



Galozyme® Canine Joint Care **Technical Document**

Galozyme® Canine Joint care and Canine Joint Care with GLM have been formulated through years of research, with veterinarians, nutritionists and technicians. Their combined efforts finally provide you with the newest advancement in joint care technology. An overview of the combined properties of proven ingredients coupled with the first time ever, probiotic culture *Kluyveromyces Marxianus Vander Walt B0399*. This unique and first time ever combination has shown great benefits for enhanced digestion of beneficial nutrients, minerals and vitamins, as well as for the health and care of canine joints. The combination of advanced bio-technology and pharmaceutical grade ingredients makes Galozyme® Canine Joint Care the #1 Joint support system available.

Ingredient overview and mode of action:

There are numerous studies promoting the use of high quality Glucosamine HCL, Chondroitin Sulfate (from shark cartilage), Methylsulfonyl-methane (MSM), Vitamin C, and Green lipped Mussel dehydrated (GLM) for use in Canine joint care products. Below is brief overview of each ingredient, and the mode of action of our unique ingredient *Kluyveromyces Marxianus Vander Walt B0399* active Lactic Yeast culture .

Glucosamine HCL: Chondrocytes are the cells responsible for synthesising new cartilage. Normal wear and tear of the joints dissipates the chondrocytes ability to keep up with cartilage production.

Glucosamine HCL, (the most absorbable type of Glucosamine) is one of the building blocks necessary for the production of glycosaminoglycans. The glycosaminoglycans combine with hyaluronic acid to create proteoglycans. As proteoglycans and collagen are the main structures of cartilage, the increase in proteoglycans aids the strengthening of chondrocytes with cartilage production and recovery.

Chondroitin Sulfate (Shark Cartilage): Chondroitin is one of the ingredients necessary for the synthesis of glycosaminoglycans. It also plays a role in limiting destructive enzymes in the joints, helping to limit cartilage destruction.

Methylsulfonyl-methane (MSM): MSM is an anti-inflammatory that works to decrease pain and aids in the healing of canine muscles as well as the formation of connective tissues.

Studies published in the Journal of Experimental Zoology and the Journal Osteoarthritis Cartilage found that the chemical component of MSM helps to limit the deterioration of cartilage, and can reduce joint pain caused by osteoarthritis.

Vitamin C: While vitamin C is produced naturally by the dog's body, as they age and/or become stressed, their natural ability to produce this essential vitamin is limited. Vitamin C production helps enhance white blood cell activity and function. Proper levels of vitamin C increase interferon in the blood (Anti-viral / anti-cancer compound) as well as promote stable growth, of antibodies that fight toxins and pathogenic bacterium.

Green lipped Mussel Dehydrated (GLM): Also known as Perna Canaliculus, (standard composition is as follows)

1. 61% protein
2. 13% carbohydrates
3. 12% glycosaminoglycans (GAGS) (Un-branched chains of complex sugars)
4. 5% Lipids (Including Eicosatetraenoic Acids (ETA's)) (Omega-3 Fatty Acids)
5. 5% Minerals
6. 4% Water
7. Also contains Glucosamine

The GAG's are instrumental in increasing the lubrication in between joints, as well as increasing the water retention in cartilage. This works to allow the animals joints, to maintain proper shock absorption, while maintaining the cartilages flexibility, elasticity and strength. Of the classes of GAGS two are comprised of Chondroitin, which as previously mentioned, is a main substance to proper preservation of cartilage and bones.

The fatty acid complex ETA's provide key functionality of the anti-inflammatory process. The ETA's help reduce inflammation, and help relieve the symptoms of Rheumatoid and Osteoarthritis. (studies show almost 10 times the ability of aspirin)

Studies have shown that a stable fatty acid extract right from the Perna Canaliculus will have the most effective anti-inflammatory response out of all of the omega-3 cultures, even when using a significantly lower dosage (1% of what is commonly used in standard omega-3 oils).

ETA's while being COX-2 inhibitors, will also work to block the formation of inflammatory cytokines.

Galozyme® Canine Mode of Action:

Galozyme® is comprised of the typified pro and pre biotic lactic yeast culture *Kluyveromyces Marxianus B0399 (KB0399)*, B-complex vitamins and essential amino acids.

The selected, unique strain of probiotic yeast has a number of beneficial unique properties. In Vitro studies show that KB0399 has the ability to bond to the Caco-2 at a cellular level and enhance the production of cytokines. By bonding to the Caco-2 (pro and anti inflammatory) cellular level, KB0399 has shown the ability to bypass the gastric barrier and increase the immune response, from the production of cytokines. Cytokines are the information and communicating proteins that cells produce to communicate.

The cell wall of KB0399 is also made up of chitin, a natural occurring protective, polymer membrane. When the organism enters the digestive tract, the gastric juices begin to break down the chitin cell wall. This causes a fermentation process to take place which helps to augment the pH of the animal's digestive tract to the appropriate levels (6 - 6.5). Maintenance of an optimum pH level in the digestive tract allows for the beneficial bacteria's, micro floras and protozoa's to develop and thrive while also restricting the growth of enteretic (or bad) bacteria growth. By aiding the augmentation of proper pH values, this prevents pathogenic/enteretic bacteria's from being able to reproduce,



beneficial results are achieved to limit and expel toxic build up commonly found in the epidermal layer of the animals skin, liver and kidneys (detoxifying affect).

Furthermore, KB0399 active yeast, utilizes these toxins as a food source. The yeast will micro bind the toxins, absorb any remaining nutritional value, then expel residual toxins from the body as a waste by-product. This has a dynamic result on the animal's skin, coat and vital organs. Before the addition of Galozyme® to an animal's diet, hair follicles that were previously feeding from a more toxic epidermal layer, have been shown to shed out. A new hair follicle will emerge that now has a new healthy, vitamin rich, food source, providing the animal with a healthier, more vibrant coat.

KB0399's most advantageous trait is its ability to produce lactic acid directly in the digestive tract. Lactic acid is a fundamental building block for metabolizing or breaking down vitamins, calcium and other trace minerals. Lactic acid in the intestinal tract , increases metabolic activity, this helps increase the absorption of the needed vitamins and minerals required for the health and well being of the animal. KB0399 increases the lactic acid in the digestive tract by utilizing the enzymatic properties of its natural occurring enzyme Beta-galactosidase. For every glucose molecule the enzyme, comes in contact with or breaks down, it produces two lactic acid molecules. This unique action increases the nutritional viability or intake of the animal's food source, which has positive nutritional attributes. KB0399 as well as it ability to be used in conjunction with antibiotic therapies as the yeast has a natural resistance to 19 commonly used antibiotics, making it a veterinarian's choice of use, for their patients when using antibiotics during disease or pre and post surgery.

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Our customers have seen:

1. Stress reduction
2. Proper weight management
3. Positive mental stability, with increased focus
4. Food consumption regulation
5. proper digestive support and consistency in fecal matter
6. Positive results in allergy prone animals
7. quicker surgery or injury recovery

Synergistic Rational:

The coupling of KB0399 and its enzyme beta-Galacosidase, help increase absorption of the key ingredients in **Galozyme® Canine Joint Care**. Higher absorption combined with optimized digestive function works to help your canine friend absorb more of the essential joint care ingredients. This is a uniquely synergistic effect that is only available for animals through **Galozyme® Canine Joint Care and Galozyme® Canine Joint Care with GLM**.

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