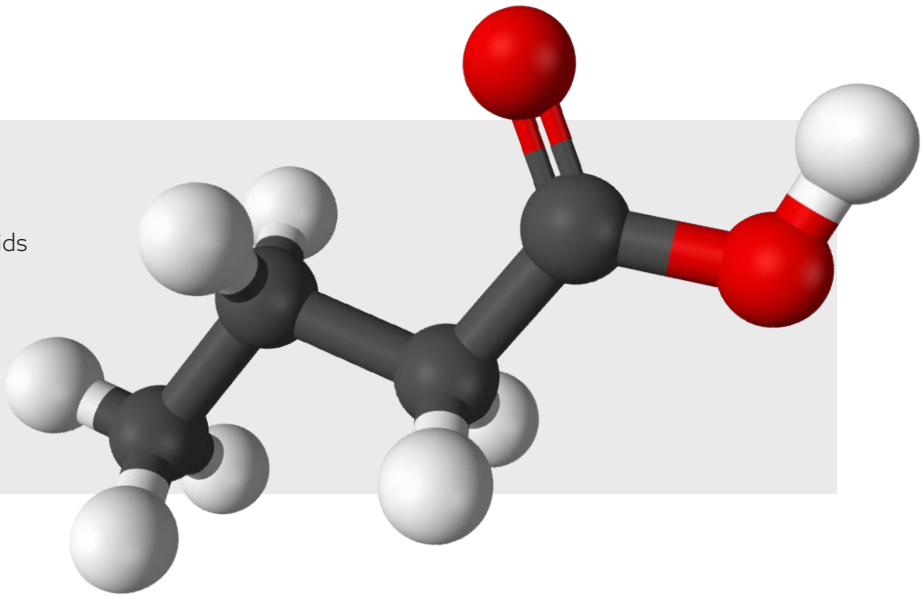
ButiPEARL®

Butyric acid, a foundation for a healthy gut

ButiPEARL® is an encapsulated source of butyric acid manufactured using a proprietary spray-freezing process. The proprietary MicroPEARLS® encapsulation technology behind ButiPEARL allows for slow release throughout the animal's upper and lower gastrointestinal (GI) tract, promoting an efficient use of butyric acid. Encapsulation also allows for superior handling by reducing odor and dust.

WHAT IS BUTYRIC ACID?

Butyric acid is one of the short-chain fatty acids (SCFA) most efficiently used by the epithelial cells of the GI tract. Butyric acid promotes the growth of tissues lining the GI tract and development of the intestinal epithelium in monogastric animals.[1,2]



WHAT MAKES MicroPEARLS UNIQUE?

The spray-freezing process used to make MicroPEARLS is highly controlled, thereby offering unique handling and release characteristics. Spray freezing, unlike spray coating, utilizes liquid nitrogen and specific atomizer nozzles to encapsulate active ingredients, like butyric acid, in a fat matrix. The fat matrix serves as an effective delivery system, allowing for slow release of key ingredients throughout the GI tract.

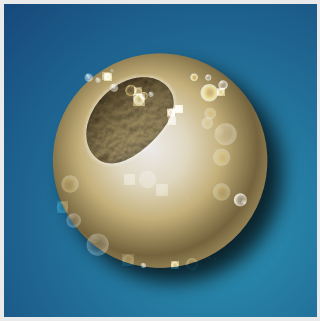
Learn more about ButiPEARL today!
kemin.com/butipearl-us

BENEFITS OF BUTYRIC ACID ON INTESTINAL HEALTH:

- Cellular signaling to enterocytes[1]
- Enhances intestinal development[3]
- Improves tight junctions in the intestines[2]
- Increases antioxidant levels to promote healing in the GI tract[2]
- Modulates immune response[4]
- Reduces inflammation[4]

KEMIN INTESTINAL HEALTH

How does ButiPEARL release in the intestine?



1 Foregut

Particles of butyric acid salt are embedded in the pearl matrix during the manufacturing process. Particles are released in the presence of an aqueous environment, leaving holes in the pearl exterior.

2 Midgut

Liquid enters through exterior holes in the pearl and comes in contact with more particles of butyric acid. These particles are then released, leaving new holes, as liquid contacts them. In the end, the pearls look like empty shells.

3 Hindgut

The released material disassociates into butyric acid and calcium. The butyric acid can be readily absorbed by the epithelial cells of the intestinal tract. The calcium is also absorbed while the fat matrix is excreted.

OUR COMMITMENT TO QUALITY AND FOOD SAFETY

Kemin certified its Des Moines, Iowa, facility to the Food Safety System Certification (FSSC) 22000. FSSC 22000 is recognized by the GFSI as a rigorous food safety management system. The certification covers the manufacturing of food ingredients used in further processing and is designed to deliver greater confidence in food, fewer health risks, lower auditing costs, improved protection for brands and improved supply chain management.

ButiPEARL is manufactured at the Kemin facility in Des Moines, Iowa.

REFERENCES
1 Peng, L., et al. (2009, September). Butyrate enhances the intestinal barrier by facilitating tight junction assembly via activation of AMP-activated protein kinase in caco-2 cell monolayers. Journal of Nutrition. 139:1619-1625.
2 Ma, X., et al. (2012, December). Butyrate promotes the recovering of intestinal wound healing through its positive effect on the tight junctions. Journal of Animal Science. 90(4): 266-268.
3 Kotunia, A., et al. (2004, July). Effect of sodium butyrate on the small intestine development in neonatal piglets fed [correction of feed] by artificial sow. Journal of Physiology and Pharmacology. 55(2):59-68.
4 Guilloteau, P., et al. (2010) From the gut to the peripheral tissues: the multiple effects of butyrate. Nutrition Research Reviews. 23:366-384.

KEMIN® INTESTINAL HEALTH

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