

## The Liver

The liver is one of the largest organs in the body and performs many essential functions.

It produces a vast number of hormones, enzymes, proteins, and other substances important for your pet's life and well-being. It also detoxifies and removes waste products in the bloodstream by changing them to a form that can be eliminated. This filtering of waste products is important because these toxins can alter the membranes of cells in the liver and other organs.



Available in  
convenient  
30 tablet  
packages...

Any way you choose - three convenient sizes.

- 90 mg SAME & 9 mg silybin A + B
- 225 mg SAME & 24 mg silybin A + B
- 425 mg SAME & 35 mg silybin A + B

Your veterinarian recommends patented Denamarin, containing S-Adenosylmethionine and a specific silybin shown to provide better bioavailability in dogs compared to the standardized milk thistle commonly available in health food stores and over-the-counter in pharmacies. Laboratory and clinical studies have shown the individual compounds in Denamarin to be beneficial in the support of various organs and tissues in the body. This brochure highlights Denamarin's effects on the liver.

*Ask your veterinarian if Denamarin  
or other Nutramax Laboratories, Inc. products  
can support the health of your pet.*

U.S. Patent Nos. 6,863,906 and 6,555,141

**nutramax**<sup>™</sup>  
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# Denamarin<sup>®</sup>

S-Adenosylmethionine and Silybin

## Raising Liver Support to a New Level



## FOR DOGS AND CATS



QUALITY BY DESIGN - PRODUCTS FOR LIFE<sup>™</sup>

03-1027-01

# Denamarin®

One important “detoxifier” is glutathione, a potent antioxidant. Glutathione protects liver cells, called hepatocytes. One way dogs and cats make glutathione is from the metabolism of S-Adenosylmethionine (SAME). SAME is formed naturally by the liver from the amino acid methionine, found in your pet’s diet. When the liver is compromised, production of SAME decreases resulting in less glutathione.<sup>1</sup> This further adversely affects liver function. A study of dogs and cats with various liver function problems reported that many had low liver glutathione levels.<sup>2</sup>

When liver function is compromised, the exact cause can often be difficult to determine. Supporting the liver, regardless of the cause, is essential if function is to be improved. Administering SAME, which is found in Denamarin, has been shown to markedly increase liver glutathione levels in dogs and cats.<sup>3,4</sup> However, Denamarin’s activities go far beyond just increasing glutathione levels as SAME has also been shown to protect liver cells from cell death<sup>5,6</sup> and may help cell repair and regeneration.<sup>1</sup>

Another way to help support liver function is to nourish your pet’s liver with antioxidants, one of which is silybin. Silybin is the most active part of an extract from milk thistle known as silymarin. Silybin/silymarin has been shown to support liver function by acting as an antioxidant. This means that it helps to counteract or protect against the harmful effects on the liver of “reactive” oxygen compounds. Silybin also stimulates the flow of bile through the liver. Bile contains digestive enzymes along with other substances and aids in the digestion and absorption of nutrients from your pet’s diet. Silybin also helps with liver cell regeneration. Additionally, it may enhance levels of glutathione, the liver’s major “detoxifying” agent.

For optimal absorption, administer Denamarin at least one hour before feeding your pet. For owners who find it difficult to administer tablets to their pets, Denamarin tablet(s) may be disguised in a small bite of moist food. It is not necessary to withhold water from your pet when giving Denamarin. In cats, studies have shown that tablets or capsules can “stick” in the throat instead of passing into the stomach.<sup>7,8</sup> Therefore, cat

owners should gently administer a small amount of water (ask your veterinarian for details) immediately following tablet administration to aid swallowing of the tablet.

Denamarin™ tablets should not be broken as the enteric coating of the Denamarin tablet protects the active ingredients from destruction by stomach acid.

## DAILY ADMINISTRATION GUIDE:

### FELINE AND CANINE DENAMARIN DAILY\* ADMINISTRATION GUIDE

| For Cats and Small Dogs |           |            | For Large Dogs |            |               |
|-------------------------|-----------|------------|----------------|------------|---------------|
| Body Weight             |           | # Tablets  | Body Weight    |            | # Tablets     |
| Pounds                  | Kilograms | One tablet | Pounds         | Kilograms  | One tablet    |
| Up to 12                | Up to 5.5 |            | 35 to 65       | 16 to 29.5 |               |
|                         |           |            | 66 to 120      | 30 to 54.5 | Two tablets   |
|                         |           |            | Over 120       | Over 54.5  | Three tablets |

\*The number of tablets can be gradually reduced or increased at any time depending on the pet’s needs. Many pets are maintained long-term on every-other-day or every-third-day administration.

## Questions You May Have About Denamarin

### How much Denamarin should I give my pet?

The guide above is provided as a general recommendation, but your veterinarian will advise you as to the amount to initially administer. Depending on your pet’s response and status, your veterinarian may eventually adjust this amount to meet your pet’s individual needs. Remember, Denamarin tablets should not be broken. When increasing or decreasing the administration, adjustments should be done in full tablet increments. Some pets are given Denamarin only for a short period of time, while Denamarin may be used longer periods of time in other animals.

### How will I know if Denamarin is helping my pet?

Your veterinarian will likely recommend follow-up examinations, blood work, and/or other laboratory work to check on how well your pet is doing with Denamarin and how it may help to improve your pet’s liver function. At home, watch for improvements in attitude, appetite, and activity level.

### Are there any side effects?

There are no known side effects from Denamarin administration and the active ingredients in Denamarin have been shown to be well-tolerated by both dogs and cats with a wide margin of safety.<sup>1,3,4,9</sup>

### Can Denamarin™ be used with other products?

Yes, your veterinarian may recommend combining Denamarin with other products, like Marin®, and/or dietary modifications. Combining Marin with Denamarin provides added levels of silybin along with vitamin E and zinc for those patients that may benefit from additional liver support. There are no known interactions of Denamarin with drugs or other supplements.

### Are other brands the equivalent to Denamarin?

While other S-Adenosylmethionine and silybin products for humans are available in health food stores and over-the-counter in pharmacies, there can be a significant variance in product quality and tablet strengths. Denamarin’s active ingredients individually have been shown to be safe and effective for both dogs and cats in published research studies. Denamarin contains a specific silybin shown to provide better bioavailability in dogs compared to the standardized milk thistle commonly available in health food stores and over-the-counter in pharmacies.

### Since one of the actives in Denamarin is SAME and that is made from methionine, should I give my pet methionine?

Administration of methionine is not recommended. Providing high levels of methionine to pets with liver compromise may not increase the production of natural SAME and has been shown in some cases to increase liver damage.

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