Press release

October 13, 2009

Power Plant Luenen: Europe's Largest Application of Stress Wave Analysis in Operation

- Stress Wave Analysis of plant equipment delivers important information about status and operating conditions

In the Luenen power plant of Evonik Steag GmbH the currently largest application of stress wave analysis in Europe has been taken into operation. With nearly 100 sensors 38 main equipment units are continuously supervised on their "health status".

Stress Wave Analysis (SWAN ™) is an ultrasonic instrumentation and analysis technique for the quantitative measurement of dynamic contact stresses between moving parts in operating machinery. It was originally developed to identify abnormal sources and causes of friction and shock such as damaged gears and bearings in kinematically complex gearboxes, where vibration analysis proved to be impractical.

The wide spread use of stress wave analysis at the Luenen power plant gives the operator the ability to continuously supervise the "health status" of the machines and puts him into the position to exploit abrasion reserves of his equipment through changes of plant operation and related maintenance, while simultaneously preventing unplanned outages. The corresponding reduction of the number of unplanned shutdowns are reflected in significant financial savings.

To understand the methodology of stress wave analysis a comparison with health care is helpful: An EKG is used to understand how the human body responds to changes in the external environment. Under load, there is an expectation that stress levels will rise and will fall when the load conditions stop. For humans and machines alike: the earlier the detection, the greater the probability of successfully managing that condition.

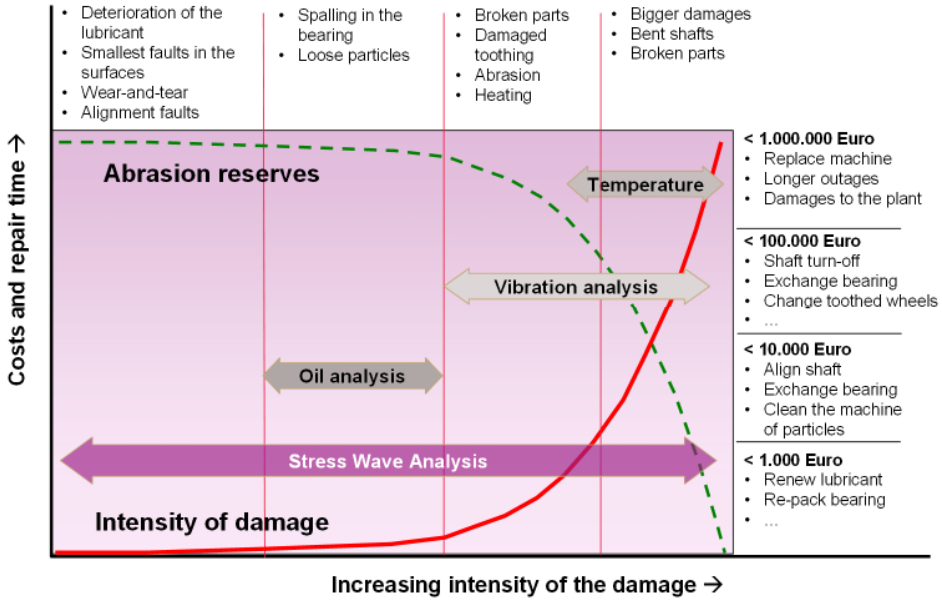
Frank Bruderreck
System Technologies
Phone + 49 201 801-4042
Fax +49 201 801-4102
Mobile +49 173 5451098
frank.bruderreck@evonik.com

Dr. Martin Stephan
System Technologies
Phone +49 201 801-4109
Fax +49 201 801-4102
Mobile+49 163 8012030
martin.stephan@evonik.com

Evonik Energy Services GmbH
System Technologies
Rüttenscheider Straße 1 - 3
45128 Essen
Phone +49 201 801-4000
Fax +49 201 801-4102
www.evonik.com/energyservices

The key feature computed is the Stress Wave Energy (SWE ™). SWE is directly proportional to the friction between moving parts that are separated by a lubricant boundary layer. Since friction is a function of both speed and load, SWAN ™ is an excellent method for understanding the dynamic loading and lubrication condition in operating machinery, as well as detecting classic rolling element defect, imbalance, et al.

Aside the usage in power plants SWAN ™ systems are currently deployed across a broad array of industries and applications, ranging from cruise ships to process industry applications, from high speed gas turbines to low speed wind turbines; and most recently in gas pipelines, detecting internal leakage in valves.



From all condition monitoring systems Stress Wave Analysis provides the earliest possible detection of damage processes

Company information
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Evonik is active in over 100 countries around the world. In its fiscal year 2008 about 41,000 employees generated sales of about €15.9 billion and an operating profit EBITDA of about €2.2 billion.

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