

GLI Method Summary

Sulfur Determination Using the LECO SC-632

Governing SOP: E16-3

Analyte: S

Range: 0.007 – 3.7 mg S

Summary

The SC-632 Carbon/Sulfur Determinator is a non-dispersive infrared, digitally controlled instrument designed to determine sulfur in a variety of organic and inorganic materials. The sample is combusted at $1350 \pm 50^\circ\text{C}$ in an atmosphere of pure oxygen. The sulfur is oxidized to sulfur dioxide and quantitated by infrared absorption.

Instrument	LECO SC-632 Carbon/Sulfur Determinator	
Sample Intro	Weigh sample to nearest 0.01 mg. Weigh samples directly into sample boat tared on electronic balance. Weight automatically transferred to SC-632 database. Cover sample with LECO Com-Aid combustion accelerator as called for by sample type.	
Trace Calibration	Three conditioners of milk powder. Six calibration standards of oyster tissue. Internal calibration using quadratic regressed curve.	
General Calibration	Three conditioners of cystine. Seven calibration standards of bovine liver (4) and sulfanilic acid (3). Internal calibration using quadratic regressed curve.	
Control	100-120 mg of milk powder and 5-8 mg of cystine Frequency: Both after calibration, and one cystine each after every ten samples.	
Determination	Combustion in O ₂ atmosphere at 1350°C. Determination of resulting SO ₂ by infrared detector.	
Quantitation Limit	0.007 mg S	
Calculations	Internal	
Precision & Accuracy (milk powder) (Cystine)	RSD (%) TBD	Mean Recovery (%) TBD

References

LECO SC-632 Carbon/Sulfur Determinator, Version 1.4x, August 2009.

ASTM D4239-83, *Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, Method C, Annual Book of ASTM Methods*, Vol. 05.05, 1992.