

## IN THE NEWS

### Upcoming Events:

**Grocery Innovations Canada 2006 – October 23 & 24th, 2006** at the Toronto Congress Centre, Toronto, ON. This show is recognized as a critical business booster for the grocery industry and attracts more than 6000 attendees. With over 500 exhibits comprised of grocery products from national brand, imported and Canadian food processor as well as the newest store equipment and services, the event is considered a 'must attend' by key industry players. For more information, visit [www.groceryinnovations.com](http://www.groceryinnovations.com).

### JUST ANNOUNCED!

**The 2007 Food Industry Expo - February 23 & 24th, 2007** @ the International Centre in Mississauga, ON. This is the only show of its kind in Canada providing one location to showcase innovations, connections and solutions to processors and suppliers in the meat & food processing industry. The Ontario Independent Meat Processors Association (OIMP) and the Alliance of Ontario Food Processors host this national, two-day event. For more information, visit the OIMP website at [www.oimp.ca](http://www.oimp.ca) or [www.FoodIndustryExpo.ca](http://www.FoodIndustryExpo.ca)

*Malabar and Modern Butcher Supply is once again proud to support the OIMP and the upcoming 2007 Food Industry Expo. Mark your calendars and watch for our Jan/Feb newsletter for a chance to request your free passes – compliments of Malabar.*

## The Meat of It: Understanding Cured Meats

*Here at Malabar we're often asked for help and advice on curing meats, from information on stuffing hams to processing wieners, including advice on smoke house schedules. In the run-up to Thanksgiving, we wish you a wonderful 'curing' season, and are here to assist you to produce many fabulous products for your customers.*



### Cured Meats - The Key Ingredients

The key ingredient in meat curing is salt and it is the only ingredient necessary for curing – a process that keeps meat from spoiling. For centuries, meat has been preserved by processes of drying, salting and smoking. In fact, salt was used in China to cure and preserve meat since as early as the 13th Century B.C. Today our most common cured meats include ham, bacon, wieners, luncheon meats, pastrami, salami, and pepperoni.



In curing meats, the use of salt alone results in a dry and salty product, and leaves lean meat with a very dark unappetizing colour. Nitrites and/or nitrates are used in curing to counteract the undesirable effects of salt on colour. Approximately 100 years ago, it was accidentally discovered that saltpeter (potassium nitrate), sometimes present as an impurity in salt, would give the meat a rosy pink colour. Curing mixtures today include salt, sugar and nitrite. Sugar is used to offset the saltiness, and when used in the longer cure process for dry sausage products, the sugar provides an energy source for microorganisms that convert nitrate to nitrite.

### Nitrite Benefits

Adding nitrites delays the development of spoilage microorganisms including the botulinal toxin responsible for botulism. It also develops the cured meat flavour and colour; retards the development of rancidity, off-odours and off-flavours during storage; inhibits the development of warmed-over flavour; and preserves the flavour of spices and smoke.

Traditionally, sodium nitrate was used for the longer aging process. Nitrate requires more time to react as it requires one extra step, and so its use has decreased in the meat processing industry. Nitrite is more commonly used, as it reacts faster and less is required for colour stabilization.

# FROM THE LAB



## Calculating NITRITE Levels

The maximum level of use for nitrite in Canada for cured meats (except side bacon) is 200 ppm input (or 0.32 oz/100lbs or 0.0200%) to the total raw formulation weight (before cooking, smoking, etc.) For side bacon, the maximum level of use for nitrite is 120 ppm input (or 0.19oz/100 lbs or 0.0120%) to the total raw formulation weight.



## What is a ppm?

### 1 ppm means 1 part in one million parts.

It can be expressed also as any of the following:

- 0.000001
- 0.0001%
- 1 gram per 1000 kg

Therefore 200 ppm can also be expressed in the following ways:

- 0.000200
- 0.0200%
- 200 grams per 1000 kg
- 20 grams per 100 kg
- 2 grams per 10 kg

### Processors do not add nitrite directly to formulations.

Instead, Malabar Sure Cure or cure compounds (i.e. Prague Powder) are used as a source of nitrite. In Canada, Prague Powder or Malabar Sure Cure compound generally contains 6.25% nitrite and 93.75% sodium chloride (salt). (Some cures contain as little as 1% nitrite, so check with your supplier.) The salt added to cure compounds allows for easier (and more accurate) weighing and better dispersion, and prevents a possible fatal overdose of nitrite, if too much cure is accidentally added, due to the unacceptable "salty" taste.

A straightforward approach to determining the level of nitrite in meat products, using Debrecziner Wieners as an example, consists of the following three steps:

### 1. Determine total raw formulation weight

The total raw formulation weight for Debrecziner wieners was previously calculated to be 100 kg.

### 2. Determine percentage of Sure Cure or cure compound in formulation.

$$\% \text{ Sure Cure} = \frac{\text{wt. Sure Cure}}{\text{Total raw formulation wt.}} \times 100$$

$$\% \text{ Sure Cure} = \frac{0.3 \text{ kg}}{100} \times 100$$

$$\% \text{ Sure Cure in Debrecziner Wieners:} \\ = (0.3 \text{ kg} / 100 \text{ kg}) \times 100 = 0.30\%$$

### 3. Calculate nitrite content in product.

$$\% \text{ Nitrite} = 6.25\% \times \% \text{ of Sure Cure}$$

$$\% \text{ Nitrite in Debrecziner Wieners:} \\ = 6.25 / 100 \times 0.30 \\ = 0.01875 \% \\ = 0.0001875 \text{ or } 187.5 \text{ ppm}$$

The input of 187.5 ppm of nitrite to the raw formulation is within government legal limits for sausage.

### Any Questions?

Contact Chris, our Technical Specialist, at **1-888-456-6252** or via email at [lab@malabarsuperspice.com](mailto:lab@malabarsuperspice.com)

### Nitrite Usage Levels

For most applications the mandatory level of nitrite/nitrate is a maximum of 200 ppm as nitrite.

	MaxMaximum Allowed	Recommended Levels
Cooked Sausages	200 ppm	150-180 ppm
Ham, Corned Beef	200 ppm	150-180 ppm
Dry & Semi Dry Sausages	200 ppm	100-150 ppm
Bacon	120 ppm	120 ppm

## A Series of Reactions

In a series of normal reactions, **nitrite** is converted to **nitric oxide** through the natural reducing agents in the meat. The nitric oxide in turn combines with the **myoglobin** in the meat, which is the pigment responsible for the natural red colour of uncured meat. Together, they form **nitric oxide myoglobin**, which is a deep red colour. When heated during the smoking process, the colour then changes to the characteristic bright pink that is recognized in cured and smoked meat products, such as wieners and hams. It is also recommended that cure accelerators such as **sodium ascorbate** or **sodium erythorbate** be used with the nitrites, as they speed up the curing reaction.

## Curing Methods

There are 2 traditional curing methods:

**1. Dry Curing** – where the curing ingredients (salt, sugar, nitrite and/or nitrate) are added to the meat without the addition of water. The water contained within the meat allows the ingredients to diffuse into the meat, over an extended number of days.

**2. Pickle (Brine) Curing** – where the curing ingredients are mixed with water and then the meat is left in the brine to soak, or as is mostly commonly used today, injected (pumped) into the meat, using needle injection techniques.

## Food Safety

The safety of cured meats has been a matter of considerable debate over the past 40 years. A key consideration is the question of how the natural breakdown components of proteins known as amines can combine with nitrites to form compounds known as **nitrosamines**, of which some types are considered to be carcinogens. Central to the debate is the matter of defining the level at which a food chemical is considered to be a risk.

As an example, when bacon is processed, the allowable usage limit in Canada is 120 ppm (parts per million) of nitrite. The measurable residual levels after processing is approximately 40 ppm, with consideration that the use of the cure accelerators (erythorbates and ascorbates) and the length of cooking and processing times will further reduce the residual count. The use of ascorbates and erythorbates also provide a strong protection against the nitrosation reactions. Ingredients suppliers provide a controlled blend of salt and nitrite and/or nitrate, to promote the correct usage by processors. This curing salt blend is available under many brand names, including Prague Powder, and Sure Cure. (As always, read your labels carefully.)

Interestingly, **nitrosamines** also occur naturally in many of our foods. Less than 5% of daily nitrite intake comes from cured meats. The bacteria in the mouth is able to reduce nitrate which is present in many vegetables, to nitrite, which can then act upon the amines in the vegetables' proteins to also form nitrosamines. The action of the acidic gastric juices in the stomach can also form nitrosamines with other amine-containing foods. Nitric oxide is then used by the body to control blood pressure, kill tumour cells and heal wounds.

## Safe & Flavourful Meats

After more than 40 years of debate, studies, and review, scientific recommendations continue to support the understanding that the benefits of curing meats continues to outweigh any potential risks. As processors, an understanding of the curing process, the reactions of meat products with nitrates/nitrites, and the usage levels required during processing is key to making safe and delicious cured meat products.

### Interesting FACTS

Spinach contains 500 to 1900 parts per million of nitrate

Radishes contain 1500 to 1800 parts per million of nitrate

Lettuce contains 600 to 1700 parts per million

In 1980, the National Academy of Sciences was commissioned by the US Dept. of Agriculture & the FDA to review nitrites in foods. They concluded that nitrite levels in cured meats have not been linked to the development of human cancers.

(Reference: "The Meat We Eat", Romans, Costello, Carlson, Greaser, Jones, Interstate Publishers, Inc. 1994)

**For more information: Visit the International Food Council website at [www.ific.org](http://www.ific.org).**

## Equipment Review

from **Modern Butcher Supply:**

### Rühle HighTech Dicers

It will dice, chop, slice, cube ...

It will do meats, cheese, fruit, and vegetables ...

All these with one machine ... **The HighTech Dicer from Rühle!**

Modern Butcher Supply has been representing Rühle in Canada for over 20 years, and is very pleased to introduce the Rühle line of HighTech Dicers to Canadian food processors. Rühle's SR HighTech Dicers are available in three models, the SR1, SR2 & SR3.



The SR1 is the smallest model, on wheels, and easy to move to the work area where it's needed most and the stored away when finished. The SR1 provides all the standard features of the HighTech Dicer, including 80-160 cut-offs per minute, serrated grid knives to cut efficiently without added heat, and it is easy to clean. The machine weighs only 280 kg, and takes up a small space on the processing floor at 90cm x 60cm x 98cm high.



The SR2 has the added feature of a discharge conveyor belt, PC controls, and 320



cut-offs per minute. The fully automatic SR3 has the same features as the SR2, PLUS a capacity of 3,500 kg per hour, and includes a fully automatic charging system to accommodate a 200 litre standard lift buggy.

**To request a CD demonstration & brochure, or for more information, contact Doug toll free at 1-866-634-7151, or via email at [doug@modernbutchersupply.com](mailto:doug@modernbutchersupply.com).**



Modern Butcher Supply is a wholly owned subsidiary of Malabar Super Spice Co. Ltd.

## BLEND of the month

### Roasted PORK LOIN Pump

With Thanksgiving in mind, MALABAR'S ROASTED LOIN PUMP (MALPLP-001) has been developed to help give your customers a tempting alternative to Turkey. This blend adds value in the form of increased yield and brings a warm, peppery and roasted flavour to pork loin that will tempt even the biggest Turkey addict.

To finish off your Stuffed Pork Roast, make them as appealing to the eye as they are to the taste buds - try Malabar's ONION & GARLIC PORK RUB (MALPORR-001). This flavourful coating has a natural reddish-orange colour with the added visual appeal of fine herbs.

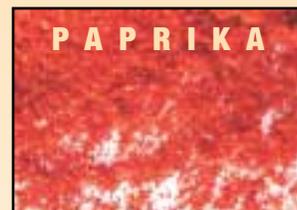
**To ORDER A SAMPLE**, or if you've got a new flavour you'd like to try, contact Chris at 1-888-456-6252, or email [lab@malabarspices.com](mailto:lab@malabarspices.com).

**"ABOUT SMOKED PAPRIKA"** Paprika is the name commonly given to a variety of red powders made from various strains of Capsicum annum, a pepper from the same family as chili. *Smoked paprika originates from the western regions of Spain where the peppers are dried slowly over an oak burning fire for several weeks, giving paprika its characteristic sweet, cool & smoky flavour.* Paprika's silky texture is the result of repeated grinding by electrically powered stone wheels, which must turn very slowly as the heat of friction can affect both the spice's colour and flavour.

Traditionally used in Mediterranean dishes, this unique paprika is gaining popularity in many kitchens, and in a variety of food products including many meat and seafood dishes.



## OUR PRESIDENT'S Choice



*One of the most interesting products that we have added recently is "smoked paprika".*

Originating from Extremadura Spain, this is a sweet, smoked paprika with a vibrant deep red colour that carries through any meat or food product when added, bringing with it a full, smoky aroma. Traditionally used in chorizo sausage, this paprika is also an excellent ingredient for barbecue pork, kebabs, as well as beef or lamb marinades. This spice allows for some truly creative meat applications. With that in mind, we have created a variety of meat formulations which feature smoked paprika – call us for more details. Try something new this autumn!

All the best!

**Doris Valade**

President

Malabar Super Spice Co. Ltd.

## SPICE MARKET UPDATE:

Black & White Pepper Prices are rising. The International Pepper Community (IPC) market review confirms that pepper prices have increased significantly since June, and will continue to rise in the coming months as the pepper output in key producing countries is forecast to continue to fall. The primary world supplier is India, along with Vietnam, and Indonesia. Vietnam has already sold 60% of this year's output and there are serious concerns that Vietnam, Indonesia and India will have poor pepper crops due to severe weather and high production costs.

*(Pepper prices at Malabar Super Spice Ltd. will be increasing in response to increases in the world market, as new shipments arrive. Please confirm current pepper pricing when placing orders.)*



For more information on any of the subjects covered in Malabar's newsletter, or to suggest topics you'd like to see covered in future editions, please contact Sara Alexander at [office@malabarspices.com](mailto:office@malabarspices.com).

Look for our next edition September 2006. Malabar Super Spice Co. Ltd.,  
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