



## Effect of Sal CURB® ASF liquid antimicrobial on digestibility of feed ingredients

### Introduction

Sal CURB® ASF liquid antimicrobial is a formaldehyde-based product designed to maintain feed and feed ingredients *Salmonella*-negative for up to 21 days. Sal CURB is used as part of a comprehensive pathogen reduction program to strengthen the biosecurity of feed and feed ingredients. Work completed by Dr. Hans Stein at the University of Illinois addresses questions regarding the effects of formaldehyde on other ingredients in livestock and poultry diets.

### Materials & Methods

Eight growing pigs with an average initial body weight of 26.8 kg (59.1 lb) were equipped with a T-cannula at the distal ileum. The pigs were fed two diets based on corn, soybean meal, distillers dried grains with solubles (DDGS), and oats. A proprietary premix (PGF 650 base product) comprised 32.5% of each diet. For the control diet, the premix was treated with saline; for the experimental diet, the premix was treated with Sal CURB. Treatment of premix was carried out by Kemin Product Application Department. There was an adaptation period of 4 days to the experimental diets. Fecal samples were collected on days 5 and 6 of each period and ileal digesta were collected on days 6 and 7. Each of the premix products was also sampled at the start of the experiment and at 7, 28, and 49 days to evaluate the impact of Sal CURB on phytase stability.

### Results

No differences were observed between the control and Sal CURB diets in the apparent ileal digestibility (AID) of dry matter, crude protein, and all amino acids except methionine (Table 1). The AID of methionine was greater ( $P < 0.05$ ) in the diet treated with Sal CURB than in the control diet.

**Table 1.** Apparent ileal digestibility (AID) of dry matter, crude protein, and amino acids (AA) in

Item	experimental diets, as-fed basis			P-value
	Control	Sal CURB	SEM	
Dry matter, %	70.91	71.32	1.66	0.54
Crude protein, %	73.87	73.37	1.33	0.69
Indispensable AA, %				
Arg	85.35	84.34	1.22	0.28
His	76.69	77.91	1.50	0.46
Ile	79.49	78.87	1.17	0.50
Leu	80.44	81.21	1.04	0.48
Lys	82.60	83.76	0.76	0.25
Met	88.41	89.56	0.49	<0.05
Phe	79.02	79.40	1.17	0.73
Thr	78.14	77.00	1.25	0.20
Trp	83.49	85.24	1.50	0.24
Val	75.15	75.53	1.24	0.76
Mean	80.60	80.95	1.04	0.72
Dispensable AA, %				
Mean	75.74	75.44	1.62	0.85
All AA, %	78.13	78.16	1.33	0.98

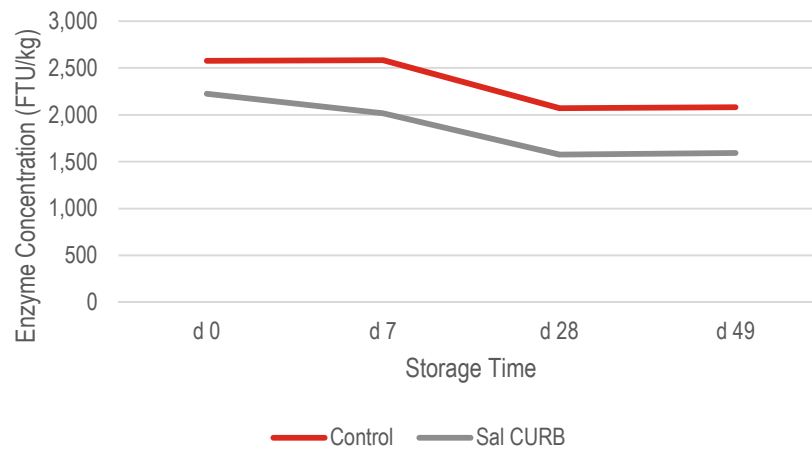
\*Dispensable AA included Ala, Asp, Cys, Glu, Gly, Pro, Ser, Tyr

The apparent total tract digestibility (ATTD) of dry matter and gross energy was not different between the 2 diets (Table 2). The ATTD of calcium and phosphorus was greater ( $P < 0.05$ ) in the diet treated with Sal CURB than in the control diet.

**Table 2.** Apparent total tract digestibility (ATTD) of dry matter, gross energy, calcium, and phosphorus in experimental diets, as-fed basis

Item, %	Control	Sal CURB	SEM	P-value
Dry matter	87.38	86.87	0.57	0.47
GE	86.76	85.98	0.62	0.29
Ca	63.80	69.33	2.26	<0.05
P	57.53	61.72	1.79	<0.05

The PGF 650 premix treated with Sal CURB contained less ( $P < 0.05$ ) phytase than the control premix on days 0, 7, 28, and 49 (Figure 1). However, the digestibility of phosphorus in diets containing Sal CURB indicates the amount of phytase in those diets was sufficient to secure maximum release of P from the phytate. Phytase concentration in the control and treated premixes decreased as storage time increased.



**Figure 1.** Effects of Sal CURB on the concentration of phytase in PGF 650 base products

## Conclusion

The addition of Sal CURB to swine diets did not affect the digestibility of dry matter, crude protein, amino acids, or gross energy. Digestibility of phosphorus and calcium was greater in diets treated with Sal CURB than in identical diets treated with saline. Phytase recovery in diets treated with Sal CURB and diets treated with saline decreased over time, but not below adequate levels. Finally, Sal CURB can be added to swine diets without diminishing the nutritional value of the diets.

## References

- Stein H.H. Effect of Sal CURB<sup>®</sup> on digestibility of energy, amino acids, calcium, and phosphorus in growing pigs. Stein Nutrition Newsletter, March 2015.