

SEPTEMBER 2007

Moisture Loss and Gel Soaker Pads—What Do I Do?

By Tom Coleman

Moisture loss is the loss of weight or volume after packaging. Packaged products (e.g., cookies, granulated sugar), however, may gain as well as lose moisture. The amount of loss or gain depends on many factors—the nature of the product, the packaging material, the length of time “offered for sale,” environmental conditions, and many other combinations of “similar” circumstances. Loss of weight may include solvent evaporation and natural juices—not just the loss of water.

Tare determinations can be very simple or a major concern depending on the type of tare material and the weight consistency of that substance. Unused Dry Tare (when available and applicable) may be the easiest of the tares to determine. Gel soaker pads may not be seen and tested as often, however they may prove to be equally basic. NIST Handbook 133 provides the following guideline for all tare determinations: “tare material includes all packaging materials that can be separated from the packaged product, either readily (e.g., by shaking) or by washing, scraping, ambient air drying, or other techniques involving more than ‘normal’ household recovery procedures, but not including laboratory procedures like oven drying.” Except for aerosol or other pressurized packages, open the sample packages, empty, clean, and dry the tare material as appropriate for the packaging material.

When testing packaged product using gel soaker pads, three types of tare may be used.

Used Dry Tare – Used Dry Tare is tare material that has been air dried or dried in some manner to simulate the unused tare weight. It includes all packaging materials that can be separated from the packaged product, either readily (e.g., by shaking) or by washing, scraping, ambient air drying, or other techniques involving more than “normal” household recovery procedures, but not including laboratory procedures like oven drying. Labels, wire closures, staples, prizes, decorations, and such are considered tare. Used Dry Tare is available regardless of where the packages are tested.

Unused Dry Tare – If testing packages in retail store locations where they are packaged and sold in small quantities to the ultimate consumers, the basic test procedures may be modified by using samples of the packaging material IF available in the store.

Wet Tare – If Wet Tare is used, follow the procedures described in the Used Dry Tare section above, except make no effort to dry the tare material.

The following six steps apply when gravimetrically testing any type of packaged product:

1. Identify and define the inspection lot.
2. Select the sampling plan.

3. Select the random sample.
4. Measure the net contents of the packages in the sample.
5. Evaluate compliance with the Maximum Allowable Variation (MAV) requirement.
6. Evaluate compliance with the average requirement.

If, when following these steps using either Unused Dry Tare, Used Dry Tare, or Wet Tare, the product is found to contain less than the quantity represented, or if there is a violation of the Maximum Allowable Variation (MAV) requirement, provide a copy of the test results to the appropriate store authority. Once this has been accomplished, the “field” test is complete. If upon receipt of the “official” test report the manufacturer wishes to contest the inspection results based on the “loss or gain of moisture,” official notification shall be directed to the appropriate weights and measures administrator for consideration/verification.

*** If testing flour, dry pet food or USDA packages of fresh poultry, franks, hotdogs, bacon, fresh sausage, and luncheon meats, specific instructions are provided in NIST Handbook 133, Moisture Allowances, page 17. Note: Dry pet food means all extruded dog and cat foods and baked treat products packaged in kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at the time of pack.

If you have any questions or need additional information regarding moisture loss, please contact Tom Coleman at 301-975-4868 or by email at t.coleman@nist.gov.