

SOP No: SOP-DRY-002	SOP Description: EMC Chamber Drying
Effective Date:	Version: 1
Author: Sarah Lanning	Replaces Version:
Approval:	Approved Date:

### **SOP-DRY-002: EMC Chamber Drying**

Scope:

This procedure describes a technique used to dry research-scale rough rice samples to a specified moisture content (MC) of approximately 12.5%.

Principle:

Equilibrium Moisture Content (EMC) is defined as the moisture content at which a hygroscopic material, such as rice, is at moisture equilibrium with its environment. The EMC principle is used in the rice industry as a means of determining the appropriate drying and storage conditions (temperature and relative humidity) required for a rice sample to reach and maintain a specified moisture content. The rice industry generally recognizes 12-13% moisture content (% wet basis) as safe for long-term storage.

Equipment:

Parameter Generation & Control, Inc. Black Mountain, NC

Drying screens

Procedure:

1. The chamber is typically maintained at or near 21°C and 62% relative humidity, conditions which generally allow rough rice to equilibrate to approximately 12.5 ± 0.5% MC (wet basis). Verify that the program settings are correct and that the actual air temperature and water temperature corresponding to relative humidity readings are close to the set points.
2. Place an evenly dispersed thin layer of rice (approx. 3-kernel thickness) on a screened tray, measuring approximately 12.5" long by 9" wide, inside the EMC chamber.
3. Gently mix the sample on a daily basis in order to facilitate thorough and even drying.
4. To estimate the sample's MC, check a 50-kernel sub-sample of rice using the CTR-800 (reference SOP-PHYS-003: Automatic Moisture Content Determination) each day until the rough rice sample reaches approximately 12.5% on a wet-weight basis.
5. Inside the EMC chamber, package the sample in a labeled plastic storage bag or other vessel.
6. Confirm the moisture content using the Oven Moisture Content Determination method (reference SOP-PHYS-002: Moisture Content Determination by Convection Oven).

Reference:

ASAE. 1996. Moisture relationship of plant-based agricultural products (ASAE D245.5). ASAE Standards. St. Joseph, Michigan.