

Verdad® N5 / Verdad® Powder N6

Nature's choice for *Listeria* control



- Natural labeling
- Inhibit *Listeria* growth
- Extend shelf life
- Available as powder formulation

About Verdad N5 and powder N6

Verdad® N5 and Verdad® Powder N6 are natural ingredients developed for natural meat and poultry. They are label friendly ingredients that keep food safe by suppressing the growth of pathogens and a wide range of spoilage bacteria.

Natural labeling

Labeled as vinegar, Verdad N5 and Verdad Powder N6 are produced by the fermentation of corn or cane sugar with specifically selected food cultures. Verdad N5 is approved by the USDA to be used in meat carrying a 'natural' label. It can have a mild vinegar effect on flavor in meat products.

Inhibit *Listeria* growth

Vinegar is a rich source of acetic acid and a well-known inhibitor of microbes and pathogens. In ready-to-eat (RTE) meats, Verdad N5 and Verdad Powder N6 can be used to enhance safety by inhibiting the growth of *Listeria* for over 100 days.

Extend shelf life

Verdad N5 and Verdad Powder N6 inhibit a wide range of spoilage organisms, increasing shelf life in fresh meat. In fresh poultry, Verdad N5 and Verdad Powder N6 can double the shelf life.

Powder formulation for ease of use

Verdad Powder N6 gives the same effect as Verdad N5 at a use level reduction up to 75%. Powder products are less expensive to transport and store and often have other advantages in production.

Expected addition level in a cured ham formulation

Verdad N5	Verdad Powder N6
1.5%	0.4%
2.0%	0.6%
2.5%	0.8%



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Shelf life extension

Figure 1 shows the results of a study measuring the influence of Verdad N5 on the total plate count in chicken breast. The chicken breast was vacuum tumbled with a brine solution (13%) containing salt, water and Verdad N5. Addition of Verdad N5 resulted in a shelf life extension of over double the control.

Listeria Control Model 2012

Corbion Purac offers a unique tool – The *Listeria* Control Model 2012. It is adjustable for eight food characteristics and allows you to predict the effect of Verdad N5 and Powder N6 in your meat products. The predicted growth is based on specifically designed and validated *Listeria* challenge studies. Predictions are depicted by the model in two ways:

- ▶ The 95% line; 95% of all growth is expected to be slower than this line.
- ▶ The “best fit” line; the most probable outcome for growth.

Figure 2 shows the predicted growth of *Listeria* in a typical cured ham formulation. Product parameters used are shown in the table. The control product is expected to remain below 1 log outgrowth for at least 29 days (95% line). Addition of 2.1% Verdad N5 or 0.65% of Verdad Powder N6 is expected to reach 1 log outgrowth for at least 100 days (95% line).

Total plate-counts on fresh chicken-breasts

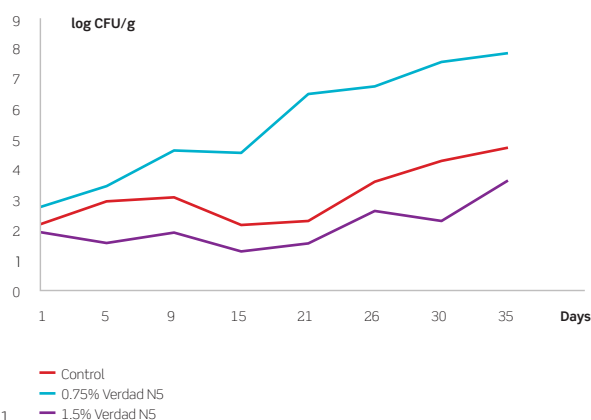


Figure 1

Listeria growth in naturally-cured ham

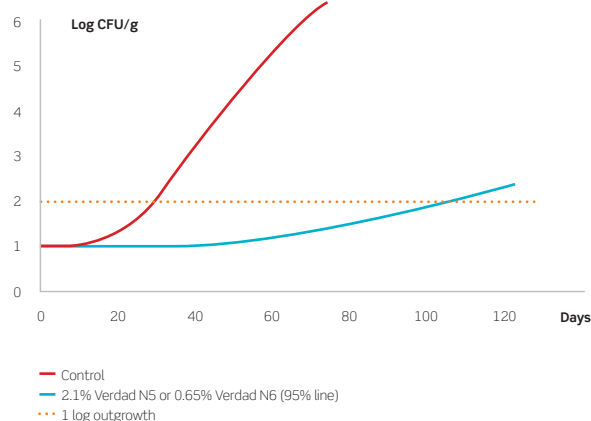


Figure 2

	Verdad N5	Verdad Powder N6
Form	Liquid	Powder
Labeling	Vinegar	Vinegar
Target use level	1.5-2.5%	0.25-0.75%
Sodium impact on product	None	Minor

Parameters cured ham	
Moisture level	70%
Salt	2.1%
pH	6.3
aW	0.972
Verdad N5	2.1%
Verdad Powder N6	0.65%



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With over 80 years of fermentation expertise and the use of natural raw materials to produce exceptional food and beverage ingredients, Corbion Purac has a wealth of expertise in the world of biobased food ingredients. Corbion is the global market leader in lactic acid, lactic acid derivatives and lactides, and a leading company in functional blends containing enzymes, emulsifiers, minerals and vitamins. Corbion operates 10 production plants, in the USA, the Netherlands, Spain, Brazil and Thailand, and markets its products through a worldwide network of sales offices and distributors.

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