At Phibro, Minerals Matter<sup>™</sup>, which means Quality Matters at every stage of manufacturing and production. Phi-Chrome chromium propionate and chromium tripicolinate 0.4 and 0.04% products are all produced in the United States. In combination with decades of manufacturing expertise and our Dynamic Quality Assurance<sup>®</sup> program, Phibro ensures a high quality, consistent product is delivered to our customers every time.

Figure 3. Time-of-Flight Secondary Ion Mass Spectrometry (TOF-SIMS) of Different Chromium Propionate Sources for Identification of Compounds and their Components by Mass (Eurofins EAG, 2020).



TOF-SIMS data is the primary analysis performed on organic chromium products to identify the target compound using its unique mass. Chromium propionate was confirmed in all samples tested using TOF-SIMS analytical methods. Peaks outside the chromium propionate peak (identified by the green box) indicate the presence of other compounds. A reduced number of peaks outside the chromium propionate mass were reported in the Phi-Chrome chromium propionate sample. The reduced peaks in Phi-Chrome indicate increased stability and purity of Phibro's Chromium propionate product versus the competitive products available in the market. (Eurofins EAG, 2020)

## **PHI-CHROME**



Understanding Your Chromium Source Quality, Applications, and Species Requirements.

References available upon request

PM091021GLB ©2021 Phibro Animal Health Corporation. Phibro, Phibro logo design, Healthy Animals. Healthy Food. Healthy World. and Phi-Chrome are trademarks owned by or licensed to Phibro Animal Health Corporation or its affiliates.

## **PHI-CHROME**

CHROMIUM PROPIONATE

Species	Phi-Chrome Chromium Propionate 0.04%	Phi-Chrome Chromium Tripicolinate 0.04%
BROILERS	To be included in the ration at no more than 1 pound (lb) Phi-Chrome Propionate per ton of complete feed; 1 lb per ton will provide 0.2 ppm (parts per million) chromuim propionate to the bird.	NOT APPROVED FOR USE IN BROILERS
SWINE	To be included in the ration at no more than 1 lb Phi-Chrome Propionate per ton of complete feed; 1 lb per ton will provide 0.2 ppm (parts per million) chromium propionate to the pig.	To be included in the ration at no more than 1 lb Phi-Chrome Tripicolinate per ton of complete feed; 1 lb per ton will provide 200 ppb (parts per billion) chromium tripicolinate to the pig.
EQUINE	To be included in the ration at no more than 4 lb Phi-Chrome Propionate per ton of complete feed; 4 lb per ton will provide 0.8 ppm chromium propionate to the horse. Adult horses should be fed so as not to exceed 4 mg of chromium per horse per day.	NO APPROVED FOR USE IN EQUINE
BEEF	To be included in the ration at no more than 2.5 lb Phi-Chrome Propionate per ton of complete feed; 2.5 lb per ton will provide 0.5 ppm (parts per million) chromium propionate to the cattle.	NOT APPROVED FOR USE IN BEEF CATTLE
DAIRY	To be included in the ration at no more than 2.5 lb Phi-Chrome Propionate per ton of complete feed; 2.5 lb per ton will provide 0.5 ppm (parts per million) chromium propionate to the cows.	NOT APPROVED FOR USE IN DAIRY CATTLE

VS.

PHI-CI

**Chromium Tripicolinate** 

Described as a Response Mineral, research focusing on organic chromium supplementation reports improved performance and production, reduced stress response, improved carcass characteristics, and support of glucose metabolism in animals supplemented with the appropriate level of chromium in their diet. (Anderson et al., 1985; Pechova et al., 2007; Sales and Jamcik, 2011; Bernhard et al., 2012)

Figure 1. Blood Glucose Levels of Sprague-Dawley Rats with Chromium Propionate in their Diet After Intraperitoneal Glucose Injection (2.0 g/kg BW)



## RS100, Corvallis Research Center, 2020

Significance was set at P < 0.05, with Diet (P = 0.03) and Time (P < 0.0001) both found to be significantly different between treatments. The results indicate Phi-Chrome and the leading competitive chromium propionate product (Product A) performed similarly when the glucose metabolism response was tested. Different organic chromium sources have also been reported to respond differently depending on species (Linderman et al. 2008), and although chromium propionate is approved for use in broilers, cattle, swine and equine, we see the below tables demonstrate why chromium tripicolinate is the superior source of organic chromium for swine.

Figure 2. Chromium Concentrations in the Ovary and Liver of Sows Fed Different Sources of Organic Chromium



<sup>a,b,c,d</sup> Means with different superscripts differ (P < 0.05); Lindemann et al., 2008)

