

## JK Bond Ball Mill Test

**An improved method using less mass compared to the Bond Ball Mill Work Index test.**

Since its introduction in the 1960s, the Bond Ball Mill Work Index (BBMWi) parameter has been extensively used in predicting ball mill power draw.

### Use of Work Index

Along with comminution circuit design the work index parameter is widely used in tracking mill performance. Due to the age and lack of controls for the test, laboratories will have varying BBMWi test equipment and processes, such as media charge or mill liner variations.

The JK Bond Ball Mill (JKBBM) test standardises the equipment specifications and procedures, while satisfying requirements for the original Bond test.

### Comparative Testing Program

During JKTech's comparative testing program (often called a 'Round Robin'), thirty-four laboratories conducted the BBMWi test as part of the program.

Each laboratory, some with multiple mills, was supplied duplicate samples prepared by JKTech. This resulted in seventy-five BBMWi results for the same sample, giving an average work index of 15.5 kWh/t.

A very broad range of results was received, characterising the 'standard ore' from medium to very hard. A disappointing result considering the reliance on this test globally for design and optimisation.



## Testwork programs

JKTech's laboratory specialises in delivering high quality, cost effective, and leading characterisation of ore and waste material using testwork programs that are fit for purpose.

Characterisation can be undertaken at various scales from small scale geometallurgical measurements and tests on drill core or chips to bench tests to pilot plant trials. Our technicians can also be deployed to sites for plant surveys, metallurgical and geometallurgical testwork programs. Our laboratory and consultants will advise and guide clients on the best tests and testwork programs to meet objectives and budgets.

## Comminution Testing

Our comminution testing suite offers clients breakage characterisation data for a wide range of applications. JKTech can provide the comprehensive ore breakage data required to design and optimise comminution circuits.

## Flotation Testing

We offer a range of flotation testing options, from optimising existing circuits to flowsheet development for greenfield projects. We pride ourselves in solving complex flotation issues.

## Hydrocyclone Testing

Hydrocyclone Tests can be carried out by JKTech for cyclone characterisation, for benchmarking or to produce JKSimMet model parameters for mineral processing circuit simulation.

## Mineralogical Assessment

JKTech provides process improvement solutions based on the mineral characterisation results. This can be performed on all samples across the value chain to significantly improve your insights into ore types and process performance.

## Development and Initial Validation

The JKBBM test was developed at the Julius Kruttschnitt Mineral Research Centre (JKMRC) using a database of 1380 original BMWi results, covering 148 different rock types.

The research showed that the JKBBM procedure gives equivalent results to the BMWi test using original equipment specifications and procedures. Results are within 4.1% agreement on average.

## Test details

The JKBBM test requires less material compared to the original test. JKTech recommends 5 kg for test work, compared to 10 kg for the original test.

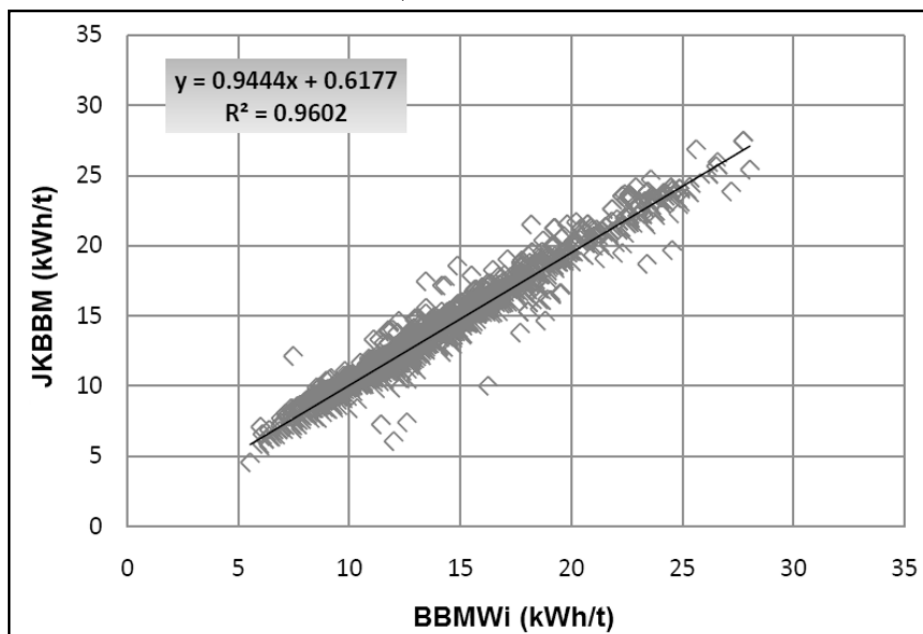
Similarly, the JKBBM test requires less labour compared to the original test.

It has clear specifications regarding the mill design and media charge, this prevents the variations in mill and media charge which have been noted in the original BMWi test.

The real benefit comes from the test being part of the JKTech Quality Assurance Program which aims to provide globally reliable results for design and optimisation.

To find the closest laboratory who can offer the JKBBM test, or to become a licensed test facility please contact JKTech.

Validation results for database samples



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