

GLI Method Summary

Sodium Peroxide Fusion in a Parr Bomb

Governing SOP: G-56H Rev 8

Analyte: Metals, typically Si

Range: ppm - %

Procedure	<p>Sodium peroxide and sucrose are added to a Parr bomb. The sample is weighed into a gelatin capsule and a small amount of dibutyl ether is added. The bomb is sealed and heated over a Burner Blast until the sample is fused. The bomb is cooled, unsealed and the bomb cup is immersed in deionized water on a hot plate to dissolve the melt. The solution is neutralized with hydrochloric acid, and quantitatively transferred into a plastic volumetric flask. The solution is brought to volume. The sample is ready for analysis.</p>
Safety Precautions	<p>Sodium peroxide is a potentially dangerous chemical. Avoid scattering the reagent or leaving the container open. Spills should be washed down with water, and not wiped up with paper or cloth. This test should not be applied to samples containing appreciable amounts of water. Water reacts spontaneously with sodium peroxide and may cause premature reaction of the sample and peroxide. Fusion cups may develop holes or cracks and should be examined before use. The bomb cover gasket must be replaced when damaged. Samples of unknown composition must be tested before mixing with sodium peroxide. Place a small amount of peroxide in a bomb cup and add a small quantity of the sample and mix. If the sample ignites spontaneously upon contact with the peroxide, use a gelatin capsule. If there is no reaction, the sample may be introduced into the bomb without the gelatin capsule. The use of gloves, safety glasses, and a protective shield is required.</p>

Reference

R. Block, *Decomposition Methods in Analytical Chemistry*, T. & A. Constable Ltd., Edinburgh, 1979.