

A 23 YEAR REVIEW OF
FLUIDISED BED DRYING
AT SEZELA

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HISTORY

- The dryers were described by G.F. Mann (SASTA 1983).
- Two 40 t/h dryer/coolers installed in 1982.
- The units still operating 23 years later in its original form.

ADVANTAGES OF FLUIDISED BED DRYERS

- About 60% of capital cost.
- Dryer itself has no rotating parts.
- Very small footprint (3.6m diameter)
- Low weight, less civils and structures.

DISADVANTAGES

- Large quantities of air required.
- Air serves dual function – drying and fluidising.
- 200kW F.D. Fan and 90kW I.D. Fan.
- Requires complex automation.
- Requires steady sugar flow – Centrifugal synchronising.

OPERATING DISADVANTAGES

- Unable to handle sticky sugar (low pol).
- Excessive sugar dust.
- Large quantities of water required to minimise dust – affects energy balance.
- Higher undetermined loss from sugar dust.
- Using Centrifugal as part dryer – longer spin cycles.
- Excessive bacterial growth in rotoclone and piping.
- If bed slumps unable to re-fluidise – labour required to dig choke.

RESULTS

<u>SEASON</u>	<u>POL % SUGAR</u>	<u>MOIST. % SUGAR</u>
1995/96	99.39	0.10
1996/97	99.38	0.12
1997/98	99.35	0.12
1998/99	99.45	0.10
1999/00	99.41	0.11
2000/01	99.39	0.11
2001/02	99.34	0.10
2002/03	99.53	0.10
2003/04	99.47	0.10
2004/05	99.38	0.10

CONCLUSION

- From an operating point – a rotary louvre dryer is preferable.
- However very efficient dryer/cooler.
- Low maintenance costs.
- Higher operating costs – energy balance, undetermined loss.
- Labour required to dig out chokes.