



## ● Case Study

# Gujarat Ambuja Cements Ltd

### Fact file

**Date:** November 29th 2002  
**Location:** Gujarat Ambuja Cements Ltd - Mumbai  
**Product:** Separator Fan  
**Principal:** Primasonics® International Ltd (UK)  
**Problem:** Solution required for the cleaning of the separator fan in their cement mill no 1.

### Client Background

Gujarat Ambuja Cements (GACL) approached PRIMASONICS® for a solution for the cleaning of the separator fan in their cement mill No. 1. The separator fan is located after the dynamic separation system, which consists of 3 Nos. of cyclones. The fan used was heavily loaded with dust, which was not separated in the cyclones. Due to the deposition, the vibration level of the fan used to increase rapidly from 3 mm/sec. to 9 mm/sec. and then reached the peak level of 11 mm/sec., at which the fan used to trip automatically. GACL had to stop the ball mill, open the fan and clean it. The total procedure of cleaning the fan used to take about 1-2 days, stopping the complete production.

### THE APPROACH

A PROTOS engineer visited GACL's Veraval plant to study the problem in detail and also to note the process parameters. The separator fan has a backward rotor with 2 inlets and 1 outlet. The process parameters are as follows:

<b>Type of material:</b>	Raw meal dust
<b>Temperature of material:</b>	300 Deg. C
<b>Temperature of air:</b>	300 Deg. C
<b>Moisture content of material:</b>	5%
<b>Moisture content of air:</b>	5%
<b>Fan RPM:</b>	1000
<b>Air velocity:</b>	12 m/sec.

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The process parameters, drawing of the fan and details like nature of deposit, etc., were sent to PRIMASONICS® for their recommendation, based on which PRIMASONICS® selected the most appropriate model from their extensive range of Audiosonic Acoustic Cleaners. GACL people were not satisfied with the performance of earlier Acoustic Cleaners (of the competitor) on the pre-heater fan application. Hence, they asked for trial before going in for a full-fledged installation.

#### **THE SOLUTION**

PRIMASONICS® supplied one unit of Acoustic Cleaner directly to GACL's Veraval plant, and the accessories like solenoid valve, pipes, hose, primer etc., were arranged by GACL. Proper mounting tube arrangement was welded on the fan's casing and the Acoustic Cleaner was installed suitably. The following compressed air conditions were maintained for sounding the Acoustic Cleaner:

- 1) Flow rate:** 40-80 scfm.
- 2) Pressure:** 4.8 - 6.2 bar

The fan was cleaned thoroughly before sounding the Acoustic Cleaner. The trial was started with sounding pattern as a variable and after continuously monitoring the vibration level, the most effective sounding pattern was established. The trial commenced on 7th September 2002 at 6p.m. The initial reading of vibration level was 2.5 mm/sec., which increased to 4.5 mm/sec. at 720 rpm. and 5.1 mm/sec. at 742 rpm. The Acoustic Cleaner was continuously in operation and reading of vibration level was stable from 5.0 to 6.0 mm/sec. at full speed of 742 rpm. The trial was conducted for nearly a month to observe the trend in vibration levels.

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#### **THE RESULT**

For continuous one month operation of the Acoustic Cleaner, vibration level of the separator fan was maintained in the range of 5-6 mm per sec. which was quite satisfactory to GACL. There was no stoppage of the cement mill due to tripping of the fan. The trial was declared as successful and GACL personnel decided to go for full-fledged installation of a new Acoustic Cleaner on the separator fan.

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