

APPLICATION BULLETIN

BACKGROUND/ CHALLENGE

A leading supplier of ingredients for agriculture and animal nutrition needed to cost-efficiently increase its yield of premium pet-grade product and capture the high-quality pet-grade meal market. The supplier wanted to avoid the conventional practice of using vibrating or high-frequency screens, which are susceptible to blinding and costly maintenance. As the company researched its expansion it was led to Sturtevant’s unique approach of air classification, a technology that would allow them to separate the fines, converting the poultry meal into a high-value, low-ash pet food grade. At the same time, the coarse fraction would still contain enough protein that it could be sold as regular poultry grade feed.



STURTEVANT[®] PERFORMANCE

The supplier consulted with Sturtevant, a company with more than 95 years of classifying experience in countless applications – among them a number of global installations within large poultry and protein meal production operations. Sturtevant’s specialized air classifier technology is specifically designed to separate protein meals. Sturtevant was chosen for its proprietary equipment, air classifier experience and engineering skills, as well as its ability to test product specifications in their own lab.

Tests determined that processing parameters and end product requirements would be exceeded by the use of a 4.5-foot Whirlwind[®] Classifier, a unit that does not require auxiliary equipment (baghouses, cyclones, or ductwork) to capture the lower ash and higher protein fine product. Because the model features an internal fan and air recycle design, the fluidized meal is resistant to clogging; there are minimal dead zones where high fat and sticky material can settle. This makes the unit both low in maintenance and reliable for continuous use.

EQUIPMENT RECOMMENDATIONS

WHIRLWIND[®] AIR CLASSIFIER

MODEL	HP	AIR FLOW VENT (CFM)	FEED RATE (TPH)	APPROXIMATE WEIGHT		HEIGHT		DIAMETER		MIN. CLEARANCE	
				(LBS)	(KG)	(FT)	(MM)	(FT)	(MM)	(FT)	(MM)
3'	7.5 – 10	65 – 125	0.5-1	1,500	680	6' 7"	2007	3' 3"	991	3' 0"	914
4.5'	10 – 15	75 – 150	1-3	2,400	1089	8' 8"	2642	4' 10"	1473	3' 0"	914
6'	15 - 25	90 - 175	2-5	6,800	3084	10' 9"	3277	6' 4"	1930	3' 8"	1118
8'	20 - 30	150 - 300	4-8	9,500	4309	13' 0"	3962	8' 4"	2540	4' 8"	1422
10'	30 - 40	190 - 375	6-14	13,000	5897	15' 8"	4775	10' 4"	3150	4' 8"	1422
12'	40 - 50	275 - 550	10-20	18,500	8392	19' 1"	5817	12' 4"	3760	5' 6"	1676
14'	50 - 75	400- 800	13-27	21,500	9752	21' 1"	6426	14' 5"	4394	5' 6"	1676

Measurements are for general reference only. Please consult dimensional drawings for exact measurements. Larger sizes are available, for a complete list see the Whirlwind[®] Air Classifier Product Bulletin.

SUMMARY

Once the classifier was in full production, the protein meal producer found that they could reduce ash content to as low as 5- to 7-percent and increase protein levels by 3- to 6-percent, which is suitable for an ultra-premium pet-grade market. Below are a several examples of the air classifier’s performance with various animal protein meals:

ANIMAL PROTEIN MEALS	ASH	PROTEIN	RESULTS
POULTRY & CHICKEN MEAL	17% ash down to 10-12%	67% protein up to 70-73%	5-7% ash reduction & 3-6% protein increase
LAMB MEAT & BONE MEAL	27% ash down to 14-21%	56% protein up to 60%	6-13% ash reduction & 4-5% protein increase
PORCINE/PORK MEAT & BONE MEAL	27% ash down to 17-21%	53% protein up to 57-61%	6-10% ash reduction & 4-8% protein increase
FISH MEAL	21% ash down to 14-18%	62% protein up to 64-68%	3-7% ash reduction & 2-6% protein increase
BOVINE/BEEF MEAT & BONE MEAL	33% ash down to 25-29%	50% protein up to 52-59%	4-8% ash reduction & 2-9% protein increase
DUCK MEAL	24% ash down to 11-17%	58% protein up to 64-69%	7-13% ash reduction & 6-11% protein increase