FoodBytes

"A newsletter designed to support all Hoosier health department food safety programs."

Indiana State Department of Health

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Inside this issue:

Indiana chain adds irradiated beef

Shoppers in any of the 67 Marsh Supermarkets in Indiana and Ohio can now purchase irradiated ground beef. The price will be slightly higher than the non-irradiated product.

California-based SureBeam Corporation, makers of the irradiation equipment, announced in a press release that Marsh believes the irradiation of its ground beef will "provide an extra level of safety without sacrificing quality or taste."

Similar to a microwave oven, SureBeam technology uses electricity as an energy source to irradiate harmful bacteria such as E. coli, Listeria, and Salmonella. The SureBeam patented system is based on proven electron beam technology that destroys dangerous bacteria, much like thermal pasteurization does to milk.

According to SureBeam, choices for customers will include processed fresh ground beef in one-pound case-ready packages of 81% lean ground chuck and 93% lean ground beef.

Scott Gilliam, Director of ISDH's Food Protection Program, feels that many consumers will be willing to pay the higher price.

Marsh Supermarkets added irradiated ground beef to its store shelves in March.

"They can rest assured that such meat is safe," he said. "I don't think they say contamination is reduced to zero, but irradiation is 99.9999 percent effective in removing pathogenic organisms. The radiation isn't high enough to affect the quality or alter the taste."

It should be noted that the use of irradiated ground beef does not alter the requirements of the food code to cook all comminuted meats to 155° F. for 15 seconds, as specified in Section 161 of 410 IAC 7-20.

The Kroger Company has tested irradiated beef in Illinois but has not yet decided to offer such products in Indiana.

The "radura" shown above needs to appear on all irradiated products as per federal law. It is usually green, but could be another color.

All other labeling requirements remain the same: labeling language in English, name of the product, a count or weight, the manufacturer or distributor, ingredients, and more.

Wild mushrooms must be inspected

Over 5,000 species of fleshy mushrooms grow naturally in North America. The vast majority has never been tested for toxicity. It is known that about 15 species are deadly and another 60 are toxic to humans whether they are consumed raw or cooked.

At least 40 other species are poisonous if eaten raw, but are safe after cooking. Some wild mushrooms are extremely poisonous and may be difficult to distinguish from edible species.

Retail Food Establishment Sanitation Requirements, 410 IAC 7-20, Section 123(a) (b), states that mushroom species picked in the wild to be sold at a retail food establishment shall be obtained from sources where each mushroom is individually inspected and found to be safe by a mushroom identification expert.

In the private sector, wild mushroom hunters may request assistance from organizations that include individuals who can provide mycological expertise in the identification of questionable species. Governmental agencies, universities, and mycological societies are examples of such groups.

Because of the toxicity of many wild mushroom species, it is important that they be correctly identified prior to consumption. Establishments must provide documents to prove to inspectors that mushrooms are safe.

Mycological assistance can be obtained from the following websites:

http://www.mykoweb.com/na_myco.html

http://home.worldonline.dk/mccons/myc.soc.html

Lee Bray

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Mark your calendar

The next ISDH Food Workshop is slated for March, 2004!

Make a note...

Sample containers may be obtained via the internet. Simply send a GroupWise message to *containers @isdh.state.in.us* stating what you need.

Would you repeat that, please?

When should a violation noted during an inspection be identified as a "repeat" violation? While the answer would at first appear to be obvious, there is inconsistency among inspectors as to how and when the "R" column on the inspection form should be used.

If a particular section number was marked on the previous inspection, and the violation is again observed, it is a "repeat" if the same observation is made. For example, a hot holding violation one time, followed by a hot holding violation the next time is a repeat. But a hot holding violation observed on one inspection, and a cold holding violation observed the next is not a repeat.

This applies to subsequent inspections. A violation marked on inspection "a", not on inspection "b" but again on inspection "c" is not a repeat.

New FDA workshop offers valuable info

Jill Sooter, Training Officer (left), and Brian Hendrickson, National Food Expert (right), shared the instructional duties at the recent workshop on Acidified Foods. Both are with FDA's Office of Regulatory Affairs and work in conjunction with FDA's State Training Branch.

Clostridium botulinum is an anaerobic, spore-forming rod that produces a potent neurotoxin. The spores are heat-resistant and can survive in foods that are incorrectly processed.

Seven types (A, B, C, D, E, F and G) are recognized based on the specific toxin produced by each strain. Types A, B, E and F cause human botulism.

Foodborne botulism (in contrast with wound botulism and infant botulism) is a severe type of food poisoning caused by the ingestion of the potent neurotoxin formed during growth of the organism. The toxin is heat labile and can be destroyed if heated at 176° F. for at least 10 minutes.

The incidence of botulism is low, but

*(**C.Bot**. Continued on page 5)*

What are the risks associated with canned foods or acidified foods? FDA trainers, Jill Sooter and Brian Hendrickson offered answers to this question, plus what to look for during inspections, to attendees at the recent Acidified Foods Workshop.

Acidified foods are appearing in unexpected locations as food establishment operators decide to expand their product offerings and provide "homemade" items, like salsa. The problem stems from businesses wanting to offer such products at room temperature in a hermetically sealed container to the public without adequate proof such products have been properly processed, and that the operator has been trained.

Because of the anaerobic condition in the sealed container, a serious risk of *Clostridium botulinum* (C. bot) may exist. The regulations require that the operator demonstrate the ability to prevent C. bot spores from becoming vegetative.

Measuring the distance between the vertical neck ring seam and the leading edge of first lug on the lid is one test of the proper sealing of an acidified food container.

Typical products that are "canned" may receive minimal heat processing, allowing bacterial spores to survive. The spores aren't harmful themselves, but if they become vegetative, the deadly toxin is produced. The controlled acidification keeps the spores in check as long as the operator knows what he or she is doing.

Spoilage is a separate issue from food safety. The bacteria that make food spoil differs from the pathogens that cause illness.

"The intent," according to Hendrickson, "is that food go bad before it becomes dangerous."

Molds are not a food safety issue, but can consume acid in foods, thereby raising its pH.

How well do you know food science?

Take this mini quiz to test your knowledge. Don't look at the answers until you've tried to answer each question.

1. Water:

a. is the major component of most foods

b. controls shelf-life or storage capability

c. regulates chemical and microbiological reactions

d. all of the above

2. Which of the following foods contains the lowest content of water?

a. fresh carrots

b. fresh tomatoes

c. whole milk

d. fresh celery

3. Which of these foods is not appropriate to this list?

a. salami

b. yogurt

c. orange juice

d. beer

4. To which of the following four basic tastes are humans most sensitive?

a. bitter

b. sweet

c. sour

d. salty

5. If you wanted to keep bread from becoming stale, which would be the best storage temperature?

a. 41 deg. F

b. 59 deg. F

c. 77 deg. F

d. 95 deg. F

Now, here are the answers:

1. d) all of the above

Water is necessary for life in all its forms, but in foods, water serves as a medium in which chemical, enzymatic, and microbiological reactions take place that can lead to a deterioration in quality and a reduction in shelf-life.

2. c) whole milk

The water contents of these foods are: fresh carrots 88.2%; fresh tomatoes 93.5%; whole milk 87.2%; fresh celery 94.1%. While we often associate fluidity or pour-ability with high water content, milk is an example of a liquid food that contains less water than many solid products. This is because the water in fruits and vegetables is held within cell walls that are kept rigid by turgor pressure. In gelatin desserts for example, water is entrapped within a three-dimensional matrix of man-made "cells" formed by cross-linking of the protein. Similar structures are formed by some complex carbohydrates (polysaccharides) termed hydrocolloids or gums.

3. c) orange juice

All the others are examples of fermented foods. Fermentation, if uncontrolled, can lead to food spoilage, but food scientists have learned to utilize this microbiological reaction in order to produce some of our best-liked food products. Common examples include alcoholic fermentation in which alcohol is produced by way of yeast fermentation of sugars to yield beer, wines, cider, etc.; lactic acid fermentation leading to the formation of lactic acid from sugars and producing pickles, sauerkraut, olives, soy sauce, yogurt, many cheeses, and meat products such as salami. Fermentation also generates the carbon dioxide used to leaven yeast breads and the acetic acid found in vinegar.

4. a) bitter

The average threshold concentration of the standards used to test taste perception are: sucrose (sweetness) 0.7%; sodium chloride (saltiness) 0.2%; hydrochloric acid (sourness) 0.007%; quinine sulfate (bitterness) 0.00003%. Our ability to detect vanillin, the flavoring principle in vanilla extract, is at a concentration of 0.0000002 mg/cubic meter of air. This explains why food seems to have less taste when we have a cold or flu and cannot smell properly.

5. d) 95 deg. F

Yes, believe it or not, bread stales much more quickly at lower temperatures. The rate of staling reaches a maximum at about 23° F and decreases linearly until about 122° F. This results from a change in the starch fraction of wheat flour involving crystallization, called retrogradation. Of course, if bread were to be stored at elevated temperatures it would become moldy much more rapidly. The starch crystallization reaction can be reversed, which explains why a gentle heating process can soften stale bread. The main commercial method for delaying staling is the use of an additive such as glyceryl monostearate, or methylcellulose. Molding can be partially inhibited by incorporating an antimicrobial agent, for example, propionic acid.

So how well did you do? If you learned something new, then we both did well!

Gale Woods

Dual label the 7a's!

If called upon to provide 7a containers during a foodborne illness investigation, local health department staffers must assure proper identification is placed on each container.

The name and date must be written on the actual vial holding the specimen as well as on the outer tube. The lab plans to provides labels.

If this information is missing, the lab will return the sample untested. Such an error has caused at least two outbreak investigations to be flawed.

This requirement is not clear on the paperwork with the containers but will be corrected.

FDA recommends tighter security for RFEs

Because terrorism has become a real possibility, the Food and Drug Administration is urging retail food establishments (rfe) to prepare for the possibility of tampering or other malicious, criminal, or terrorist event.

Here are some of FDA's recommendations.

- ***Assign the responsibility for security to knowledgeable persons***
- ***Conduct an assessment of security procedures and operations***
- ***Develop a crisis management strategy to prepare for and respond to threats***
- ***Promote food safety awareness to staff***
- ***Communicate with staff concerning security issues***
- ***Supervise all staff appropriately, including maintenance and support staff***
- ***Restrict and control access to the facility and verify identities of persons entering***
- ***Conduct regular inspections of both public and non-public areas***
- ***Inspect all boxes delivered for anything unusual***
- ***Reject deliveries from unknown companies, especially at odd times***
- ***Train staff in food security procedures***
- ***Establish alternate sources of water and food products, if needed***

With restaurants and food stores, it might be even more important to monitor self-service operations like buffets. Although already required in the food code for restaurants, FDA encourages operators to watch more closely for anything suspicious. Areas for monitoring would also include bulk food containers, donut and bagel cases, and produce displays.

Inspectors should discuss handling food safety events with operators.

*(**C.Bot**. Continued from page 3)*
the disease is of considerable concern because of its high mortality rate if not properly treated immediately.

Most of the 10 to 30 outbreaks that are reported annually in the United States are associated with inadequately processed, home-canned foods, but occasionally, commercially produced foods have been involved in outbreaks. Sausages, meat products, canned vegetables and seafood products have been the most frequent vehicles for human botulism.

The organism and its spores are widely distributed in nature. They occur in both cultivated and forest soils, bottom sediments of streams, lakes and coastal waters, and in the intestinal tracts of fish and mammals. *FDA*

Clarifications on food labeling

An article last year in FoodBytes (Winter, 2002) provided an overview of the requirements for food labels. Some recent questions have prompted this additional information.

All labels must be in English but may be dual-labeled with the language of the manufacturing country. But any food products that are to be exported from the U.S. may be only in the language of the country that is receiving the product. The labeling must meet the requirements of the importing country.

Another question concerned the labeling of whole wheat bread: can it contain any flours than whole wheat flour in the ingredient statement?

The answer, according to 21 CFR 136.180, the standard for whole wheat bread, is that it can only contain whole-wheat flour or bromated whole wheat flour (flour that has potassium bromate added) or a combination of these two flours. No other flours can be in the product.

Inspectors must continue to check labels as a normal part of routine inspections to ensure compliance.

Thanks to Shirley Vargas

"Ask Scott"

Q. I live in a college town with several fraternities on campus. Since they prepare food, would they be considered food establishments under the code?

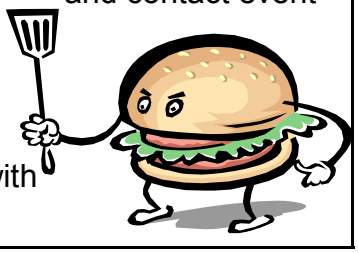
A. The answer is probably yes. As per the food code, a retail food establishment "provides food for human consumption." If residents are preparing food for themselves, the facility would probably be exempt. But a hired cook doing food prep would qualify the business as a "retail food establishment," then the food code would apply, and the establishment should be inspected.

Q. What does it mean for foods to be identified as kosher?

A. Kosher means the food has been prepared in accordance with the preparation rules set forth in the Old Testament of the Bible and formalized in Jewish law. For manufactured foods, this means someone such as a rabbi who does not work for the company must supervise the process.

Foods labeled as kosher often include kosher hot dogs and kosher pickles. Heinz catsup is also kosher. Kosher products are marked with a symbol such as a U with a circle around it. Inspectors who encounter kosher foods during inspections must be mindful of the religious significance.

Now is the time to prepare for the summer season of mobile vendors! Get application forms ready, and contact event organizers to let them know that temporary vendors will be inspected and must comply with the code!



Send your questions to Scott Gilliam at <food@isdh.state.in.us>, or use the address on page 2.

Tip of the month

Watch for food stores reselling meat from other retailers. When one retailer sells to another retailer, he is a "wholesaler." Charles Lovelace of USDA says that if a store does any processing of inspected meat, it is no longer considered inspected and is therefore unapproved.