

GIESELER PLASTOMETER AND ARNU DILATOMETER

EVALUATING RHEOLOGICAL PROPERTIES

Coking coals can, when heated in the absence of air, to soften, swell, and then resolidify to form a coherent, porous, hard coke structure. The Gieseler Plastometer and Arnu Dilatometer tests are used to evaluate the rheological, or plastic, properties of a coal or coal blend.

GIESELER PLASTOMETER TEST

In this test, 5 grams of minus 40 mesh prepared coal is packed into a crucible with a stirrer which is inside a retort barrel assembly. A constant torque is applied to the stirrer and the coal is heated at a 3°C /minute temperature rise. As the coal softens, the stirrer begins to turn. The maximum fluidity value is expressed in dial divisions per minute (DDPM) of the stirrer rotation. In general, for individual coals, the highest DDPM value possible is most desirable: high volatiles - 5,000 to >30,000 DDPM; medium volatiles - <200 to 20,000 DDPM; and low volatiles - 20 to 1,000 DDPM.

CONTACT INFORMATION

Email us at minerals@sgs.com
www.sgs.com/mining

ARNU DILATOMETER TEST

In this test a coal "pencil," 60 mm in length, prepared from minus 60 mesh coal, is inserted into a retort tube with a piston on top of it and placed in a furnace. The coal is heated at a 3°C/minute temperature rise. The movement of the piston as the coal pencil shrinks and expands is recorded. The maximum dilatation value is the key parameter measured. Again, for individual coals, you want the highest value possible is desirable: high volatiles - +50 to >300%; medium volatiles - +100 to 250%; and low volatiles - <0 to 200%.

