such as HCCAP, High Pressure Pasteurization and sodium lactate, sodium nitrite has become less of a food safety intervention and is used more for organoleptic reasons. People expect a ham to look and taste like a ham, regardless of the nitrite source used.

Regulatory Action Requested

- Applegate respectfully requests that 9CFR424.21(6)(c) chart of approved substances and/or the Directive 7120.1 "Safe and Suitable Ingredients Used in the Production of Meat, Poultry and Egg Products" be amended to include natural curing substances. Natural curing substances are defined as any organic matter that has been grown for human consumption, such as fruits and vegetables that naturally contain nitrates or nitrites. The naturally occurring nitrates (NO_3) may or may not be induced to breakdown into nitrites (NO_2) through a natural fermentation process using a lactic acid starter

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culture. These natural cures may be liquid or powdered form; the powdered form being produced by dehydrating the juice through normal dehydration processes.

- If the USDA makes the requested change to 9CFR424.21(6)(c) chart of approved substances and /or the Directive 7120.1 "Safe and Suitable Ingredients Used in the Production of Meat, Poultry and Egg Products", then any product produced using a natural cure will become exempt from 9CFR317.17(a), (b), and (c). These products would then follow the same labeling parameters as conventional products that cure using chemically produced nitrate or nitrite substances. This will reduce consumer confusion regarding labeling terminology.
- The USDA allows the cure to be considered a "Natural" cure, as long as it is produced from the juice from plant material, either vegetable or fruit, and the juice is extracted without the use of chemicals. The extracted juice could be fermented using lactic acid starter cultures. The juice may or may not be dried to produce a powder. Labels could then state in the product descriptor "naturally cured" if the processor chooses to, however this would not be a mandatory statement (as conventionally cured products do not require "cured" in their product descriptor)

Conclusion

Due to consumer confusion as well as the perceived deception caused by contradictory information on current labels, we respectfully urge the USDA to amend the regulations as stated above. Applegate, who is offering the consumer a choice of alternative curing ingredients, would like to see a more clearly defined and less confusing solution to this issue.

Certification

The undersigned certifies that to the best of his/her knowledge and belief this petition includes all information and views on which the petition relies and that it includes representative data and information known to the petitioner that are unfavorable to the petition.

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Kirk-Othmer Encyclopedia of Chemical Technology.

SODIUM NITRITE

Sodium nitrite [7362-00-0], $NaNO_2$, a stable, odorless, pale yellow or straw-colored compound of molecular weight 69.00, is the sodium salt of nitrous acid [7782-77-6], HNO_2. Sodium nitrite has been produced commercially in the United States since the 1920s, and is available in dry granular or flake forms, as well as in water solutions. Most of the common package types are offered, from bags to drums to bulk. Sodium nitrite is used in dye, rubber chemicals and pharmaceuticals manufacture, as a corrosion inhibitor, in heat treating and heat-transfer salts, in meat curing, and several other applications. The U.S. market is served primarily by domestic producers, with some imports. Production is by absorption of oxides of nitrogen into sodium carbonate or sodium hydroxide solutions. Sodium nitrite is an oxidizer and is toxic; as such, it requires care in its handling, storage, and use.

1. Properties

Pure anhydrous crystalline sodium nitrite has a specific gravity of 2.168 at 0°C/0°C (1). The crystal structure is body-centered orthorhombic, having the unit cell dimensions $a = 0.355$ nm, $b = 0.556$ nm, and $c = 0.557$ nm (2). Sodium nitrite melts at ~284°C and decomposition begins above 320°C, yielding N_2, O_2, NO, and Na_2O. The heat of formation is −362.3 kJ/mol (− 86.6 kcal/mol) at 25°C (3). Sodium nitrite has a transition point at 158–165°C and displays significant changes in physical properties within this temperature range. The specific heat increases gradually from ~980 J/(kg·K) (0.234 cal/(g°C)) at 60°C to ~1160 J/(kg·K) (0.277 cal/(g°C)) at 200°C, but exhibits a peak value of ~2290 J/(kg·K) (0.547 cal/(g°C)) at 161°C corresponding to this transition temperature (1).

Sodium nitrite is hygroscopic and very soluble in water. Dissolution of sodium nitrite in water results in the absorption of heat in the amount of 15.1 kJ/mol (3.6 kcal/mol) at 18°C (3). Water solubility characteristics are displayed in Figure 1. Sodium nitrite has limited solubility in most organic solvents (Table 1). The pH of a 1% solution of sodium nitrite is ~9. A hemihydrate, $NaNO_2 \cdot 1/2H_2O$ [82010-95-5], reported at temperatures below −5.1°C, is of no known commercial significance. The eutectic composition is 28.1% $NaNO_2$, although some supercooling of solutions up to ~38% may occur.

Sodium nitrite is stable in alkaline solutions. Acidification liberates nitrous acid which is unstable. The decomposition of nitrous acid yields nitric acid [7697-37-2], HNO_3, according to the following reaction:

$$3\ HNO_2\ (aq) \longrightarrow HNO_3\ (aq) + 2\ NO\ (g) + H_2O$$

Colorless nitric oxide [10102-43-9], NO, spontaneously oxidizes, in the presence of atmospheric oxygen, to brown-colored nitrogen dioxide [10102-44-0], NO_2. The resulting mixture of NO and NO_2, commonly referred to as NO_x gases, is corrosive and toxic and its generation should be avoided. Nitrous acid is not an article of commerce owing to its inherent instability. Sodium nitrite serves as the primary industrial source for nitrous

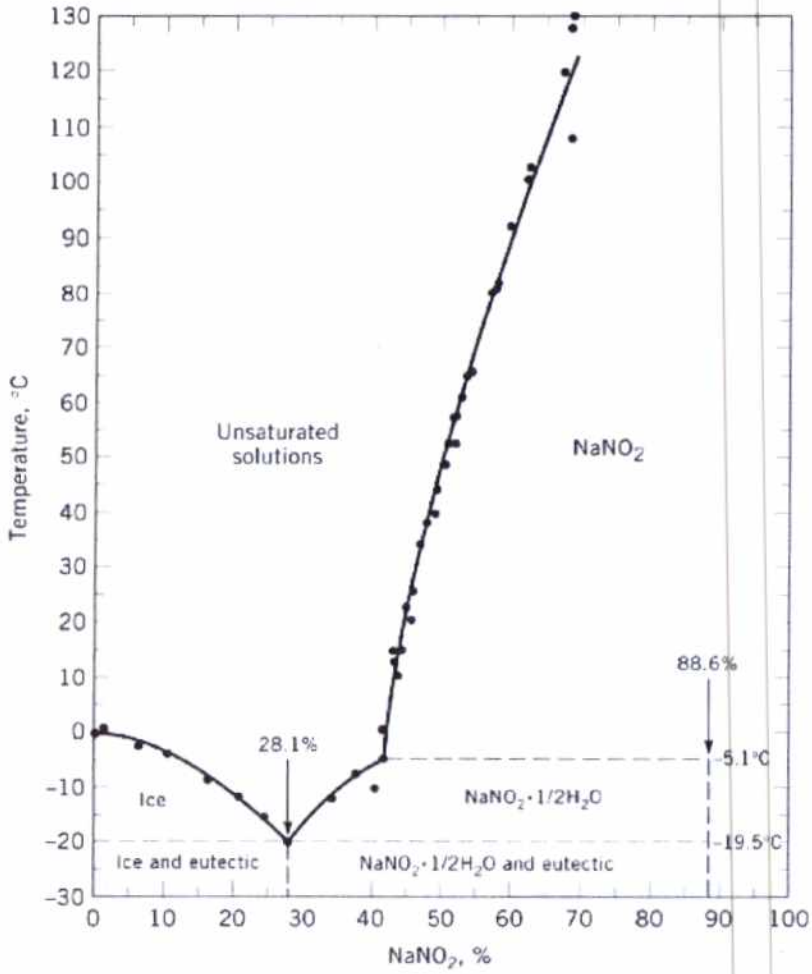

Fig. 1. Sodium nitrite solubility in water where (–) represents solid-phase boundaries (1, 2, 4, 5).

acid in organic syntheses, for instance in the diatozation and nitrosation of aromatic amines. Under controlled conditions of acidification, the nitrous acid generated can react before excessive decomposition occurs.

As an oxidizer, sodium nitrite can convert ammonium ion to nitrogen, urea to carbon dioxide and nitrogen, and sulfamate to sulfate and nitrogen. The oxidizing properties of sodium nitrite contribute to its application as a corrosion inhibitor (see Corrosion and corrosion control), in detinning of scrap tinplate, and phosphating of metal surfaces. Because it is a strong oxidizer, sodium nitrite is capable of supplying oxygen and thus accelerating the combustion of organic matter. It can undergo vigorous, perhaps violent reactions with certain inorganic compounds such as ammonium salts, acidic materials, thiocyanates, and thiosulfates. It functions as a reducing agent to more powerful oxidizers such as dichromate, permanganate, chlorate, and chlorine. At ambient temperatures, sodium nitrite is stable; it slowly oxidizes to sodium nitrate at elevated temperatures (see Sodium compounds, sodium nitrate). References 1 and 2 provide comprehensive data on the physical and chemical properties of sodium nitrite.

Table 1. Solubility of Sodium Nitrite in Nonaqueous Solvents[a]

Solvent	g $NaNO_2$/100 g solvent	Temperature, °C
acetone	insoluble	
ammonia, anhydrous	very soluble	−77 to 172
ethanol		
absolute	0.31	19.5
94.9%	1.424	25
ethylenediamine	12.60	30
ethylene glycol	16.78	25
methanol, absolute	4.43	19.5
methyl ethyl ketone	insoluble	
monoethanolamine	8.74	30
propylene glycol	8.47	25
pyridine	0.34	25

[a]Refs. 4 and 6.

2. Manufacturing

Sodium nitrite has been synthesized by a number of chemical reactions involving the reduction of sodium nitrate [7631-99-4], $NaNO_3$. These include exposure to heat, light, and ionizing radiation (2), addition of lead metal to fused sodium nitrate at 400–450°C (2), reaction of the nitrate in the presence of sodium ferrate and nitric oxide at ~400°C (2), contacting molten sodium nitrate with hydrogen (7), and electrolytic reduction of sodium nitrate in a cell having a cation-exchange membrane, rhodium-plated titanium anode, and lead cathode (8).

Industrial production of sodium nitrite is by absorption of nitrogen oxides (NO_x) into aqueous sodium carbonate or sodium hydroxide. NO_x gases originate from catalytic air oxidation of anhydrous ammonia, a practice common to nitric acid plants:

$$4\ NH_3 + 5\ O_2 \longrightarrow 4\ NO + 6\ H_2O$$

Gas contact is typically carried out in absorption towers over which the alkaline solutions are recirculated. Strict control over the conditions of absorption are required to efficiently capture the NO_x and convert it predominantly to sodium nitrite according to the following reaction, thereby minimizing the formation of by-product sodium nitrate. Excessive amounts of nitrate can impede the separation of pure sodium nitrite from the process.

$$2\ NaOH + NO + NO_2 \longrightarrow 2\ NaNO_2 + H_2O$$

Solutions of sodium nitrite thus produced are concentrated and a slurry of crystals obtained in conventional evaporation (qv) and crystallization (qv) equipment. Much of this equipment can be of mild steel construction because sodium nitrite functions as a corrosion inhibitor toward most ferrous metals. The crystals are typically separated from the mother liquor by centrifugation and subsequently dried. Because of its tendency to lump and cake rapidly in storage, dry sodium nitrite products are frequently treated with an anticaking agent to keep them free-flowing. Alternatively, larger flakes or pellets are prepared from the granular material through a compaction process. The limited surface contact between these larger particles allows them to remain uncaked

for extended periods. Technical solutions for commerce can be obtained directly from the process; higher purity solution products are prepared by dissolving crystals.

3. Shipment and Storage

Dry products of sodium nitrite are most commonly packaged into 22.7 kg (50 lb) or 45.4 kg (100 lb) multi-ply paper bags which contain a polyethylene moisture barrier. Fiber drums and semibulk sacks are also utilized. Bulk shipments are limited to flake material in specially designed sparger cars which allow the material to be unloaded as a solution. Dry sodium nitrite is regulated by the U.S. Department of Transportation (DOT) and classified as an Oxidizer, Hazard Class 5.1, UN1500, UN Packaging Group III (9). Containers must bear the Class 5.1 Oxidizer label, and bulk shipments must be placarded appropriately.

Liquid sodium nitrite products are typically 40–42% $NaNO_2$ and can be shipped in tank cars or tank trucks when volume and freight considerations allow. Sodium nitrite solutions are also regulated by the DOT and classified as Nitrites, Inorganic, Aqueous Solution, NOS, Hazard Class 5.1 Oxidizer, UN3219, UN Packaging Group III (9). Liquid product must also carry the Oxidizer label. Lesser quantities of liquid product may also be available in drums from local chemical distributors. Solution products are often preferred because of more convenient, efficient, and cost-effective handling versus bagged material and compatibility with inexpensive mild steel equipment.

Care must be exercised in using sodium nitrite near other chemicals. It is incompatible with ammonium salts, thiocyanates, thiosulfates, and strong reducing agents. In acid solutions, sodium nitrite evolves toxic NO_x; in the presence of secondary amines it can form nitrosamines which are suspected carcinogens.

Sodium nitrite exhibits good shelf-life characteristics if stored in secure containers in a cool, dry place, segregated from combustible and incompatible materials. Sodium nitrite does not burn, but its decomposition in fire promotes burning by furnishing additional oxygen. In the case of fire, water flooding should be used and the runoff kept away from streams and sewers to the extent possible. If spilled, care should be exercised to avoid contact with any acidic materials, as toxic NO_x could evolve. Under current regulations, spills in excess of 45.4 kg (100 lb) of dry sodium nitrite equivalent are reportable to the U.S. EPA (10). Additional state and/or local regulations may also apply.

4. Health and Safety Factors

Sodium nitrite is poisonous and prolonged contact with dry sodium nitrite or its solutions can cause irritation to the skin, eyes, and mucous membranes. The LD_{50} (oral, rat) is 85 mg per kg body weight (11). Inhalation or ingestion of significant quantities of dust or mist may result in acute toxic effects such as nausea, cyanosis, and low blood pressure, which can lead to possible collapse, coma, and even death.

Persons responsible for the procurement, use, or disposal of sodium nitrite products should become familiar with safety information contained in the manufacturer's Product Safety Data Sheet (PSDS) (12). For handling dry products, a hard hat, safety glasses, impervious gloves, and long sleeves should be worn as a minimum. Where dusty or misty conditions prevail or when handling solutions, a NIOSH-approved respirator, chemical goggles, and full impervious clothing may be required. Contact lenses should not be worn. Persons should wash thoroughly after handling sodium nitrite. Eating or smoking in areas where sodium nitrite is being handled should be prohibited.

In case of skin contact, the area should be washed thoroughly with water and examined by a physician if irritation persists. If exposed, the eyes should be flushed with water for at least 15 minutes. Remove inhalation victims to fresh air and administer artificial respiration if the victim is not breathing. If ingested, vomiting should be induced. All incidents should be followed by prompt medical attention.

Table 2. Specifications for Dry Grades of Sodium Nitrite

Parameter[a]	Technical[b]	USP[c]	Food[d]	Reagent[e]
assay, as $NaNO_2$, wt %[f]	97.0	97.0–101.0	97.0	97.0
loss on drying, wt %[f]		0.25	0.25	
heavy metals, as Pb, %		0.002	0.002	0.001
arsenic, as As, ppm			3	
lead, as Pb, ppm			10	
sodium sulfate, as Na_2SO_4, wt %	0.2			
sodium chloride, as NaCl, wt %	0.2			
insolubles, wt %	0.5			0.01
pH	8 ± 1			
chloride, as Cl, wt %				0.005
sulfate, as SO_4, wt %				0.01
calcium, as Ca, wt %				0.01
iron, as Fe, wt %				0.001
potassium, as K, wt %				0.005

[a] Value is maximum unless noted.
[b] Ref. 14.
[c] Ref. 15.
[d] Ref. 16.
[e] Ref. 17.
[f] Value is minimum.

5. Specifications, Analysis, and Quality

Dry sodium nitrite is offered in several grades: technical, drug (*U.S. Pharmacopeia* (USP)), food (*Food Chemicals Codex* (FCC)), and reagent (American Chemical Society (ACS)). Granular product has a tendency to lump and cake into an unmanageable mass during storage. Flake or treated granular types overcome this caking tendency and exhibit excellent shelf life. The most commonly used anticake is sodium mono- and dimethyl naphthalene sulfonates at a typical dosage of $\leq 0.1\%$. This is the only such agent allowed in the food-grade product in the United States (13). The USP and reagent ACS grades contain no anticake, and in granular form harden within weeks. Dry products typically contain >99% sodium nitrite and <1% sodium nitrate; a small amount of residual alkalinity is also present. The specifications for technical, USP, food, and ACS reagent grades are given in Table 2. Typically liquid products are of a technical or purified grade containing between 35 and 45% sodium nitrite and varying levels of nitrate.

Sodium nitrite products can be analyzed using methods that accompany specifications for the particular grade of product used. Assay methods are typically based on oxidation of the sample by a known excess of standard potassium permanganate solution, which is in turn reduced with a known excess of standard oxalic acid or ferrous ammonium sulfate solution. The excess is then titrated to a pink color end point and calculation gives the percent sodium nitrite in the sample. Standard laboratory analytical equipment such as hot plates, glassware, reagents, and analytical balances are required to run the tests. Careful attention to the standardization of reagents is important in obtaining reliable results. In contaminated or process samples, other substances present, which may be oxidized by potassium permanganate, give positive interferences. The analysis should be carried out in a proper fume hood to avoid the introduction of toxic gases into the workplace. The same safety precautions apply to handling sodium nitrite in the laboratory as previously described for the production area. Complete details on assay procedures and impurities testing are available (4, 14–17).

Nitrite can be estimated in the field by using one of the many available test kits offered by a number of companies specializing in this area including Chemetrics, Inc. (Calverton, Virginia) and the Hach Company

(Loveland, Colorado). These kits are designed for specific concentration ranges, involve simple procedures, and provide accuracy reasonable for field work by using color comparators or by counting drops of titrant to a color-change end point. Facilities producing the drug and food grades must follow a rigid set of guidelines for cleanliness and product reliability known as Good Manufacturing Practices (GMPs) and avail their plants to inspections by the U.S. FDA. Accurate and thorough recordkeeping is also required in the production of these grades. General Chemical Corporation's sodium nitrite facility has had its quality system registered (October 1993) as complying with the internationally recognized quality standard ISO 9002.

6. Uses

The many industrial uses for sodium nitrite primarily are based on its oxidizing properties or its liberation of nitrous acid in acidic solutions.

6.1. Dyes

Sodium nitrite is a convenient source of nitrous acid in the nitrosation and diatozation of aromatic amines. When primary aromatic amines react with nitrous acid, the intermediate diamine salts are produced which, on coupling to amines, phenols, naphthols, and other compounds, form the important azo dyes (qv). The color center of the dye or pigment is the $-N{=}N-$ group and attached groups modify the color. Many dyes and pigments (qv) have been manufactured with shades of the entire color spectrum.

6.2. Rubber Chemicals

Sodium nitrite is an important raw material in the manufacture of rubber processing chemicals. Accelerators, retarders, antioxidants (qv), and antiozonants (qv) are the types of compounds made using sodium nitrite. Accelerators, eg, thiuram [137-26-8], greatly increase the rate of vulcanization and lead to marked improvement in rubber quality. Retarders, on the other hand (eg, *N*-nitrosodiphenylamine [156-10-5]), delay the onset of vulcanization but do not inhibit the subsequent process rate. Antioxidants and antiozonants, sometimes referred to as antidegradants, serve to slow the rate of oxidation by acting as chain stoppers, transfer agents, and peroxide decomposers. A commonly used antioxidant is *N*,*N*′-disubstituted *p*-phenylenediamine which can employ sodium nitrite in its manufacture (see Rubber chemicals).

6.3. Heat Treatment and Heat-Transfer Salts

Mixtures of sodium nitrite, sodium nitrate, and potassium nitrate are used to prepare molten salt baths and heat-transfer media. One of the most widely used eutectic mixtures uses 40% $NaNO_2$, 7% $NaNO_3$, and 53% KNO_3 [7757-79-1] to give a melting point of 143°C. Its advantages are low melting point, high heat-transfer rate, thermal stability to 538°C, and a noncorrosive effect on steel (qv) at high temperature. The salts can be used for indirect heating or cooling or as quenching baths in the annealing of iron and steel.

6.4. Corrosion Inhibition

Sodium nitrite acts as an anodic inhibitor toward ferrous metals by forming a tightly adhering oxide film over the steel, preventing the dissolution of metal at anodic areas. When used in mixed metal systems that may include, for instance, copper, brass, or aluminum (as in automobile cooling systems), synergistic additives may be required for complete system protection. Some renewed interest in furthering nitrite use has been spawned from reduction in widespread use of carcinogenic hexavalent chromium-based inhibitors. Loss of protection

owing to biological consumption of nitrite has been addressed by the use of higher initial concentrations (18). Sodium nitrite is used in boiler water treatment, as a dip or spray for protection of metals in process and storage, and in concrete. The EPA has ruled that sodium nitrite should not be used as a corrosion inhibitor in amine-based metalworking fluids because of the formation of potentially carcinogenic nitrosamines (19).

6.5. Metal Finishing

In phosphating solutions, sodium nitrite performs as an accelerator and oxidizer, serving to reduce processing times and control buildup of ferrous ions in solution, respectively. Phosphate coatings are applied to steel as a base coating before painting. In gold–sulfite-plating baths, sodium nitrite functions in the formation a gold–sulfite–nitrite complex. $Na_4Au(SO_3)_2NO_2$ [51846-25-4], from which the gold can be electrolytically deposited (20) (see Gold and gold compounds). This bath is considered to be safer than the poisonous cyanide baths traditionally used for gold plating. Sodium nitrite is also used in the recovery of tin from scrap tinplate (see Tin and tin alloys). It functions as an oxidizer in converting tin to sodium stannate with caustic soda; high purity tin can then be electroplated directly from the stannate solution.

6.6. Meat Curing

Sodium nitrite is used extensively in curing meat and meat products (qv), particularly pork products such as ham, bacon, frankfurters, etc. As an ingredient in curing brines, sodium nitrite acts as a color fixative and inhibits bacteria growth, including *Clostridium botulinum*, the source of the botulism toxin. Certain fish and poultry products are also cured with brines containing sodium nitrite. All food uses of sodium nitrite are strictly regulated by the FDA (21) and USDA.

6.7. Other Uses

Other applications for sodium nitrite include the syntheses of saccharin [81-07-2] (see Sweeteners), synthetic caffeine [58-08-2] (22), fluoroaromatics (23), and other pharmaceuticals (qv), pesticides (qv), and organic substances; as an inhibitor of polymerization (24); in the production of foam blowing agents (25); in removing H_2S from natural gas (26); in textile dyeing (see Textiles); as an analytical reagent; and as an antidote for cyanide poisoning (see Cyanides).

Sodium nitrite has played a key role in the invention of the following: a freezing point depressant in a large steel thermal storage tank for a district cooling system (27), antifungal agent for treatment of skin diseases (28); vapor-phase corrosion inhibitor–desiccant material (29); method for estimating methyl anthranilate [134-20-3] (30); process for preparing optically active benzoic acid (qv) derivatives (31); process for dewaxing oil-producing formations (32); method for treating chelated metal wastewaters (33); method of sewage sludge treatment (34); and preparation of iron nitrosyl carbonyl catalysts (35).

7. Economic Aspects

Sodium nitrite is manufactured in the United States by General Chemical Corporation at their plant in Solvay, New York, and by E. I. du Pont Company's Gibbstown, New Jersey plant. Recent U.S. demand is estimated to be between 50,000 and 60,000 metric tons per year, the vast majority of which is produced domestically. Imports primarily have been from Germany and Poland; lesser amounts originate from the United Kingdom, the Netherlands, and China. The quantity of product imported into the United States has varied in the 1990s from ~1000 to 4000 t/yr. Currency exchange rates have had a decided influence on import volumes. The list price

of sodium nitrite in 45.4 kg (100 lb) bags, fob works in August 1996, was reported to be $0.907/kg ($0.412/lb) versus $0.66/kg ($0.30/lb) in 1980, on the same basis. Liquid products sell at discounted equivalent-basis prices.

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31. U.S. Pat. 5,229,032 (July 20, 1993), C. Inoue and co-workers (to Showa Denko KK).

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35. U.S. Pat. 5,096,870 (Mar. 3, 1992), D. E. Heaton (to The Dow Chemical Co.).

WALTER H. BORTLE
General Chemical Corporation

Related Articles

Sodium nitrate; Sweeteners; Rubber chemicals

HOT DOGS
Without (too much) guilt

Whether sizzled on the barbecue or scarfed down at the ball game, hot dogs are so popular that it seems almost unpatriotic to point out that they're essentially tidy little bundles of sodium, additives, and fat. Going light can help, but don't think you have to buy "uncured" or poultry dogs. Our tests found that they weren't necessarily better than regular franks.

We did find good choices when we cooked some 620 full-fat and lower-fat hot dogs from 23 well-known brands and leading retailers on a concession stand-style grill with rollers. Several of the light dogs tasted nearly as good as their full-fat cousins and were considerably lower in fat and sodium (see Ratings on page 22). One of those, Ball Park Lite Franks, was among the lowest priced.

Though no hot dog in our tests was excellent, the best-tasting ones were the full-fat beef varieties. The nutritionists we consulted refused to put them in the "never, never eat" category. Instead, they say that a sound diet can reasonably include any type of food, in moderation. So if you just occasionally indulge (say, a few times each summer), you don't have to fret about savoring a regular frank and you can simply buy the ones that taste best. But if you or your children eat hot dogs frequently, it might be wise to choose a lower-fat variety and add condiments for flavor.

The dogs we tested ranged in size, which could affect a head-to-head comparison of their nutritional value. However, when we compared the dogs on an equal weight basis, the lighter models still had less fat. Moreover, with few exceptions, franks within the same brand were the same size, which would still make picking the lighter version of a favorite hot dog a smart choice.

DOG DAYS OF SUMMER In our tests, full-fat beef franks tasted best, but several light alternatives also pleased the palate.

'HEALTHIER' FRANKS MIGHT NOT BE

If you thought you were doing the right thing by selecting chicken or turkey franks or uncured dogs with no added nitrates, think again. Our tests found they did not all deserve a health halo. While three of the four regular poultry dogs we rated had 30 to 80 fewer calories than the average of beef and mixed meat dogs, the other poultry frank had as many calories as beef. And most had plenty of fat and sodium. While the three uncured franks might boast of "no added nitrates," our testing found that Applegate Farms, Coleman Natural, and Whole Ranch contained nitrates and nitrites at levels comparable to many of the cured models.

The vegetarian crowd will find it harder to fill their buns. Our tasters screened four popular soy dogs to see whether there were at least two that could be included in a separate taste test. But the dogs were so off the mark ("they seemed to just mimic real food," said one tester) that even a vegetarian might find them hard to swallow. Morning Star Farms Veggie Dogs was the best of the lot, but the kindest words our testers could find for them was that if you smother them with your favorite condiments, they might be OK.

WHAT'S INSIDE THE CASING

Long considered a "mystery meat," hot dogs were thought to contain all kinds of horrors. Today, according to Department of Agriculture standards, they're made of beef, pork, poultry, or a blend of all of those, which can contain no more than 30 percent fat, plus water used to cool the meat as it is ground, binders such as nonfat dry milk or cereal, salt, sweeteners, and seasonings.

Hot dogs may also contain sodium nitrite and nitrate, preservatives that give franks their characteristic flavor and color, ward off spoilage and rancidity, and help prevent botulism. Those compounds, which occur naturally in some foods, spices and water, have raised health concerns because they have the potential to form nitrosamines, chemicals found to cause cancer in lab animals. Research also suggests that a steady diet of cured meats might increase the risk of certain cancers and serious lung disease in people.

Our analysis found that the nitrates and nitrites in all the hot dogs we tested were well below the maximum level for the additives established by the USDA. While a hot dog can be labeled uncured if

no nitrates or nitrites have been added, that does not necessarily mean the product is free of them. The three uncured models we tested contained nitrites and nitrates because the compounds occur naturally in spices and other natural ingredients added during processing.

Manufacturers are permitted to process franks using machinery that scrapes meat from the bone. That brings a remote possibility that hot dogs might include central nervous system tissue, which has been recognized by the USDA as a transmission risk for mad cow disease if it comes from an infected animal. We sent 15 beef franks to an outside lab to test for the presence of the tissue. None was found to contain it.

DOGGING YOUR HEALTH

While additives and central nervous system tissue pose theoretical health risks, the frequent consumption of hot dogs can have more concrete consequences for your arteries.

Franks can contain so much fat that even some light versions can have significantly more fat than other meats. Alas, the two fat-free models we tested, Ball Park Bun Size Smoked White Turkey Franks and Ball Park Fat Free Beef Franks, had little meat flavor, as well as a spongy or rubbery texture, pushing them toward the bottom of our Ratings.

Some lower-fat franks, including Jennie-O Turkey Store Turkey Franks, had around 5 grams of fat, but experts recommend against making even those a dietary staple. You simply won't get as much bang for your buck nutritionally from them as you would from a leaner meat or chicken, explains Amy Jamieson-Petonic, RD, a spokeswoman for the American Dietetic Association. Hot dogs are not the best source of protein (though most Americans get much more of the nutrient than they need). Three ounces of frankfurters have about 10 grams of protein, while 3 ounces of lean beef, turkey, chicken, or salmon have about 20 or more grams of protein.

With a sodium range of 300 to 760 mg per frank in the models we tested, just one serving of any of them could contribute a hefty chunk to your daily sodium intake. The average American already consumes far more than the recommended maximum of 2,300 mg of sodium

safetywise

YES, THEY'RE PRECOOKED, BUT ...

Hot dogs are fully cooked when you buy them, but to eat them safely you still need to store and heat them properly, particularly in the summertime. Hot dogs and other luncheon meats can harbor the harmful bacteria Listeria monocytogenes. Though factory cooking is an important step for killing Listeria, hot dogs might become contaminated before packaging and the bacteria can keep growing even when refrigerated.

While healthy adults and children occasionally get infected with Listeria, they rarely become seriously ill. However, pregnant women, those with weakened immune systems, and the elderly are more susceptible to potentially life-threatening illness from it. So before you fire up the grill, keep these precautions in mind:

- Refrigerate or freeze hot dogs as soon as you get home from the grocery store. If unopened, they can be safely stored for two weeks in the refrigerator; once opened, they should be kept only for one week.
- Don't leave franks out of the cooler or off the grill for more than two hours, or one hour if the temperature is above 90° F. When you're off to the beach or park, store hot dogs in an insulated cooler with plenty of ice or frozen gel packs.
- Heat the franks so that they're steamy hot throughout before eating them. Experts recommend using a food thermometer to make sure hot dogs reach 165° F.
- Cut hot dogs into pieces no bigger than one-half inch when you're feeding children under 4 years old. Bigger bites could be a choking hazard.

How franks compare with other cookout favorites

HOT DOGS
(2 franks, grilled)
3 oz.

CALORIES	274
FAT (g)	24
SAT. FAT (g)	10
SODIUM (mg)	1008
PROTEIN (g)	10

STEAK
(prime top round, broiled)
3 oz.

CALORIES	195
FAT (g)	9
SAT. FAT (g)	3
SODIUM (mg)	51
PROTEIN (g)	26

HAMBURGER
(80% lean, broiled)
3 oz. (1 patty)

CALORIES	230
FAT (g)	15
SAT. FAT (g)	6
SODIUM (mg)	64
PROTEIN (g)	22

CHICKEN BREAST
(skinless, roasted)
3 oz. (½ breast)

CALORIES	142
FAT (g)	3
SAT. FAT (g)	1
SODIUM (mg)	64
PROTEIN (g)	27

Source: USDA Nutrition Database

a day. And while occasionally exceeding that limit might not be harmful for everyone, studies have shown that high sodium intake can raise blood pressure in susceptible people and exacerbate certain conditions, such as asthma.

So it's best to avoid making hot dogs a steady part of the diet, even for children.

HOW TO CHOOSE

If you want to cut the fat. Because the two fat-free dogs ranked only fair for taste, those concerned about calories and fat should consider one of the lower-fat franks: Hebrew National Kosher Reduced Fat Beef Franks, Boar's Head Lite Skinless Beef Franks, Oscar Mayer Light Beef Franks, and Ball Park Lite Franks.

If you're going for taste. All seven of our "very good" dogs were beef and three models stood out from the others: Hebrew National Kosher Franks, Nathan's Famous Skinless Franks, and Boar's Head Skinless Franks. Regular and light mixed meats and poultry franks fell largely in the good category; take your pick from those higher in this ranking.

If kosher is a must. Try Hebrew National Reduced Fat Franks. They had fewer calories and less fat than regular Hebrew National, and 60 mg less sodium per serving.

CR Quick Recommendations

None of the dogs we tested had the right balance of flavor and texture needed to score an excellent rating. But several came very close and, on a bun, topped with your favorite condiments, they could make for a perfectly satisfying experience. The lowest-rated dogs often suffered from flavor and textural problems such as sponginess. The **Ratings** rank hot dogs by overall flavor and texture. Quick Picks considers extra factors such as nutrition and price.

QUICK PICKS

Higher in quality, lower in fat:

4 Hebrew National
5 Boar's Head
9 Oscar Mayer

Each had less fat, calories, and sodium than its full-fat brandmate, but a texture and taste that was similar.

4 Hebrew National

5 Boar's Head

9 Oscar Mayer

Ratings hot dogs

In order of quality, by flavor and texture. Blue key numbers indicate Quick Picks.

Key number	Product	Style	Package size (oz.)	Weight per dog (oz.)	Per serving (one hot dog)				
					Cost	Calories	Fat (g)	Saturated fat (g)	Sodium (mg)
	VERY GOOD								
1	**Hebrew National** Kosher Beef Franks	beef	12	1.7	$0.51	150	14	6	420
2	**Nathan's Famous** Skinless Beef Franks	beef	16	2.0	0.48	170	15	6	470
3	**Boar's Head** Skinless Beef Franks	beef	16	1.6	0.43	120	11	4.5	350
4	**Hebrew National** Kosher Reduced Fat Beef Franks	beef	12	1.7	0.57	120	10	4.5	360
5	**Boar's Head** Lite Skinless Beef Franks	beef	16	1.6	0.44	90	6	2.5	270
6	**Ball Park** Beef Franks	beef	16	2.0	0.40	180	16	7	550
7	**Sabrett** Skinless Beef Frankfurters	beef	16	2.0	0.48	170	15	6	530
	GOOD								
8	**Oscar Mayer** Beef Franks	beef	16	1.6	0.32	140	13	6	460
9	**Oscar Mayer** Light Beef Franks	beef	16	1.6	0.32	90	7	3	380
10	**Applegate Farms** The Great Organic Uncured Hot Dogs	beef	16	2.0	0.65	110	8	3	330
11	**Dietz & Watson** Deli Beef Franks	beef	16	2.0	0.54	150	13	5	490
12	**Coleman Natural** Uncured Beef Hot Dogs	beef	16	2.0	0.67	160	14	6	320
13	**Whole Ranch** Uncured Beef Franks (Whole Foods)	beef	16	2.0	0.60	110	9	3.5	300
14	**Ball Park** Franks	beef, pork, turkey	16	2.0	0.27	180	16	6	560
15	**Ball Park** Lite Franks	pork, turkey	14	1.8	0.30	100	7	2.5	460
16	**Oscar Mayer** Wieners	turkey, pork, chicken	16	1.6	0.20	130	12	4	540
17	**Jennie-O Turkey Store** Turkey Franks	turkey	12	1.2	0.11	70	5	1.5	300
18	**Bar S** Jumbo Franks	chicken, pork, beef	16	2.0	0.13	170	14	4.5	640
19	**Oscar Mayer/Louis Rich** Turkey Franks	turkey	16	1.6	0.22	100	8	2.5	510
20	**Bar S** Jumbo Chicken Franks	chicken	16	2.0	0.13	150	12	3.5	590
21	**Gwaltney** Great Dogs Chicken Franks	chicken	16	2.0	0.14	120	9	2.5	760
	FAIR								
22	**Ball Park** Bun Size Smoked White Turkey Franks	turkey	14	1.8	0.43	45	0	0	420
23	**Ball Park** Fat Free Beef Franks	beef	14	1.7	0.41	50	0	0	470

Guide to the Ratings

Overall quality reflects judgments by trained tasters. **Serving size,** for all, is based on one hot dog. **Nutrition information** is from the labels and is for one hot dog. **Cost** is based on average retail prices.

COOK'S ILLUSTRATED

NITRATE-FREE BACON

Published July 1, 2010. From Cook's Illustrated.

We often see "no nitrates or nitrites added" bacon in the grocery store. How does it differ from regular bacon?

Nitrite has long been a controversial food additive, with studies showing it forms carcinogenic compounds called nitrosamines when heated in the presence of proteins, like those in bacon. Regular bacon is cured with nitrite (NO_2) or a virtually identical chemical, nitrate (NO_3), both of which act as preservatives, though only nitrite has the potential to form potentially harmful nitrosamines. Bacon labeled "nitrate- or nitrite-free," on the other hand, is brined with salt, a bacterial lactic acid starter culture, and celery juice (sometimes listed as "natural flavor").

But here's the catch: Celery juice naturally contains a high level of organic nitrate, which is converted to the problematic nitrite by the bacteria in the starter culture and also by saliva during chewing. Despite this fact, it's technically correct to label the bacon "no nitrates or nitrites added," since the compounds are formed during production, not added as ingredients. The question is: How do the levels of nitrite and nitrate in uncured bacon compare with those in its cured counterpart?

When we fried up strips of our favorite supermarket bacon, Farmland Hickory Smoked, along with Farmland All-Natural Uncured Bacon ("no nitrate or nitrite added"), tasters found the samples virtually identical in taste and texture. To quantify the nitrite and nitrate levels in these bacons, we sent three packages of each type to a lab for testing. For comparison, we also sent three packages of the Best Buy from our tasting of artisanal bacon, Applegate Farms Uncured Sunday Bacon (labeled "no nitrites added"). As we expected, all of the bacons contained nitrite and nitrate, and the nitrite levels were well within U.S. Department of Agriculture guidelines of no more than 120 parts per million (ppm). But to our surprise, the uncured bacons actually had higher levels of nitrite than the cured meat: Farmland Hickory Smoked Bacon registered an average of 9.7 ppm nitrite (and 48 ppm nitrate), while its All-Natural counterpart showed an average of 16.3 ppm nitrite (and 10.3 ppm nitrate). And the Applegate Farms Uncured Sunday Bacon averaged more than three times the level of the regular bacon: 35 ppm nitrite (and nearly as much nitrate, at 44.3 ppm).

The bottom line: All bacon is likely to contain nitrite and nitrate, whether added at the outset or formed naturally during processing. If you want to avoid these compounds, you'll have to avoid bacon—and any other processed meats containing celery juice—altogether.

What's Inside the Bun?

By WILLIAM NEUMAN
Published: July 1, 2011

If there is no such thing as a healthy hot dog, how do you limit the damage at this weekend's weenie roast?

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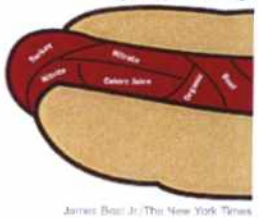

James Boast Jr./The New York Times

Don't count on the label to help much. Those pricey "natural" and "organic" hot dogs often contain just as much or more of the cancer-linked preservatives nitrate and nitrite as that old-fashioned Oscar Mayer wiener.

And almost no one knows it because of arcane federal rules that make the labels on natural and organic hot dogs, luncheon meats and bacon virtually impossible to decipher when it comes to preservatives. That includes products made from beef, pork, turkey and chicken.

"If you actually surveyed consumers going out of their way to buy no-nitrate products, they'd be very surprised to learn that there's plenty of nitrates in there," said Bruce Aidells, a chef and cookbook author. "It's very misleading." In a role reversal, food manufacturers are now pushing the federal government for more truthful labeling that would allow them to tell consumers clearly that some products contain nitrate and nitrite, just from natural rather than synthetic sources. The current rules bizarrely require products that derive the preservatives from natural sources to prominently place the words "Uncured" and "No nitrates or nitrites added" on the label even though they are cured and do contain the chemicals.

"Nitrite is nitrite and consumers should be aware of what they're eating," said Marji McCullough, director of nutritional epidemiology for the American Cancer Society, which recommends that people reduce consumption of processed meats because of studies that link them to colon cancer.

The United States Department of Agriculture says it is aware of the labeling problem and may take a fresh look. "We feel strongly that labels should help consumers make

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Times Topic: Meat

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Jim Wilson/The New York Times

Bruce Aidells, with slabs of bacon behind him, says the labels mislead consumers about nitrate.

Aaron Houston for The New York Times

Linda Boardman, president of Applegate Farms, has proposed new

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labels to the U.S.D.A. to no avail

informed decisions and we are open to reviewing additional information to enhance accuracy in labeling," said a spokesman for the department. Nitrate and nitrite have been used for centuries to cure meat, giving products like hot dogs, bacon and ham their characteristic flavor and color and killing the bacteria that causes botulism. Today, conventional meat packers typically use a synthesized version known as sodium nitrite.

But companies that label their products natural or organic must use natural sources of the preservatives. They usually employ celery powder or celery juice, which are high in nitrate. A bacterial culture is used to convert that to nitrite. The resulting chemicals are virtually identical to their synthetic cousins. When the products are packaged, both conventional and natural products contain residual amounts.

A study published earlier this year in The Journal of Food Protection found that natural hot dogs had anywhere from one-half to 10 times the amount of nitrite that conventional hot dogs contained. Natural bacon had from about a third as much nitrite as a conventional brand to more than twice as much.

The current U.S.D.A. labeling rules require natural products to indicate there may be naturally occurring nitrate or nitrite, but it often appears in small print. When combined with the more prominently displayed "No nitrates or nitrites added" banner, many consumers are left scratching their heads.

"The most consistent feedback we get is, 'I don't understand what that means,' " said Linda Boardman, president of Applegate Farms, the leading brand of natural and organic processed meats. "It's confusing and it's not adding anything to the consumer decision-making process."

Applegate and other natural companies have proposed alternate wording to the U.S.D.A. in the past without success. They say they are confident their products offer enough other benefits — all natural ingredients, meeting the standards for the humane treatment of animals, for example — that it is best to be upfront with consumers about the preservatives. Ms. Boardman said tests showed the amount of nitrite and nitrate in Applegate products was similar to conventional brands.

Consumer advocates agree the problem does not lie with the meat companies. "We see the problem lying squarely with U.S.D.A.," said Urvashi Rangan, technical policy director of Consumers Union.

Since the 1970s, concerns about the health effects of nitrate and nitrite have focused on the potential for nitrite to combine with meat protein to form carcinogenic substances called nitrosamines.

The U.S.D.A. responded by limiting the amount of nitrate and nitrite that goes into processed meats, and today they contain far less than they did 40 years ago.

But since the health concerns first emerged, scientists have gained more understanding of the role of nitrate and nitrite in human health and have discovered the preservatives also have benefits, for example, in the healthy functioning of the cardiovascular and immune systems.

Some in the meat industry have seized on these discoveries to dismiss as outdated the link between nitrite in processed meat and cancer. They insist processed meats are safe.

But many scientists say the evidence of health risks remains persuasive. While the occasional hot dog or piece of bacon is probably O.K., they point out that high levels of salt and saturated fat in processed meats also contribute to health problems.

"What's very clear is that consuming processed meats is related to higher risk of diabetes, heart attacks and colon cancer," said Dr. Walter C. Willet, chairman of the nutrition department of the Harvard School of Public Health. "If you tweak the cured meat a little bit like some of these new products, that's no guarantee that's going to make it any better."


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And that weekend weenie roast? George L. Siemon , the chief executive of Organic Prairie, an organic meat processor, said that when he tried selling meats with no nitrates from any source, they didn't taste the same and no one wanted them.

"We tried the non-anything," he said. "It just didn't work for the customer."

A version of this article appeared in print on July 2, 2011, on page B1 of the New York edition with the headline: What's Inside That Bun?

Image credit Lloyd Alter

Bacon is a summer holiday treat for our family, and I have been paying a significant premium to purchase nitrite-free bacon, as studies going as far back as the seventies have linked nitrites to a number of different **kinds of cancer.** So I was shocked to read **Sara's post on natural nitrites in hot dogs** and had a close look at the bacon package. And sure enough, it has a big "No nitrites added" label that drew me in, an asterisk noting *except for those naturally occurring in the ingredients, which include cultured celery extract, , which, as Sara noted, are nitrites.

I think it is a bit disingenuous for Schneiders to be saying that no nitrites are added, when cultured celery extract is not exactly standard in bacon; just because it is naturally occurring doesn't make it any better. **GOOD explained how it works** last year:

> To replace the pure chemical nitrites of old, many organic meat producers have been substituting celery juice or a powdered extract. Celery is one of many leafy green vegetables with naturally occurring nitrates--about 1,103 parts per million in the fresh plant--so these labeling claims (while technically correct) can seem misleading. It's just another instance of the organic food industry accidentally replicating what it set out to oppose. Earlier this year, Cook's Illustrated tested different types of bacon and found that two brands of "nitrate-free" bacon had significantly more nitrites than their conventional counterpart. "If you want to avoid these compounds," they wrote, "you'll have to avoid bacon--and any other processed meats containing celery juice--altogether."

As GOOD notes, a lot of people, including me, were willing to pay a premium to do without nitrites, and a lot of people have been wasting their money. Sigh.

More on nitrites:
Organic Hot Dog Labels Mislead Consumers
New Study Says, You're Dead Meat if You Eat Red Meat

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Check out TreeHugger for 30+ fresh, green stories every day!

howard [redacted]
<[redacted]>

To: help@applegatefarms.com
cc:
Subject: organic turkey hot dogs sold at Whole Foods

08/13/2011 01:44 PM

Dear Applegate, I write as a physician and grandparent. Yesterday I spoke with someone at customer support about nitrates and nitrites in your organic meat products, particularly organic turkey hot dogs. While the label says no added nitrates or nitrites, I understand that nitrates/nitrites are formed from ingredients such as celery powder or juice during processing---so that products labeled no ADDED nitrates/nitrites actually have levels as high as conventional processed meat products. While your website states,

We promise: there is no mystery to our meat!

...elsewhere on the site you acknowledge this presence of "natural" nitrates/nitrates. Maybe this is not a mystery, but it certainly is not clear what, indeed, is in the end-product in terms of nitrate/nitrite content and how much. The rep I spoke with said he would email extensive information on this immediately, but I have not received anything. I was hoping to have it promptly as I am engaging in some activities involving grandchildren in a day or so, and wondering about whether to continue serving them your organic turkey hot dogs. My children are wondering, too, about hot dogs altogether, particularly given recent findings and statements from physician and cancer organizations about the health hazards of processed meat, especially hot dogs.

I look forward to some meaningful education on this topic. Thank you.

Process Question

Issue ID:	GCLN-8KRGW9		
Consumer/Wholesale:	● Consumer * ○ EatToANewBeat ○ Wholesale	Question Type Category:	Technical Question
Assigned To:	Gerry Clarkson	Alternate helper:	Gerry Clarkson
Product(s):		Action Plan:	
Status:	Closed	Created Date:	08/13/2011 01:44:58 PM
Should be Closed by:	08/15/2011	Closed Date:	08/15/2011
Refund Request:	○ Yes ○ No		
Ranking:	○ High ● Low		

[redacted]
>

To: help@applegatefarms.com
cc:
Subject: Celery juice nitrate concern

07/01/2010 06:14 PM

I would like to know specifically what products contain celery juice. It is not listed as an ingredient on your uncured turkey hot dogs or your organic fire roasted sausage.

I am very concerned about unknowingly feeding this nitrate to my family. Since it is not listed, it seems deceptive to market these products as having no nitrates or nitrites added when you knowingly add celery juice which is full of nitrates.

Please let me know what products you add celery juice to.

Liz

Process Question

Issue ID:	DTOD-86YJRL		
Consumer/Wholesale:	● Consumer * ○ EatToANewBeat ○ Wholesale	Question Type Category:	Ingredients
Assigned To:	Del Townsend	Alternate helper:	Emily Colon
Product(s):		Action Plan:	
Status:	Closed	Created Date:	07/01/2010 06:14:26 PM
Should be Closed by:	07/03/2010	Closed Date:	08/25/2010
Refund Request:	○ Yes ○ No		
Ranking:	○ High ● Low		

Monice [redacted]
<[redacted]>
01/21/2011 12:00 PM

To: help@applegatefarms.com
cc:
Subject: Uncured meats

Hi, I just have a general question regarding some of the uncured meat that you endorse. Since it is uncured does that mean I need to cook it right away or is it safe to freeze it or cook some and put the rest in the refrigerator for later?

Thank you,

Monice

Process Question

Issue ID:	JLAH-8DBRBA		
Consumer/Wholesale:	● Consumer * ○ EatToANewBeat ○ Wholesale	Question Type Category:	Technical Question
Assigned To:	Jennifer Lash	Alternate helper:	Del Townsend
Product(s):		Action Plan:	
Status:	Closed	Created Date:	01/21/2011 12:00:06 PM
Should be Closed by:	01/23/2011	Closed Date:	01/26/2011
Refund Request:	○ Yes ○ No		
Ranking:	○ High ● Low		

[redacted]
>

To: help@applegatefarms.com
cc:
Subject: Nitrites vs nitrates

08/05/2010 09:33 PM

Hi
I just finished reading an article in a food magazine (COOKS ILLUSTRATED....anwers to readers questions) that compared Applegate farms baccon (which we use and love) to normal grocery brands, hunting for the amount of nitrites and nitrates. Their lab report states that Applegate has more nitrates and nitrates than the other brands tested.

1. Is this TRUE- that Applegate Farms Baccon actually contains MORE nitrates and nitrites than the normal run of the mill baccon????????

2. Even though the totals are with in the guide lines of the FDA, are the nitrites formed by the celery juice and sea salt any less dangerous/carcinogenic than those formed by pure chemical curing? I read your on line Nitrites vs nitrates, but I still have these questions. Are natural formed nitrites less dangerous?

3. If this is true, what would make your baccon any healthier to consume than other baccon.....

Thank you,

Elaine Mongiu
mongiue@gmail.com

Process Question

Issue ID:	DTOD-883GXN		
Consumer/Wholesale:	● Consumer * ○ EatToANewBeat ○ Wholesale	Question Type Category:	Technical Question
Assigned To:	Del Townsend	Alternate helper:	Emily Colon
Product(s):		Action Plan:	
Status:	Closed	Created Date:	08/05/2010 09:33:53 PM
Should be Closed by:	08/07/2010	Closed Date:	08/06/2010
Refund Request:	○ Yes ○ No		
Ranking:	○ High ● Low		

Denise [redacted]

To: help@applegatefarms.com
cc:
Subject: hot dogs and nitrates

07/30/2009 01:35 PM

Hello

Thank you for your continued support of organic framing!
I would like more information on the issue of NITRATES in your hot dogs. A consumer report testing your hot dogs stated there was no difference from your brand and any other brand on the market for Nitrates. Can you give me more information as my packet of hot dogs does state the ingredient of celery. Please send me whatever you think would be helpful.

--
Cheers,
Denise

Process Question

Issue ID:	DTOD-7UFPLK		
Consumer/Wholesale:	● Consumer * ○ EatToANewBeat ○ Wholesale	Question Type Category:	Technical Question
Assigned To:	Del Townsend	Alternate helper:	Emily Colon
Product(s):		Action Plan:	
Status:	Closed	Created Date:	07/30/2009 01:35:15 PM
Should be Closed by:	08/01/2009	Closed Date:	08/07/2009
Refund Request:	○ Yes ○ No		
Ranking:	○ High ● Low		

j[redacted]
[redacted]
07/14/2010 05:04 PM

To: help@applegatefarms.com
cc:
Subject: hot dogs

I have been a huge fan of Applegate products for several years. I just recently found out that celery juice and p
me how the amount of nitrates put in an Applegate hot dog compares to a regular one? I've been feeding my c
such a healthy start in life. I feel very mislead and would greatly appreciate some clarification.

Thank you,
Jennifer Kiss

Process Question

Issue ID:	ECON-87DGNK		
Consumer/Wholesale:	● Consumer ○ EatToANewBeat ○ Wholesale	Question Type Category:	Technical Question
Assigned To:	Del Townsend	Alternate helper:	Emily Colon
Product(s):		Action Plan:	
Status:	Closed	Created Date:	07/14/2010 05:04:54 PM
Should be Closed by:	07/16/2010	Closed Date:	08/03/2010
Refund Request:	○ Yes ○ No		
Ranking:	○ High ● Low		