

Frying Egg Demo (Slaking of CaO)

Description: A strongly exothermic reaction occurs when water reacts with calcium oxide (quicklime).

Materials:

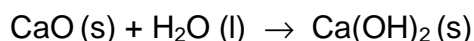
Fresh CaO	Egg
Water	Frying pan and spatula
Thermometer	Large porcelain dish

Procedure:

1. Place FRESH CaO (one new bottle has 500 g) in a thin layer in the porcelain dish. To this, add water uniformly over the CaO. The amount of CaO to water should be in a ratio of 4:1. Therefore, a 500 g bottle will require 125 mL of water.
2. At this point, crack an egg in a frying pan and place this directly (or on top of a piece of Al foil) on top of the CaO as it heats. Within about 5 minutes, the temperature of the CaO mixture should be close to 115 °C. Monitor this temperature change with a thermometer. Notice too that the volume of the CaO has increased as Ca(OH)₂ is produced.

Discussion:

The reaction can be described by the chemical equation below:



The heat of hydration of Ca(OH)₂ (s) is -65.16 kJ/mol, hence the exothermic nature of this reaction (Shakhashiri, 85).

Safety: Be sure to wear gloves and protective eyewear when performing this demonstration. CaO is caustic and direct contact with any part of the body should be avoided.

Disposal: Ca(OH)₂ can be reused for other demonstrations.

References:

Shakhashiri, B. Z. In *Chemical Demonstrations: A Handbook for Teachers of Chemistry*; The University of Wisconsin Press: 1983; Vol. 1, p 19-20.

Video:

<http://www.youtube.com/watch?v=zePrQamwLw0>