1. **SCOPE**
   This test procedure outlines the approved method of testing and evaluating the durability of clays.

2. **SUMMARY**
   Durability for molding sand is defined in the AFS Foundry Sand Handbook as "the resistance to calcination of the clay mineral constituent." Thermal durability is used to evaluate the degree to which bonding clays resist a change in their green, dried, and fired properties after exposure to the varying degrees of heat that result from the repeated use in metal casting systems.

3. **APPARATUS**
   - Furnace (capable of maintaining a constant temperature of 600°C.)
   - Large porcelain crucibles

4. **PROCEDURE**
   4.1 A sufficiently large sample of clay (700g minimum, resulting in 500g of calcined clay) is placed in the large crucibles.
   4.2 The sample is heated for one hour in a 600°C oven.
   4.3 The clay is allowed to cool to room temperature and is then ready to be used for a bond vs. temper test (TP-7005).
   4.4 The data resulting from the bond vs. temper test is compared with that resulting from a bond vs. temper test performed on the clay as received.

5. **ASSOCIATED DOCUMENTS**
   - TP-7005  BOND VS. TEMPER
   - TP-7006  BOND TEST
   - TP-7009  DRY COMPRESSION STRENGTH (W/401)
   - TP-7010  DRY COMPRESSION STRENGTH (W/405)
   - TP-7013  GREEN COMPRESSION STRENGTH (W/401)
   - TP-7014  GREEN COMPRESSION STRENGTH (W/405)
   - TP-7018  HOT COMPRESSION (VARIOUS TEMPERATURES)
   - TP-7025  PREPARATION OF AFS STANDARD SPECIMEN 2”X2”