



# COAL QUALITY WORKSHOP

Presented by: Prof. Colin Ward

Friday 15<sup>th</sup> July 2016

8am to 4.30pm

Total Agricultural Centre  
Paterson Rd, Total, NSW  
Room: North Court 3

Cost: \$300 (including GST)

Lunch: Included

## 1. General Introduction

Fundamental concepts of coal rank, type and grade  
Relevant Standards and other information sources

## 2. Coal Testing and Analysis

- Coal sampling and sample preparation
  - Coal in-situ (bore cores, mine faces etc)
  - Coal production streams and stockpiles
- Proximate and ultimate analysis
  - Total and inherent moisture
  - Volatile matter, fixed carbon, ash
  - Carbon, hydrogen, oxygen, nitrogen, sulphur
- Other general tests and analyses
  - Density; particle size distribution
  - Carbonate carbon; chlorine; phosphorus
  - Forms of sulphur (pyritic, sulphate, organic)
  - Ash analysis and trace elements
  - Reporting results to different bases
- Special tests for coal combustion
  - Calorific value (specific energy)
  - Ash fusion temperatures
  - Hardgrove grindability index
- Coal carbonization and coking tests
  - Crucible swelling number (free swelling index)
  - Dilatometer and plastometer properties
  - Coke tumbler and related tests

## 3. Coal Petrology and Petrographic Analysis

- Microscope techniques used in coal petrology
  - Thin section and polished section techniques
  - White light and fluorescence characteristics
- Microscopic coal constituents: macerals and microlithotypes
  - Macerals and maceral analysis
  - Vitrinite reflectance measurement and rank interpretation
  - Chemistry of coal macerals at different rank levels
  - Maceral associations: microlithotypes
  - Relation of coal petrology to combustion and coking behaviour
- Coal lithotypes and megascopic (hand specimen) seam description
- Nature, analysis and significance of mineral matter in coal

## 4. Quality Assessment in Exploration and Mine Geology Programs

- Sampling and analysis strategies
- Selection of working sections; allowance for dilution
- Calculation of quality parameters for ply and seam composites
- Float-sink testing, core pre-treatment and washability curves

### Course Presenter

Prof Colin Ward

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### • Course registration

If you would like to register for the workshop please email the secretary  
[admin@coalfieldgeologycouncilnsw.org](mailto:admin@coalfieldgeologycouncilnsw.org)

If you have any dietary requirements send them through as well.