

Success Story

THERMAL POWER PLANT

IKA® technology allows for the measurement of coal calorific value more efficiently

Note: For commercial confidentiality, the customer's name in the following text is referred to as Group A

THE CUSTOMER

A large co-generation enterprise of China

As a large combined heat and power privately listed company, Group A is a large - scale comprehensive enterprise and manufacturers components that support the knitting, weaving and dyeing industries. They are also the largest knitwear production base for the entire province. The company consists of two branches, the Thermal Power Plant and Water Supply Plant, which provides the services of basic power facilities for the entire company enterprise.

The Thermal Power Plant uses coal to provide power. In the beginning of 1998, Group A has experienced several technological transformation expansions, including adding an additional boiler with the high-power extraction condensing turbo-generator to optimize the growing power demand for the company's varying types of equipment. The Thermal Power Plant has been developing together with the entire company.

THE CHALLENGE AND SOLUTION

High repeatable accuracy, high speed combined with more stability and durability

To further improve the quality of coal utilization, Group A, while referring to the national standards GB475 "approaches for commercial coal", rebuilt a new coal testing laboratory equipped this facility with several calorimeter systems. This resulted in a large increase in the quantity of measurements for calorific value of coal samples, such that the amount of data received in a single day eclipsed anything that had been achieved in the past. In the experiments that followed, it was determined that calorimeters from several other brands could not succeed in working stably under such high throughput demands. However, the problems that the coal testing laboratory was experiencing with regards to the determination of coal calorific values was finally resolved when IKA® calorimeters were introduced into the process in 2005. Currently, the testing laboratory of Group A consists entirely of IKA® calorimeters. First-class quality and high reproducibility and durability highlight the strength of these calorimeter systems – exactly what the company's laboratory required.

High repeatable accuracy

For Group A, the most important quality indicator and price determining factor of firing coal is heat. The calcula-

What should you do, if your equipment gives you problems all the day long? And the data became inaccurate when experiments were conducted far too often? And the equipment was simply too slow? IKA® calorimeter systems solved Group A's problems entirely.

The chief engineer of the coal testing lab, Ms. Zhou states, "Of course, IKA® calorimeter systems are of great use! You don't need to repair them and such forth..."



tion of heat balance, volume of coal consumption and heat efficiency in the coal-fired process are all based on the heat generated by the coal sample itself. It is widely recognized that 70% of the energy costs associated with power stations are used on coal purchasing. As such, you can imagine how important the accuracy needs to be when measuring the calorific value of coal samples in cost evaluation and control analysis. To Group A, not only does the accuracy of calorific value plays an important part, but a higher repeatable accuracy is also significant to their overall analysis.

Ms. Zhou, the chief engineer in the coal testing lab, stated the following with regards to IKA® calorimeters: "The calibration for heat capacity is great when making the parallel sample and the testing data is also precisely accurate." IKA® calorimeters exhibited a greater performance when testing standard benzoic acid, calibrating equipments' heat capacity and testing standard coal together with daily used coal, which has a surrounding isothermal mode figure of 0.05%. Besides, an imported calorimeter cooler is an essential guarantee in preserving a high repeatable accuracy for the entire calorimeter system."

Faster

The high frequency in which Group A conducts sample assays required that their calorimeters had an increased measuring speed. So, how does one manage so many measurements within a single day? One solution would be to simply purchase more calorimeters, although this is highly inefficient and potentially cost prohibitive. Well then, is there any other way to speed up the measure-

ments; increase productivity? For the solution to this problem, look no further than IKA®, for their calorimeters provide the perfect solution.

First of all, there is the preparation time when initially starting the instrument. For competing brands, the time required is around 30 minutes, but for IKA® it is only 5 minutes! Secondly, the measuring time of each sample is much faster when using an IKA® calorimeter system. Except for meeting the needs of the standard measurement mode, IKA® has developed the first dynamic model, which reduced the measurement time from 22 minutes to 7 minutes. If one takes the maximum number of samples one day, which is 65, into consideration, 975 minutes were saved, which significantly enhanced the overall work efficiency of the coal testing laboratory greatly. Not surprisingly, Group A was very satisfied.

Stable

It has been 4 years since IKA® calorimeters were first introduced into Group A's coal testing laboratory, and all units are still fully operational and in use. The chief engineer of the coal testing lab, Ms. Zhou, said: "Of course, IKA® calorimeters are of great use! You don't need to continually repair the instruments..." "Great use" is the most reliable comment with regards to the stability of IKA® calorimeters. As a company with over 100 years of history, IKA® embraces their corporate identity of "Quality First", from the very first calorimeter produced in 1938, the venerable C 100, to their current portfolio, which consists of the C 200 / C 2000 / C 5000 series calorimeters. IKA's efforts in always pursuing the highest quality while

Overview

- Reproducibility up to 0.05 % RSD (isoperibol)
- 5 minutes is enough for warming up the instrument
- Dynamic, measurement time: approx. 7 min
- Operating oxygen pressure 30 bar. Special halogen-resistant vessels for quantitative decomposition of halogens and sulphur are available
- Validation according to DIN 51900, ASTM 240 D, ISO 1928, BSI etc.
- Up to 8 calorimeters can be controlled by a single PC, using a multi-serial plug-in card



also emphasizing a high degree of instrument stability and reproducibility have been a hallmark of all of their instrumentation, including their calorimeter systems. And it is this commitment to instrument stability and quality that has won IKA® the reputation it now enjoys from a vast number of end users.

More durable

The durability of IKA® calorimeters is reflected not only in the mainframe system, but also in the accessories that are available for each calorimeter.

Ms. Zhou states: "The crucible I used before needed to be changed once a month. However, IKA's crucible offerings have been used from 2006 until now". The oxygen bomb decomposition vessel is the most important component of any calorimeter. The sealing on the vessel is so important that experiments should be taken regularly to ensure that a procure seal is still achievable. IKA® oxygen bomb decomposition vessels, consistently ensure that the sealing function continually works properly, thus providing for a higher degree of durability. The free demonstra-

tion experiments that IKA® China nowadays introduce are aimed at providing much better service to the customer in addition to showing a great self-confidence in its' ability to provide their customers with high quality, durable instrumentation. Group A has been using IKA® oxygen bomb vessels for quite some time now and thus far they have not had to change the sealing rings on the oxygen bomb due to the durability of the design.

CUSTOMER BENEFITS

Less worries, more efficient and more economical compared with other competing brands, IKA® calorimeters ensure precision, reproducibility, high speed, combined with the necessary stability and durability which reduces the maintenance costs and improves the overall operating efficiency of Group A, while also reducing the worries of the individual operator in the coal testing laboratory. As co-generation projects increase internationally, similar enterprises in China will become more prevalent as well. IKA® will, as always, provide first-rate quality, and their "Good Calorimeter" will continue to contribute to the development of the combined heat and power industry.



designed
to work perfectly

IKA® Works Guangzhou

173-175 Friendship Road, Guangzhou Economic &
Technological Development District · 510730 P.R. China
Tel. +86 20 8222 6771 · Fax +86 20 8208 8373
Hotline. +86 400 886 0358 · info@ika.cn · www.ika.com

IKA®