

coated
butyrate

Ultra-Gut

calcium- and sodium butyrate



calcium- and sodium butyrate

Our Ultra-Gut product line consists out of different types of calcium- and/or sodium butyrate. These products significantly boost animal health in general and gut health more specifically. A better developed animal gut optimizes nutrient uptake and enhances pathogen protection, resulting into improved animal performance, lower mortality and reduced use of antibiotics.



matrix coating technology

Proviron's Ultra-Gut product line consists out of different butyrate powders and matrix coated calcium- and/or sodium butyrates. Our film coated butyrate powders are perfect for fry and shrimp feed applications. The film coating prevents that the butyrate will dissolve straight away in water. Furthermore, we produce special matrix coated butyrates, which are designed for the use in fish feed. Unprotected butyrate will be directly absorbed in the first part of the digestive tract in fish, before reaching the lower parts in the small intestine. To ensure a gradual release throughout the small intestine, we use our special matrix coating technique. Just as important, correct coating reduces the typical unpleasant smell of butyrate.

www.proviron.com/animalhealth

Ultra-Gut



boosting animal gut health & reducing antibiotic use



At Proviron we believe in creating a better world with sustainable farming, healthy animals with better performance and less antibiotic use. By developing and producing innovative products we want to contribute to this belief. Proviron's animal health solutions are based on salts of butyric acid, but also on high purity monoglycerides and triglycerides.

science based working mechanism

The beneficial role of butyrate in animal nutrition is widely recognized. Calcium- and sodium butyrate is well known for enhancing animal health and performance. Different studies showed the following effects when using calcium- or sodium butyrate as a feed supplement:

- ✓ Stimulates villi growth and thereby the digestive surface
- ✓ Improves the gut barrier function
- ✓ Balances the gut microbiota
- ✓ Increases insulin sensitivity in muscle tissue
- ✓ Stimulates the animal's immune system
- ✓ Improves the antimicrobial activity
- ✓ Increases nutrient digestion and absorption

This in turn, will result in increased animal health and performance.



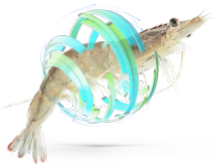
proven results of calcium- and sodium butyrate in fish



Different studies showed the following benefits of using calcium- or sodium butyrate in fish:

- Improved growth performance
 - Increased protein content of the body
 - Improved average daily gain
 - Higher body weight
 - Improved FCR
 - Increased survival rate (also during *Aeromonas hydrophila* challenge)
- Improved intestinal health
 - Increased enzyme activity
 - Improved lipase activity in stomach and intestine
 - Improved trypsin activity (in the hepatopancreas)
 - Increased intestinal length and weight
 - Increased villi surface of the proximal intestine
 - Enhanced muscular thickness of proximal and distal intestine

in shrimp



Different studies showed the following benefits of using calcium- or sodium butyrate in shrimp:

- Improved growth performance
 - Enhanced protein efficiency
 - Improved average daily gain
 - Higher body weight
 - Improved FCR
 - Increased survival rate (also during *Vibrio alginolyticus* challenge)
- Improved intestinal health
 - Increased enzyme activity
 - Improved lipase activity in the intestine
 - Improved trypsin activity in the hepatopancreas
 - Increased villi length
 - Keeps the intercellular junctions intact
- Increased diet attractiveness
- Improved immune system by increase of the proPO activity*

** The prophenoloxidase (proPO) cascade is an important part of the crustacean immune system and has proven to be involved in fighting several pathogens including bacteria and parasites.*

product range



coated butyrates

Commercial name	Acid	Ultra-Gut	Technical name	Physical property at 20°C	Melting point (°C) (2)	Packaging (bag, bigbag)
Ultra-Gut C	C4	Pure Ca salt of butyric acid	Calcium butyrate	Powder	>300°C	50x20kg, 1x500kg
Ultra-Gut C90		Film coated Ca salt of butyric acid	Calcium butyrate 90%	Powder	>300°C	50x20kg, 1x500kg
Ultra-Gut S40*		Matrix coated Na salt of butyric acid	Sodium butyrate 40%	Micropellet	54°C	50x20kg, 40x25kg, 1x500 kg
Ultra-Gut Duo50*		Matrix coated Na and Ca salt of butyric acid	Sodium- and calcium butyrate 50%	Micropellet	54°C	50x20kg, 40x25kg, 1x500 kg
Ultra-Gut Duo70		Matrix coated Na and Ca salt of butyric acid	Sodium- and calcium butyrate 70%	Micropellet	54°C	50x20kg, 40x25kg, 1x500 kg
Ultra-Gut C80		Matrix coated Ca salt of butyric acid	Calcium butyrate 80%	Micropellet	54°C	50x20kg, 40x25kg, 1x500 kg
Ultra-Gut S80		Matrix coated Ca salt of butyric acid	Sodium butyrate 80%	Micropellet	54°C	50x20kg, 40x25kg, 1x500 kg

* under development

health concepts



Optigut

Patented feed additive

Villistar

Feed additive



Porcestin

Patented feed additive

ButriPro L

Drinking water additive



Optigut Aqua

Patented feed additive

CapriPro L

Drinking water additive



esterified fatty acids

Commercial name	Acid	pureLine	Technical name	Physical property at 20°C	Melting point (°C) (2)	Packaging
pure MP	C3	Monoglycerol ester	Monopropionin or Glycerol monopropionate	Liquid, water soluble	<-30	Bulk, IBC
pure TB	C4	Triglycerol ester	Tributyryn or Glycerol tributyrate	Liquid, water insoluble	-75	Bulk, IBC
pure TB S		Triglycerol ester on silica		Powder	n/a	40x25kg, 1x1000kg
pure MB		Monoglycerol ester	Monobutyryn or Glycerol monobutyrate	Liquid, water soluble	<-30	Bulk, IBC
pure MB S	Monoglycerol ester on silica	Powder		n/a	40x25kg, 1x1000kg	
pure 106	C6	Monoglycerol ester	Monocaproate or Glycerol monocaproate	Liquid, water insoluble above 0,1%	<-30	Bulk, IBC
pure 108	C8	Monoglycerol ester	Monocaprylin or Glycerol monocaprylate	Waxy paste	20-27	IBC
pure MC	C8- C10	Monoglycerol ester	Mix of monocapr(y)in or Mix of glycerol monocapr(y)ate	Waxy paste	30	IBC
pure MP MC	C3- C8- C10	Monoglycerol ester	Mix of monopropionin + monocapr(y)in or Mix of glycerol monopropionate + glycerol monocapr(y)ate	Liquid, water insoluble	10-15	Bulk, IBC
pure 110	C10	Monoglycerol ester	Monocaprin or Glycerol monocaprinate	Waxy paste	37	IBC
pure ML	C12	Monoglycerol ester	Monolaurin or Glycerol monolaurate	Powder	55-63	20x25kg