



APTECH MASTER BREADCRUMB CONVEYING

PROCESSES

Aptech (Powder Systems) Limited have supplied a number of pneumatic conveying systems in two production facilities for a large Multi National Company for various stages of breadcrumb production.

- Ground Wet Bread (up to 3Te/hr)
- Dried Ground Bread (up to 2Te/hr)
- Milled Breadcrumbs (up to 2Te/hr)
- Overs and Fines (up to 1 and 0.5Te/hr)

Both pressure and vacuum lean phase conveying techniques have been used.

For limitation of product damage Aptech's **velocity control** pressure conveying technique was used to convey the sieve 'in spec' crumb to the packaging area.

This technique actively limits the speed of the conveying air to the minimum permissible level to achieve airborne transfer



Extensive lean phase conveying tests have been carried out. The **low speed / velocity control method** used yielded excellent results in the minimisation of breakage and energy efficiency.

Aptech (Powder Systems) Limited

Unit 1, Sutton Court, Bath Street, Market Harborough, Leicestershire LE16 9EW, England.

T: +44 (0) 1858 410737 F: +44 (0) 1858 434273 E: sales@aptech.uk.com W:

www.aptech.uk.com



BREADCRUMBS SIEVE TESTS

Results for 100gm samples before and after conveying

Grade	Aperture mm	>2.8	2.0 - 2.8	1.4 - 2.0	1.0 - 1.4	0.63 - 1.0	0.3 - 0.63
NOT GROUND	Before	96.1	0.9	0.4	0.3	0.3	2.0
	After	87.9	1.95	2.2	1.9	2.2	3.55
5mm	Before	28.5	21.2	16.5	4.4	8.4	20.7
	After	22.2	23.1	18.55	10.2	9.25	16.75
3mm	Before	0.5	21.2	25.3	16.0	16.3	20.7
	After	0.3	18.6	26.3	16.5	17.4	21.0
2mm	Before	-	0.1	5.1	25.4	24.1	45.3
	After	-	0.1	3.7	22.5	25.4	48.3

It was found that the larger lighter particles (<5mm) were damaged more easily, but could be conveyed at the lowest velocities, while the smaller (<2mm) particles were more durable, but needed higher conveying velocities.

APTECH designed the control system to operate the conveying system at different speeds for different product grades thereby minimising breakage throughout the product range.

Key Benefits

- Convey granules, particulates gently
- Wider range of materials suitable compared to DUNE PHASE Conveying.
- Automatic monitoring and adjustment of conveying air speeds
- Constant velocity achieved for any conveying distance and feed rate
- Special Design offset rotary valves = reduced damage
- Special Design receiver/cyclones to minimise damage.



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