

**FERTILIZER
METHODS**

Chapter

NITROGEN ANALYSIS

Subject

Total Nitrogen -
Combustion (Leco)

SCOPE: This is an analytical procedure for the determination of total nitrogen in all fertilizer samples

PRINCIPLE: Nitrogen is released from a fertilizer through combustion at high temperature utilizing ultra-high purity (99.99%) oxygen. The nitrogen is quantitatively measured by a thermal conductivity detector and reported as w/w percent nitrogen in the sample.

SAFETY: Each laboratory is responsible for maintaining a current file of the Occupational Safety and Health Administration (OSHA) regulations regarding the safe handling of the chemicals specified in this method. A reference file of Material Safety Data Sheets (MSDS) should be made available to all personnel involved in the chemical analysis. The preparation of a formal safety plan is also advisable.

**APPARATUS &
EQUIPMENT:**

- Leco TruSpec N analyzer
- Balance (accuracy to 0.0001 g)
- Gel Caps
- Tin Capsules
- Forceps and / or tweezers

**REAGENTS &
CHEMICALS:**

- Magnesium Oxide
- Leco Furnace
- Alumina Oxide
- Lecosorb
- Anhydrone
- Glass Wool
- Steel Wool
- Copper Sticks
- Copper Turnings

- EDTA Analytical Standard grade
- Sucrose NF grade or equivalent
- N-Catalyst
- UHP Oxygen
- UHP Helium
- Breathable Air

STANDARDS

- EDTA
- Ammonia Nitrate (35%)

SAMPLE**HANDLING:**

INSTRUMENT PREP: Follow Leco Instrument Manual for safe operation of the instrument

Note: The instrument has to be acclimatized every day before first attempting to analyze samples

SAMPLE**PREPARATION:**

1. Samples, blanks and standards are weighed into open gel caps, with the exception of liquid samples which are weighed into tin capsules
2. Tare capsules and weigh samples from .05g to .15g into capsules

NOTE: All deficient fertilizer samples should have sucrose added in a ratio of 4:1 (w/w)

3. Use forceps or tweezers to handle capsules, then the open tops of tin capsules are crimped closed.

SAMPLE**ANALYSIS:**

See: Tru Spec N Manual

QA/QC:**CALCULATIONS:**

See TruSpecN Manual

