

# **Kemin Industries Launches ButiShield™ Encapsulated Butyrate for Humans to Provide Next-Generation Support for Gut Health and Beyond**

**Microencapsulated calcium butyrate provides sustained and controlled release of butyric acid in the gastrointestinal tract with superior handling and low odor**

**DES MOINES, Iowa, U.S. (October 3, 2023)** – Kemin Industries, a global ingredient manufacturer that strives to sustainably transform the quality of life every day for 80 percent of the world with its products and services, has launched ButiShield™, an encapsulated form of calcium butyrate for humans that can help fortify overall gut health by supporting the strength and integrity of the intestinal wall.

Butyric acid is an extensively researched short-chain fatty acid (SCFA) that plays an important role in intestinal health, which also extends to overall health and well-being. Despite its benefits, products containing butyrate have many formulation and operational challenges due to its unpleasant odor and difficult handling.

Kemin is producing ButiShield using proprietary MicroPEARLS™ spray freezing technology to encapsulate the butyric acid, allowing for sustained and controlled release along the gastrointestinal tract—and with easier handling due to its low odor. The MicroPEARLS encapsulation technology neutralizes butyric acid’s typically off-putting odor and helps to ensure its benefits are being delivered to the gut, where they’re most beneficial for the gastrointestinal tract health.

ButiShield is a low-odor, non-GMO, allergen-free, gluten-free, kosher, halal and vegetarian ingredient solution providing greater than 35% butyric acid.<sup>1</sup> Butyrate provides science-based health benefits for intestinal and digestive health and works by:

- Helping to shape a healthy microbiome and gastrointestinal environment<sup>2-5</sup>
- Serving as a signaling molecule to regulate numerous metabolic processes at the cellular level<sup>6-9</sup>
- Serving as a primary energy source for healthy intestinal cells<sup>10-15</sup>
- Supporting intestinal barrier integrity<sup>10-15</sup>

“ButiShield is an exciting new offering for brands that are looking to reformulate or expand into the digestive health category,” said Chris Sadewasser, Global Product Manager, Kemin Human Nutrition and Health. “Our latest innovation delivers well-known butyric acid in a novel way to support a healthy gut, improve the consumer experience and help formulators overcome manufacturing challenges. Kemin has mastered encapsulation technology with cutting-edge MicroPEARLS, originally developed to support gut health in animals. Now, we’re elevating the proprietary application to reach a new level in human health, providing a unique solution to the evolving gut health market.”

ButiShield is a microencapsulated calcium butyrate that provides sustained and controlled release of butyrate and masks the odor typically associated with butyric acid to provide a better experience for consumers. Butyrate has well-established benefits to help support the intestinal barrier and promote gut health.

Click [here](#) to learn more about ButiShield’s intestinal and whole-body health benefits.

###

## **About Kemin Industries**

**Kemin Industries** ([www.kemin.com](http://www.kemin.com)) is a global ingredient manufacturer that strives to sustainably transform the quality of life every day for 80 percent of the world with its products and services. The company supplies over 500 specialty ingredients for human and animal health and nutrition, pet food, aquaculture, nutraceutical, food technologies, crop technologies, textile, biofuel and animal vaccine industries.

For over half a century, Kemin has been dedicated to using applied science to address industry challenges and offer product solutions to customers in more than 120 countries. Kemin provides ingredients to feed a growing population with its commitment to the quality, safety and efficacy of food, feed and health-related products.

Established in 1961, Kemin is a privately held, family-owned-and-operated company with more than 3,000 global employees and operations in 90 countries, including manufacturing facilities in Belgium, Brazil, China, Egypt, India, Italy, San Marino, Singapore, South Africa and the United States.

**Media Contact:**

Carrie Livingston, VP of Media Relations, Colin Kurtis | [carrie@colinkurtis.com](mailto:carrie@colinkurtis.com), +1 815 519 8302

**REFERENCES:**

<sup>1</sup>Kemin Specification Sheet - SPEC-23-32447

<sup>2</sup>Donohoe, D.R., Garge, N., Zhang, X., Sun, W., O'Connell, T.M., Bunger, M.K. and Bultman, S.J., 2011. The microbiome and butyrate regulate energy metabolism and autophagy in the mammalian colon. *Cell metabolism*, 13(5), pp.517-526.

<sup>3</sup>Yan, H. and Ajuwon, K.M., 2017. Butyrate modifies intestinal barrier function in IPEC-J2 cells through a selective upregulation of tight junction proteins and activation of the Akt signaling pathway. *PloS one*, 12(6), p.e0179586.

<sup>4</sup>Peng, L., Li, Z.R., Green, R.S., Holzman, I.R. and Lin, J., 2009. Butyrate enhances the intestinal barrier by facilitating tight junction assembly via activation of AMP-activated protein kinase in Caco-2 cell monolayers. *The Journal of nutrition*, 139(9), pp.1619-1625.

<sup>5</sup>Bach Knudsen, K.E., Lærke, H.N., Hedemann, M.S., Nielsen, T.S., Ingerslev, A.K., Gundelund Nielsen, D.S., Theil, P.K., Purup, S., Hald, S., Schioldan, A.G. and Marco, M.L., 2018. Impact of diet-modulated butyrate production on intestinal barrier function and inflammation. *Nutrients*, 10(10), p.1499.

<sup>6</sup>Facchin, S., Vitulo, N., Calgaro, M., Buda, A., Romualdi, C., Pohl, D., Perini, B., Lorenzon, G., Marinelli, C., D'Inca, R. and Sturniolo, G.C., 2020. Microbiota changes induced by microencapsulated sodium butyrate in patients with inflammatory bowel disease. *Neurogastroenterology & Motility*, 32(10), p.e13914.

<sup>7</sup>Gao, F., Lv, Y.W., Long, J., Chen, J.M., He, J.M., Ruan, X.Z. and Zhu, H.B., 2019. Butyrate improves the metabolic disorder and gut microbiome dysbiosis in mice induced by a high-fat diet. *Frontiers in Pharmacology*, 10, p.1040.

<sup>8</sup>Louis, P. and Flint, H.J., 2009. Diversity, metabolism and microbial ecology of butyrate-producing bacteria from the human large intestine. *FEMS microbiology letters*, 294(1), pp.1-8

<sup>9</sup>Vital, M., Karch, A. and Pieper, D.H., 2017. Colonic butyrate-producing communities in humans: an overview using omics data. *Msystems*, 2(6), pp.e00130-17.

<sup>10</sup>Davie, J.R., 2003. Inhibition of histone deacetylase activity by butyrate. *The Journal of nutrition*, 133(7), pp.2485S-2493S.

<sup>11</sup>Furusawa, Y., Obata, Y., Fukuda, S., Endo, T.A., Nakato, G., Takahashi, D., Nakanishi, Y., Uetake, C., Kato, K., Kato, T. and Takahashi, M., 2013. Commensal microbe-derived butyrate induces the differentiation of colonic regulatory T cells. *Nature*, 504(7480), pp.446-450.

<sup>12</sup>Inan, M.S., Rasoulpour, R.J., Yin, L., Hubbard, A.K., Rosenberg, D.W. and Giardina, C., 2000. The luminal short-chain fatty acid butyrate modulates NF- $\kappa$ B activity in a human colonic epithelial cell line. *Gastroenterology*, 118(4), pp.724-734.

<sup>13</sup>Patnala, R., Arumugam, T.V., Gupta, N. and Dheen, S.T., 2017. HDAC inhibitor sodium butyrate-mediated epigenetic regulation enhances neuroprotective function of microglia during ischemic stroke. *Molecular Neurobiology*, 54(8), pp.6391-6411.

<sup>14</sup>Zhang, M., Wang, Y., Zhao, X., Liu, C., Wang, B. and Zhou, J., 2021. Mechanistic basis and preliminary practice of butyric acid and butyrate sodium to mitigate gut inflammatory diseases: a comprehensive review. *Nutrition Research*, 95, pp.1-18.

<sup>15</sup>Kasubuchi, M., Hasegawa, S., Hiramatsu, T., Ichimura, A. and Kimura, I., 2015. Dietary gut microbial metabolites, short-chain fatty acids, and host metabolic regulation. *Nutrients*, 7(4), pp.2839-2849.

---

<https://news.kemin.com/press-releases?item=122669>