

# ABOUT SPRAY DRIED RED BLOOD CELLS



Spray Dried Red Blood Cells (SDRC) and Spray Dried Plasma (SDP) are made from animal blood hygienically collected during the production of either beef or pork meat for human consumption. APC's processing includes immediate collection of the whole blood into our closed, stainless steel collection system. APC never uses floor blood for our products.



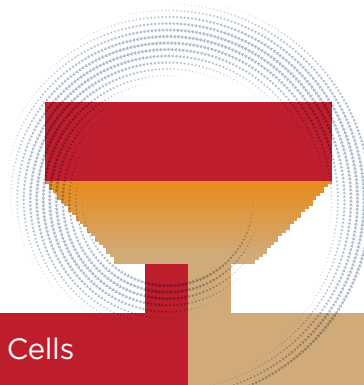
## HYGIENICALLY COLLECTED WHOLE BLOOD

The collected animal blood is centrifuged (spun at high speeds) which separates the whole blood into two distinct fractions, red blood cells or plasma.

The liquid red cell and plasma fractions are then spray dried and packaged for use in food for swine, poultry, aquaculture, ruminants, and pets.

APC's spray drying technique allows for superior processing yields that provide high quality protein products with low variability in protein content.

## CENTRIFUGE



Highly Digestible Red Blood Cells

Plasma Functional Proteins



**AP 300**

*Whole Blood Powder*



**AP 301**

*Red Cells*



**AP 301G**

*Granular Red Cells*



**AP 920**

*Plasma Powder*



**APPETEIN**

*Granular Plasma*

Spray dried whole blood powder (AP 300) or spray-dried blood cells (AP 301/301G) are more digestible by swine compared to traditional rendered (drum or ring dried) blood meal<sup>1</sup>. APC's red cell products contain higher standardized ileal digestible protein and lysine that bring more value to swine diet formulations. Spray drying results in less damage to high quality proteins than traditional rendered blood meal that are exposed to prolonged high temperatures, which reduce digestibility of proteins and amino acids like lysine.

## STANDARDIZED IDEAL DIGESTIBILITY, (SID)<sup>1</sup>

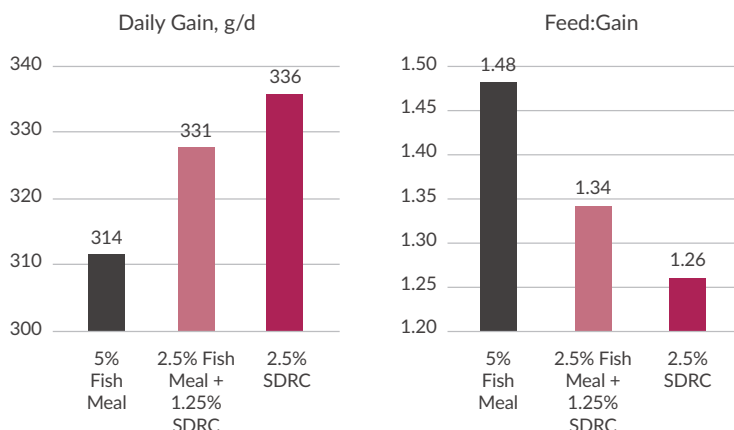
	Ring Or Drum Blood Meal			Spray Dried Blood Products	
	Avian	Porcine	Bovine	Whole Blood	Blood Cells
Dry Matter, %	89.6	90.3	92.7	93.5	93.3
Crude Protein, %	87.7	89.0	95.0	93.8	94.2
SID Protein, %	70.4	68.9	81.7	93.8	92.3
Lysine, %	7.6	7.8	8.6	8.0	8.6
SID Lysine, %	74.0	78.6	90.5	98.0	97.6

## SPRAY DRIED RED CELLS FOR SWINE

Spray dried red cells (SDRC) can be used to replace more expensive or less desirable protein sources in swine diets.

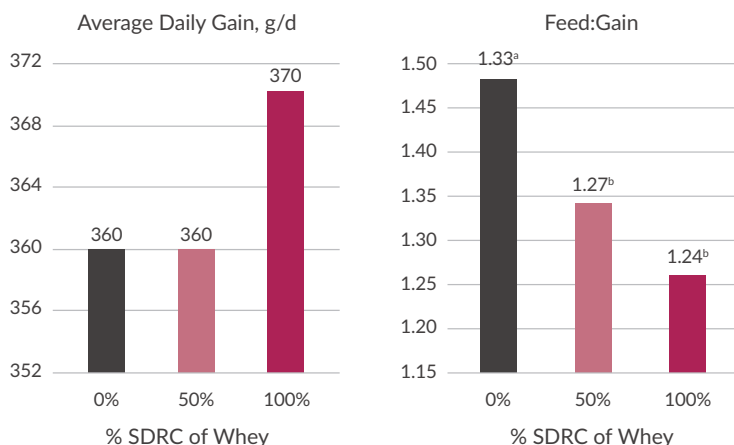
### SDRC IMPROVES AVERAGE DAILY GAIN AND FEED EFFICIENCY COMPARED TO FISH MEAL DIETS IN WEANLING PIGS<sup>2</sup>

#### DIETS FED DAY 7 TO 21 AFTER WEANING



### SDRC/LACTOSE IMPROVES AVERAGE DAILY GAIN AND FEED EFFICIENCY COMPARED TO DRIED WHEY IN WEANLING PIG DIETS<sup>3</sup>

#### DIETS FED DAY 0 TO 21 AFTER WEANING



a, b, P < 0.05

### AP 301/301G COMPOSITION AND STANDARDIZED DIGESTIBLE AMINO ACIDS<sup>4</sup>

	Total AA, %	Digestibility, %	SID Digestible AA, %
Lysine	8.2	98	8.0
Methionine	0.6	96	0.6
Cysteine	0.6	85	0.5
Threonine	2.8	96	2.7
Tryptophan	1.2	95	1.1
Isoleucine	0.6	58	0.3
Leucine	13.4	98	13.1
Valine	9.2	98	9.0
Arginine	4.0	99	4.0
Histidine	7.5	98	7.4

## Benefits of SDRC for Swine

- Consistent nutrient composition and low variation in protein and amino acids compared to other protein sources.
- High in Lysine and other essential amino acids (AA).
- Highly digestible protein/amino acids.
- Low in moisture and ash content
- High protein/ AA content allows flexibility and space in formulations for complete feeds or base mix/supplement feed products.
- Highly digestible, high quality protein to replace specialty soy, milk, whey, fish protein products, or traditional processed fish meal, animal blood or other animal protein meal sources.

## Recommended Usage

- Use up to 2.5% SDRC in diets for nursery, grow-finish swine or lactating sows to replace more expensive protein sources.
- SDRC contain high levels of valine and leucine.
- 3% to 8% SDRC may be used when diet is appropriately formulated to meet methionine, threonine, tryptophan, and isoleucine requirements per stage of production.

<sup>1</sup>Rojas, et al., 2012. Nutritional value of animal proteins fed to pigs. Midwest Nutrition Conference. P 9-24.

<sup>2</sup>McMillan, E. 1996. Impact of AP301 versus select menhaden fishmeal in the diet of starter pigs. APC Research Report, P 1-9.

<sup>3</sup>Beltranana, E., et al., 1995. Whey replacement for nursery diets. Annual Research Report. P1-3. Prairie Swine Centre Inc., Saskatoon, SK.

<sup>4</sup>Adapted from APC Product Information Bulletin for AP301/AP301G for use in swine.



For more information, contact an APC Sales or Technical Services Representative