

# Tire Manufacturing Industry

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# Vibration program using SmartCBM® identifies Mixer Motor critical bearing replacement



50+ hours of unplanned downtime avoided plus no collateral damage

## OBJECTIVE

Ensure maximum mixer performance through condition monitoring technologies and eliminate risk of catastrophic failures

## OVERVIEW

- After maintenance work was performed on the coupling, vibration readings were collected to ensure proper installation
- Using a vibration analyzer our analyst identified bearing degradation on the outboard bearing
- Our analyst generated a fault in SAP using our SmartCBM® program
- The motor is planned for shutdown to repair

## ENABLING TECHNOLOGY AND PEOPLE

- Vibration data analyzer used to take direct vibration measurements
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM

# Multi-CBM technologies identify motor replacement for Mixer Motor Blower >> Motor



50+ hours of unplanned downtime avoided plus no collateral damage

## OBJECTIVE

Maximize use of CBM technologies to confirm and corroborate electric motor issues

## OVERVIEW

- During a routine infrared inspection, a mixer motor was identified as running with a high temperature
- Using a vibration analyzer our analyst identified potential issues with the rotor and stator
- Our analyst confirmed motor problems using motor circuit analysis and generated a fault in SAP using our SmartCBM® program to replace motor
- The motor was replaced during shutdown

## ENABLING TECHNOLOGY AND PEOPLE

- IR camera ,Vibration data analyzer and off-line motor test analyzer were used to confirm electrical issues with motor
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM

# Infrared technology identifies lubrication issues of outboard bearing in Mixer Motor Blower >> Fan



8 hours of unplanned downtime avoided plus no collateral damage

## OBJECTIVE

Use mechanical infrared technology to identify potential mechanical issues in rotating equipment to mitigate failures

## OVERVIEW

- During a routine infrared inspection, a mixer motor blower fan was identified as running with a high temperature on outboard bearing
- Work order was issued to check the lubrication auto-lube device. It was verified that bearing was insufficient lubrication.
- Corrective work was performed, and bearing was back to normal preventing an impending bearing failure.

## ENABLING TECHNOLOGY AND PEOPLE

- IR camera used to detect high bearing temperature
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM®

# Oil analysis identifies contaminated oil in profile extrusion gearboxes



20+ hours of unplanned downtime avoided plus no collateral damage

## OBJECTIVE

Use oil analysis to identify early issues with lubrication oil in gearboxes to prevent more significant undetected failures

## OVERVIEW

- During a routine sampling and analysis of several gearboxes in the profile extrusion area, significant oil contamination was detected
- Work order was issued to check oil and filter or replace as needed.
- Corrective work was performed to filter oil back to ISO standards. Work completed preventing accelerated damage to gearboxes

## ENABLING TECHNOLOGY AND PEOPLE

- Lubrication oil analysis
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM®

# Oil and vibration analyses identify bearing defect on intermediate shaft bearing of mixer gearbox



**20+ hours of unplanned downtime avoided plus no collateral damage**

## OBJECTIVE

Use oil and vibration analysis to identify early issues in gearbox to prevent more significant undetected failures

## OVERVIEW

- During routine sampling and analysis of the mixer gearbox increasing iron levels indicated a problem
- Vibration analysis confirmed that a bearing defect on the inner race of the outboard bearing of intermediate shaft
- had a defect
- Work order was issued to replace bearing and clean oil
- Corrective work was performed to filter oil back to ISO standards and bearing replaced. Work completed preventing accelerated damage to gearbox

## ENABLING TECHNOLOGY AND PEOPLE

- Lubrication oil and vibration analysis
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM®

# Infrared technology detects failing motor starter in the profile extrusion area Hydrotherm Head Pump >> Motor Starter



6 hours of unplanned downtime avoided plus no collateral damage

## OBJECTIVE

Use infrared technology to detect electrical failures identify early issues in electrical equipment such as motor starters

## OVERVIEW

- During routine infrared scanning high temperatures were detected on the motor starter for the head pump
- Work order was issued to inspect starter connections and parts
- Corrective work was performed to replace contactor, tighten connections and replace overload fuses

## ENABLING TECHNOLOGY AND PEOPLE

- Infrared camera
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM®

# Vibration monitoring identified a column bottoms pump motor with damaged bearings requiring replacement of motor



12 hours of unplanned downtime avoided plus no collateral damage

## OBJECTIVE

Use vibration monitoring technology to detect failures in equipment

## OVERVIEW

- During routine vibration monitoring a bearing defect was identified in a columns bottom pump motor
- Allied analyst recommended motor replacement upon inspection and initiated a work request
- Corrective work was performed to replace motor

## ENABLING TECHNOLOGY AND PEOPLE

- Portable vibration data analyzer
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM®



# Vibration monitoring identified an intermediate shaft problem in a gearbox for a blend transfer pump



12 hours of unplanned downtime avoided plus no collateral damage

## OBJECTIVE

Use vibration monitoring technology to detect failures in equipment

## OVERVIEW

- During routine vibration monitoring of the gearbox, indication showed damage of intermediate shaft
- Allied analyst recommended gearbox replacement and initiated a work request
- Corrective work was performed to replace gearbox

## ENABLING TECHNOLOGY AND PEOPLE

- Portable vibration data analyzer
- Data analysis by Allied reliability analyst
- Reporting and data management using SmartCBM®