

Complete dietetic pet food for puppies\* and adult dogs, highly digestible, low fibre formulation for reduction of intestinal absorptive disorders, compensation for maldigestion and exocrine pancreatic insufficiency.

## RECOMMENDED FOR

- ✓ Acute or chronic gastrointestinal disease:
  - Acute or chronic diarrhoea
  - Gastroenteritis and colitis
  - Malabsorption and maldigestion
- ✓ Exocrine pancreatic insufficiency (EPI)
- ✓ Inflammatory bowel disease (IBD)
- ✓ Lymphangiectasia\*
- ✓ Pancreatitis\*
- ✓ Hyperlipidaemia\*
- ✓ Hepatic disease not associated with encephalopathy\*



400 g 1.5 kg, 5 kg and 12 kg

## KEY BENEFITS



**Low fat**  
To help minimise fat maldigestion<sup>1</sup>



**MCFAs**  
With a special fat source (coconut oil) high in Medium Chain Fatty Acids (MCFAs) for easy gut absorption



**Low residue**  
Highly digestible ingredients to help promote high nutrient absorption and reduce workload on the compromised gut

## ADDITIONAL BENEFITS & CHARACTERISTICS

**Improves microbial balance, stimulates the growth of beneficial bacteria and provides short-chain fatty acids for the enterocytes**  
Added prebiotics (purified inulin)\*. Increased<sup>1</sup> levels of soluble fibre

**Helps manage colitis associated with a compromised mucosa and inflammation**  
Soluble fibres and omega-3 fatty acids

**Promotes good faecal quality**  
Thanks to a balance of soluble and insoluble fibres

**Promotes good patient compliance**  
High palatability

\* Dry formula only.

1. Compared to other products in the PURINA® PRO PLAN® VETERINARY DIETS range.

# CANINE EN GASTROINTESTINAL™

## COMPOSITION (DRY)

Rice<sup>#</sup>, corn, pea protein<sup>#</sup>, dried poultry protein<sup>#</sup>, dried beet pulp, digest, soya protein, coconut oil<sup>#</sup> (4%), minerals, pork fat, mono and diglycerides, soya oil, fish oil, chicory inulin.

# Highly digestible ingredients.

## COMPOSITION (CAN)

Pork heart, poultry liver and heart, egg powder, rice, minerals, coconut oil, cellulose powder.

## KEY NUTRIENT VALUES\*

	Dry	Wet
Moisture	7.5%	72.5%
Protein	24.0%	8.0%
Fat	10.5%	4.9%
- Omega-6 fatty acids	1.8%	0.95%
- Omega-3 fatty acids	0.3%	0.03%
- Medium chain fatty acids	2%	0.67%
Carbohydrate	50.0%	11.6%
Crude fibre	2.0%	0.8%
Soluble fibre	1.8%	0.2%
Insoluble fibre	5.6%	1.4%
Crude ash	6.0%	2.2%
Zinc	12 mg/100g	3.9 mg/100g
Copper	1.5 mg/100g	0.3 mg/100g
Vitamin E	486 IU/kg	134 IU/kg
Metabolisable energy (ME) <sup>1</sup>	370 kcal/100g	116 kcal/100g

\* Typical analysis in the final product as fed.

<sup>1</sup> Calculated following NRC 2006 equations.

## FEEDING GUIDELINES

Depending on the individual condition, a gradual introduction of the new diet over a few days is usually recommended. Feeding small quantities of food several times a day helps to optimise digestion and absorption. PURINA® PRO PLAN® VETERINARY DIETS EN Gastrointestinal™ provides complete and balanced nutrition for growth of puppies\*\* and maintenance of adult dogs.

\*\*Dry formula only.

### PUPPY GROWTH – AGE IN MONTHS

Adult weight (kg)	1.5 – 3	4 – 5	6 – 8	9 – 11	12 +
	Daily feeding quantity (g/day)				
2.5	60	90	95	85	75
5	85	140	145	135	120
10	110	210	225	200	195
15	145	275	300	265	245
25	160	355	450	410	355
35	200	420	485	560	455
45	215	440	490	580	490
70	300	575	700	835	695

### ADULT MAINTENANCE

Body weight (kg)	Daily feeding quantities		Dry + Wet (mixed feeding)	
	Dry (g/day)	Can/day	Dry (g/day)	Can/day
2.5	70	½	30	½
5	110	1	50	½
10	175	1½	50	1
15	230	1¾	105	1
25	325	2¾	200	1
35	405	3¼	280	1
45	480	3¾	355	1
70	645	5¼	395	2

For dogs over 70kg: for each additional 5kg of body weight, feed an additional 35g of dry pet food. For dogs over 70 kg, add ½ can for each 5 kg of body weight. When feeding dry and wet Canine EN, for each addition of 200g wet, reduce by 60g dry kibble. Fresh clean drinking water should always be available.

# NUTRITIONAL MANAGEMENT OF SMALL INTESTINAL DISEASE IN DOGS

## PROBLEMS OF FAT ASSIMILATION IN SMALL INTESTINAL DISEASE

Fat digestion and absorption is frequently impaired in small intestinal disease:

Typically 90% of dietary fats are long chain triglycerides (LCTs) which require complex digestion and absorption.

Medium-chain fatty acids (MCFAs) are easily digested as only two steps are needed in the digestion process<sup>1</sup>.

Restriction of dietary fat levels in dogs with GI disease can therefore have several benefits including:

- Avoiding delayed gastric emptying, which could promote vomiting
- Improved caloric intake by avoiding fat malassimilation
- Limiting the quantity of malabsorbed fats being fermented to hydroxylated fatty acids
- Limiting fat malabsorption associated with conditions including IBD, EPI and lymphangectasia.

## KEY DIGESTIVE STEPS IN FAT METABOLISM

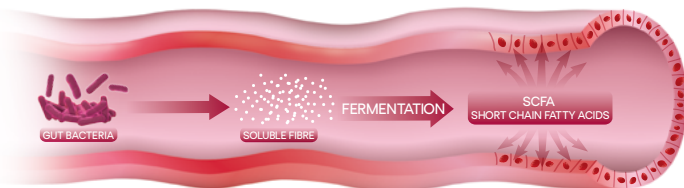
	LCTs	MCFAs
Hydrolysis by lipase	X	
Emulsification by bile salts	X	
Facilitated diffusion to membrane	X	
Membrane transport	X	X
Facilitated cytoplasmic transport	X	
Resynthesis of triglycerides	X	
Packing into chylomicrons	X	
Secretion into lymphatics		
Secretion directly into blood	X	X
Total steps to digest	8	2

Blood circulation

## NUTRITIONAL MANAGEMENT OF COLITIS IN DOGS

Dietary management is extremely important in dogs with colitis<sup>2,3</sup>. A highly digestible diet containing a combination of both soluble and insoluble fibres is highly beneficial<sup>4,5</sup>:

- Insoluble fibres modify intestinal motility and transit times. These help motility in the colon by stimulation of both segmental and peristaltic contractions
- Soluble fibres are fermented with the production of short-chain fatty acids (SCFAs) that are preferentially used by colonocytes, and improve both the structure and function of the colon
- Bacterial fermentation of soluble fibre may also modify the microflora in the colon, and help suppress the growth of pathogens such as *Clostridia* spp that can contribute to colitis



1. Rutz GM, et al. (2004) Effects of exchange of dietary medium chain triglycerides for long-chain triglycerides on serum biochemical variables and subjectively assessed well-being of dogs with exocrine pancreatic insufficiency. *Am. J. Vet. Res.* **65**: 1293-1302.
2. Simpson JW. (1998) Diet and large intestinal disease in dogs and cats. *J Nutr*; **128**: 2717S-2722S.
3. Nelson RW, et al. (1998) Nutritional management of idiopathic chronic colitis in the dog. *J Vet Int Med.* **2**: 133-137.
4. Hernet DC, et al. (2008) In vitro digestion characteristics of unprocessed and processed whole grains and their components. *J Agric Food Chem.* Nov 26; **56**(22): 10721-6.
5. Propst EL, et al. (2003) A dose-response experiment evaluating the effects of oligofructose and inulin on nutrient digestibility, stool quality, and fecal protein catabolites in healthy adult dogs. *J Anim Sci.* Dec; **81**(12): 3057-66.

# NUTRITIONAL MANAGEMENT OF SMALL INTESTINAL DISEASE IN DOGS

## \* CLINICAL ADVANTAGES WITH THE USE OF CANINE EN GASTROINTESTINAL™

Key factors provided by PURINA® PRO PLAN® VETERINARY DIETS Canine EN Gastrointestinal™ in the management of enteropathies include:

**A strictly limited LCFA concentration** in the diet, minimising the risk of fat malassimilation.

**Addition of moderate levels of medium-chain fatty acids (MCFAs)** which require only two steps for digestion.

**All components of Canine EN Gastrointestinal™ are highly digestible** and the overall product has a high palatability – essential for managing small intestinal disease. Most small intestinal disorders are associated with a degree of maldigestion and/or malabsorption, resulting in unabsorbed nutrients within the GI lumen that osmotically attract water and contributes to diarrhoea.

### The low long-chain fatty acids (LCFAs)

concentration also makes Canine EN Gastrointestinal™ excellent for management of EPI and hepatic diseases associated with reduced bile acid production.

**MCFAs can be efficiently utilised** even when hepatic, pancreatic or intestinal function is compromised.

This not only provides a readily absorbed source of fats, but also avoids an over-reliance on increased carbohydrates in the diet.

**Added long-chain omega-3 fatty acids** help to maximise natural anti-inflammatory processes.

#### Other relevant literature

- Davenport DJ, et al. (2007) Gastrointestinal and exocrine pancreatic disease. In Hand MS, Thatcher CD, Remillard RL et al, editors: Small animal clinical nutrition, 4th edition. Walsworth Publishing CO, Marceline, MO. 727.