

# LQSi PT PROGRAM: METALLURGICAL COAL AND COKE PTPs

## COKE REACTION INDEX (CRI) / COKE STRENGTH AFTER REACTION (CSR)

LQSi offers a range of coal and coke proficiency testing programs (PTP) for:

### LQSi METALLURGICAL COAL AND COKE PTPs

- High rank coal
- Mineral analysis of coal ash
- Trace elements
- Rheological and petrographic properties of coal
- Metallurgical coke
- Coke tumbler test
- CSR / CRI

### LQSi CRI / CSR PTP

LQSi offers the ability to monitor principal parameters:

- Calculated CRI
- Calculated CSR
- Monitor supporting parameters
- Starting sample weight
- Sample weight after reaction
- Sample weight loss
- Plus 3/8-inch
- Minus 3/8-inch
- Optional parameter can be tested
- Abrasion value

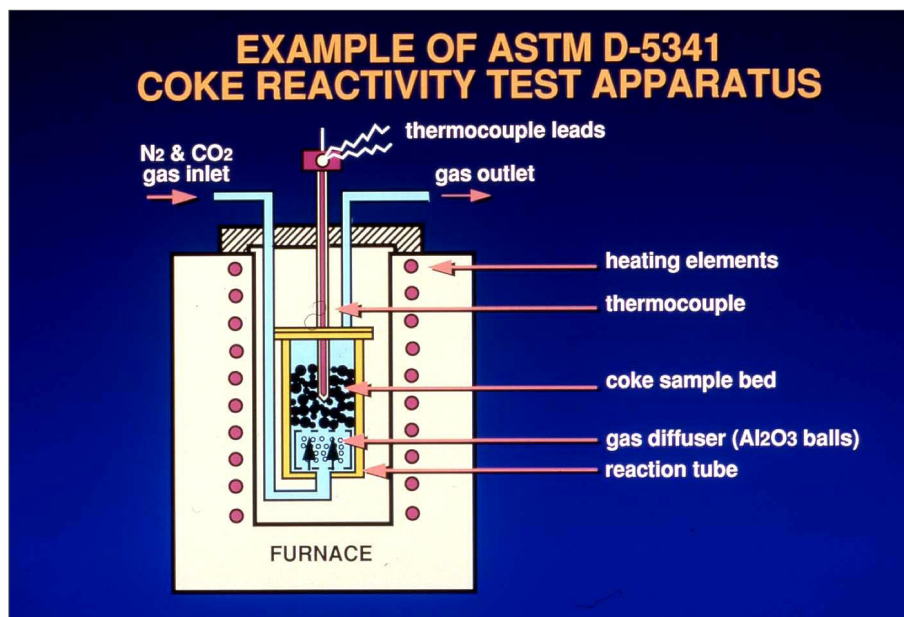
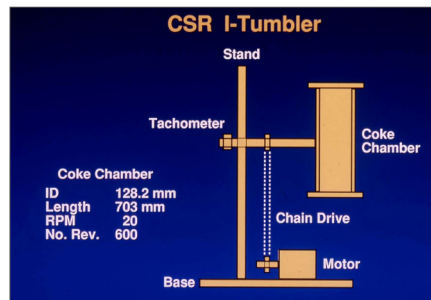
### REFERENCE METHODS

ISO 18894; Coke — Determination of coke reactivity index (CRI) and coke strength after reaction (CSR)

ASTM D 5341; Standard Test Method for Measuring Coke Reactivity Index (CRI) and Coke Strength After Reaction (CSR)

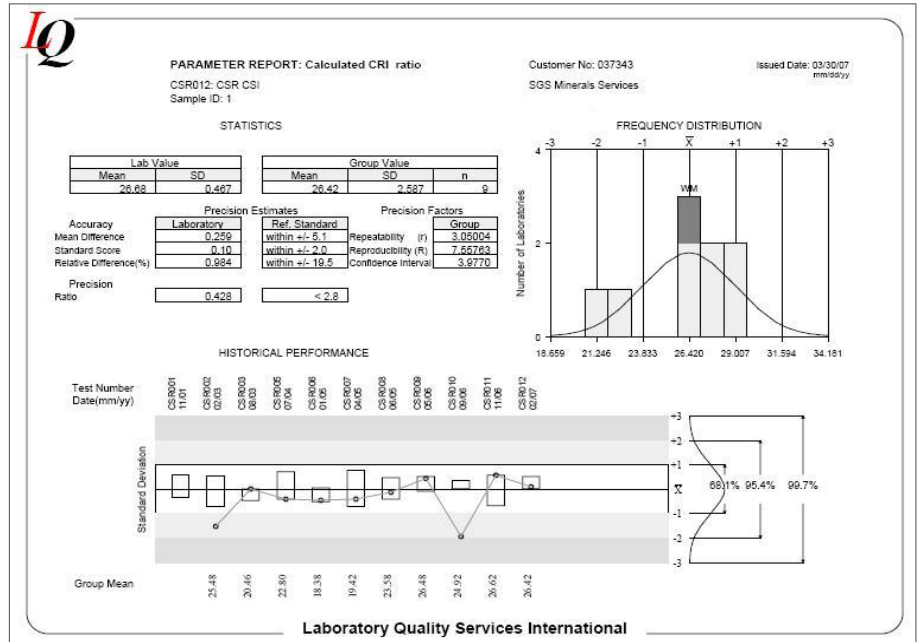
Both reference methods are based upon the Nippon Steel test procedure.

1.2 kg samples are distributed quarterly to assist participants who use CRI / CSR to monitor coke carbon forms (controlled by the rank or reflectance of the blend; medium volatile matter coals produce the least reactive, highest strength coke carbon), coke structure (dense, low porosity cokes, with lower specific surface area, will have lower CRIs and higher CSRs), and coke chemistry (low base / acid ratio, low iron oxide, and high iron / calcium ratio all contribute to high CSR).



## EASY-TO-READ AND EASY-TO-UNDERSTAND REPORTS

- LQSi PTP reports focus on the current-round performance AND the historical performance over the last twelve rounds, providing tabular and graphical summaries and presentations of laboratory performance.
- Single-page, specialized management reports allow managers with responsibility for multiple laboratories to obtain a quick view of all of their laboratories' performance at a single glance.
- Detailed parameter reports provide performance measures, repeatability and reproducibility, distributions, and runs chart.

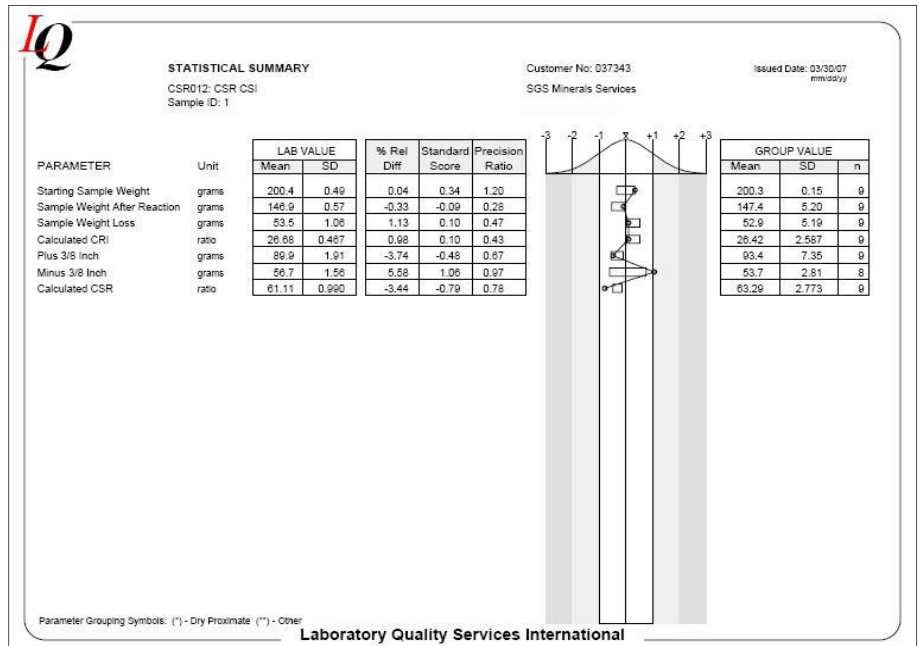


**PERFORMANCE SUMMARY**  
 Program: CSR CSI  
 Customer No: 037343  
 Issued Date: 03/30/07  
 SGS Minerals Services

| CSR012                       | Z Score | Percentile | n  | Average 1200 Sampling |            | Trend | Risk | Consistency | Run Symbol |
|------------------------------|---------|------------|----|-----------------------|------------|-------|------|-------------|------------|
|                              |         |            |    | Z Score               | Percentile |       |      |             |            |
| Starting Sample Weight       | 0.04    | 70         | 10 | 1.16                  | 21         | A     | A    | A           | 0          |
| Sample Weight After Reaction | 0.08    | 80         | 10 | 0.84                  | 80         | A     | A    | A           | 0          |
| Sample Weight Loss           | 0.10    | 80         | 10 | 0.60                  | 80         | A     | A    | A           | 0          |
| Calculated CRI               | 0.44    | 70         | 10 | 0.70                  | 80         | A     | A    | A           | 0          |
| Plus 3/8 Inch                | 1.09    | 20         | 10 | 0.88                  | 80         | A     | A    | A           | 0          |
| Minus 3/8 Inch               | 0.74    | 80         | 10 | 0.88                  | 80         | A     | A    | A           | 0          |
| Calculated CSR               | 0.78    | 80         | 10 | 0.88                  | 80         | A     | A    | A           | 0          |

**Legend:**  
 A = Acceptable  
 S = Suspicious  
 U = Unacceptable  
 N/A = Not Applicable

Laboratory Quality Services International



## CONTACT INFORMATION

Email us at [minerals@sgs.com](mailto:minerals@sgs.com)  
[www.sgs.com/mining](http://www.sgs.com/mining)

WHEN YOU NEED TO BE SURE

