

Us coking coal specifications.pdf

[Science](#), [Chemistry](#)



High Vol Petro Analysis Coal Analysis As Received Dry Basis % Moisture 7. 52
 xxxxxx % Ash 5. 10 5. 51 0. 79 % Sul 0. 86 %Volatile 37. 35 34. 54 Fixed
 Carbon 57. 14 52. 84 13, 522 BTU/lb 14, 622 MAF BTU 15, 475 FSI 7
 Oxidation 96 _____

_____ CERTIFICATE OF ANALYSIS PETROGRAPHIC ANALYSIS Date
 sampled: 09-Mar 11 MACERAL COMPOSITION VOLUME% REACTIVES V-Types
 7 8 9 10 7. 3 36. 4 20. 5 2. 0 66. 2 0. 0 3. 4 VITRINITE EXINITE RESINITE
 Semifusinite INERTS 3. 8 Total Reactives 73. 4 Semifusinite Micrinite Fusinite
 Mineral Matter Total Inerts 9. 7 3. 2 6. 7 7. 0 26. 6 0. 88 MEAN MAXIMUM
 VITRINITE REFLECTANCE % Composition Balance Index Calculated Stability
 Rank (Strength) Index 1. 00 3. 32 42 Ash % (dry) Sulfur % (dry) Volatile
 Matter % (dry) Volatile Matter, daf 5. 51 0. 85 37. 35 39. 53 Mid Vol Petro
 Analysis DATE SAMPLED: DATE RECEIVED: PROXIMATE ANALYSIS: Moisture %
 Volatile Matter % Ash % Fixed Carbon % BTU/lb Calories/Gram Sulfur % FREE
 SWELLING INDEX: OXIDATION: %T SULFUR FORMS: Pyritic % Sulfate %
 Organic % TOTAL % FUSION TEMP. (F): Initial Softening (H-W) Hemispherical
 (H-1/2W) March 9, 2011 March 9, 2011 AS REC'D 7. 28 25. 45 8. 78 58. 49
 13, 053 7252 0. 79 8. 0 96. 3 DRY BASIS PETROGRAPHIC DATA (MACERAL
 ANALYSIS) VITRINITE TYPE V-8 V-9 V-10 V-11 V-12 V-13 V-14 V-15 V-16 V-17
 Vitrinite Exinite Resinite Samifusinite TOTAL REACTIVES Samifusinite
 Micrinite Fusinite Mineral Matter TOTAL INERTS Composition Balance Index
 Rank Index Mean-Max Reflectance Calculated Stability Factor SOLE HEATED
 OVEN: (52/2) % Moisture % - 6 Mesh BDT ET Contraction 52/2 DRY BASIS: 27.
 45 9. 47 63. 08 14, 078 7821 0. 86 MAF MINERAL ANALYSIS: Silicon Dioxide
 SiO2 Aluminum Oxide Al2O3 Iron Oxide Fe2O3 Calcium Oxide CaO

Magnesium Oxide MgO Sodium Oxide Na₂O Potassium Oxide K₂O Titanium Dioxide TiO₂ Phos. Pentoxide P₂O₅ Sulfur Trioxide SO₃ DRY BASIS 55. 75 26. 81 7. 39 1. 70 1. 03 0. 56 2. 59 1. 33 0. 37 1. 27 15, 551 REDUCING OXIDIZING ULTIMATE ANALYSIS: Carbon % Hydrogen % Nitrogen % Oxygen % Ash % Sulfur % TOTAL % GIESELER FLUIDITY: Max. Fluidity (ddpm) Max Fluid Temp Initial Softening Temp. Solidification Temp Temperature Range ARNU DILATATION % Maximum Contraction % Maximum Dilatation Initial Softening Temp Initial Dilatation Temp Final Dilatation Temp CALCULATED CSR: Respectfully Submitted *Corrected to 2. 5 G Air Dried Coal and 4. 00 MM Tube Radius 2 018 440 403 487 84 27 40* 392 429 474 % REACTIVES 4. 80 19. 00 10. 90 2. 00 1. 40 0. 70 5. 40 8. 80 10. 90 4. 10 68. 00 2. 10 1. 10 2. 00 73. 20 % INERTS 5. 80 10. 60 4. 90 5. 50 26. 80 1. 37 5. 24 1. 25 62 Low Vol Petro Analysis DATE SAMPLED: DATE RECEIVED: March 9, 2011 March 9, 2011 AS REC'D 10. 02 16. 03 6. 29 67. 66 0. 78 DRY BASIS: 17. 82 6. 99 75. 19 0. 83 8. 0 99. 8 DRY BASIS MINERAL ANALYSIS: Silicon Dioxide SiO₂ Aluminum Oxide Al₂O₃ Iron Oxide Fe₂O₃ Calcium Oxide CaO Magnesium Oxide MgO Sodium Oxide Na₂O Potassium Oxide K₂O Titanium Dioxide TiO₂ Phos. Pentoxide P₂O₅ Sulfur Trioxide SO₃ Undetermined DRY BASIS 54. 43 26. 18 8. 77 1. 43 1. 18 0. 53 2. 80 1. 21 0. 67 0. 93 PROXIMATE ANALYSIS: Moisture % Volatile Matter % Ash % Fixed Carbon % BTU/lb Sulfur % FREE SWELLING INDEX: OXIDATION: %T SULFUR FORMS: Pyritic % Sulfate % Organic % TOTAL % FUSION TEMP. (F): Initial Softening (H-W) Hemispherical (H-1/2W) ULTIMATE ANALYSIS: Carbon % Hydrogen % Nitrogen % Oxygen % Ash % Sulfur % TOTAL % GIESELER FLUIDITY: Max. Fluidity (ddpm) Max Fluid Temp Initial Softening Temp. Solidification Temp

Temperature Range ARNU DILATATION % Maximum Contraction % Maximum Dilatation Initial Softening Temp Initial Dilatation Temp Final Dilatation Temp
 CALCULATED CSR: Respectfully Submitted REDUCING OXIDIZING
 PETROGRAPHIC DATA (MACERAL ANALYSIS) VITRINITE TYPE V-14 V-15 V-16 V-17
 Vitrinite Exinite Resinite Samifusinite TOTAL REACTIVES Samifusinite
 Micrinite Fusinite Mineral Matter TOTAL INERTS Composition Balance Index
 Rank Index Mean-Max Reflectance Calculated Stability Factor SOLE HEATED
 OVEN: (52/2 % Moisture % - 6 Mesh BDT ET Contraction 52/2 % REACTIVES
 3. 60 34. 30 19. 70 15. 30 72. 90 0. 00 0. 00 1. 40 74. 30 % INERTS 5. 50 7.
 90 8. 30 4. 00 25. 70 3. 63 7. 10 1. 61 52 3. 93 79. 3 52. 4 +11. 7 +13. 2 189
 476 439 509 70 20 97* 415 451 487 49. 0 *Corrected to 2. 5 G Air Dried Coal
 and 4. 00 MM Tube Radius Mine & Sample Information Coal Source Seams
 Date Identification Averages Sample Date: March 9, 2011 Moisture Moisture
 Equilibrium Moisture 5. 57 1. 25 17. 48 7 75. 53 0. 66 18. 81 14, 660 85. 02
 4. 37 1. 24 7 0. 66 1. 73 0. 03 Std Dev 0. 32 0. 07 1. 36 1. 14 2. 5 1. 69 204.
 35 1. 72 0. 21 0. 13 1. 14 0. 65 0. 01 Proximate Analysis (dry basis) Volatile
 Matter Ash Fixed Carbon Sulfur Volatile Matter dry, Calorific Value BTU/lb
 (dry basis) Ultimate Analysis (dry basis) Carbon Hydrogen Nitrogen Ash
 Sulfur Oxygen Chlorine Phosphorous Forms of Sulfur Sulfate Pyritic Organic
 Physical Characteristics FSI Hardgrove Grindability Grindability Moisture
 Oxidation Index (% T Ash Chemistry (% of ash) SiO₂ Al₂O₃ TiO₂ Fe₂O₃ CaO
 MgO K₂O 0. 01 0. 12 0. 53 7. 8 101 0. 69 97 50. 24 28. 82 1. 43 10. 09 2. 56
 1. 42 1. 75 0. 01 0. 01 0. 35 141 0. 05 1. 41 0. 7 0. 83 0. 01 1. 2 0. 31 0. 06
 0. 6 Na₂O SO₃ P₂O₅ SrO BaO Mn₃O₄ Undetermined Ash Analysis Total Alkali
 in Ash (% Base/Acid Ratio Silica Percentage Slag Viscosity at 260 Alkali Index

Rheology Gieseler Plastometer Softening Temperature Max Fluidity
 Temperature Solidification Temperature Plastic Range Maximum Fluidity
 Arnu Dilatometer Maximum Contraction Maximum Expansion Softening
 Temperature Temperature of Max Temperature of Max 0. 55 2. 53 0. 05 0.
 15 0. 26 0. 05 0. 14 2. 29 0. 2 78. 14 481 1. 44 0. 06 0. 43 0. 06 0. 02 0. 04
 0. 01 0. 1 0. 54 0. 02 2 126. 54 0. 13 438 478 507 69 93 20 61 436 463 496
 2. 685 2. 700 2. 700 2. 700 2. 12 2. 12 4. 24 12. 73 0. 71 3. 54 1. 41 3. 54 1.
 41 21. 21 Ash Fusion Temperature Initial Deformation Softening ST (red.)
 Hemispherical HT Fluid FT (red) Petrography Petrographic Indices Mean
 Maximum Refl 1. 69 Standard Deviation 0. 0512 Distribution of Vitrinite
 Types (100% basis) V-10 V-11 V-12 V-13 V-14 V-15 7. 5 V-16 47. 5 V-17 45 V-
 18 V-19 Maceral Analysis 0. 03 4. 95 20. 51 25. 46 Vitrinite Liptinite 69. 3 0.
 2 Semi-inert Macerals Semi-fusinite 19. 5 Inert Macerals Oxyvitrinite 0. 3
 Fusinite 7. 9 Inertodetrinite 2. 3 Micrinite 0. 5 Macrinite Reality Checks Ash
 Volatile Matter Fixed Carbon Volatile Matter (dry Carbon (dry ash free
 Hydrogen (dry ash free Nitrogen (dry ash free Oxygen (dry ash free Rank
 DAF Carbon to Rank DAF Hydrogen to Ra Gieseler Plastic Ran Gieseler
 Maximum F Arnu Dilation 7 17. 48 75. 52 18. 8 91. 42 4. 7 1. 33 1. 86 1. 69
 54. 09 2. 78 69 93 60. 5 8. 06 3. 82 0. 14 3. 25 0. 71 0. 14 1. 14 1. 36 2. 5 1.
 69 0. 73 0. 16 0. 16 0. 72 0. 03 1. 34 0. 14 4. 24 12. 73 3. 54