

# CASE STUDY - M/s Maihar Cement

## Pneumatic Seal Replaced with Phillips Enviro Seal

### OLD PNEUMATIC SEAL

- Used 12 electrically activated compressed air cylinders
- Mild steel wear plate - replaced every 6-8 months.
- Runouts created gap between plates
- Dust between plates caused extensive damage.
- Lubricated with grease.
- Oxygen content = 2,7% at riser duct. (Measured by Technovation)

### PHILLIPS ENVIRO SEAL

- Held in place by full quadrant ring.
- Overlapping full hard stainless steel plates.
- Wear plates accomodates runout
- No dust build up - discharged through hopper.
- Lubricated with graphite powder.
- Oxygen content = 1.95% at riser duct. (Measured by Technovation)

**CONCLUSIONS**  
**2.3 T COAL SAVING PER DAY = \$22,000**

### CASE STUDY

In Unit I of M/s Maihar Cement, two kilns (3 pier each) of 4.35M diameter x 64M length are in operation. Both kilns were equipped with pneumatic plate-to-plate seals at the feed end.

The rotating wear plate was mounted on the kiln flange. Pneumatic cylinders were mounted on the stationary plate. Pressure was applied against the smoke chamber plate to force the stationary plate to move in an axial direction to come in contact with the rotating plate. To reduce wear on both plates, a grease pump provided grease lubrication, The seals demanded high maintenance and operational costs.

Phillips' Enviro Seals replaced the pneumatic seals, installed in November 1997 and August 1998. Operational efficiency of the kilns was improved; air ingress was reduced and out-going dust was captured. There has been no maintenance cost on the seal to date (1997 - 1998). The life of the leaf plates has yet to be established. **Plant operators have calculated that they have saved \$22,000 in fuel costs in one year.**

**ENVIRO SEAL**