

Precision Calibration Weights Type I and II

Handling, Cleaning and Shipping Manual

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Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit www.ricelake.com/webinars

1.0 Introduction

This document covers the proper cleaning, handling and shipping of Type I and II Precision Calibration Weights.



Manuals can be viewed or downloaded from the Rice Lake Weighing Systems website at www.ricelake.com/manuals
Warranty information can be found on the website at www.ricelake.com/warranties

Safety Signal Definitions:



DANGER Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.



WARNING Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.



CAUTION Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.



IMPORTANT Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

General Safety



Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.



Failure to heed could result in serious injury or death.

Do not allow minors (children) or inexperienced persons to handle the weights.

Do not use for purposes other than scale calibration.

Do not use any load bearing component that is worn beyond 5% of the original dimension.

Do not use this product if cracked or damaged in any way.

Do not make alterations or modifications to the weights.

2.0 Weight Handling Procedure

Type I and II Precision Calibration Weights should never be handled, transported or packaged with bare hands. Use lifting tools, clean gloves or clean cloths when handling, transporting or packaging the weights. Clean the weights with the appropriate cleaning method should they become soiled. See Section 3.0 on page 3.

Type I and II Precision Calibration Weights must be stored in cases, cabinets or wrapped appropriately to protect them from damage and from dust and dirt in the air. The weights should rest on a suitable clean pad or block to avoid abrading the bottoms.

2.1 Weight Care

Use the following recommendations when caring for test weights.

- Keep the weights clean and in good repair.
- Ensure individual weight kits are identified with unique serial numbers.
- Handle analytical weights carefully. Misuse and dirt can cause analytical weights to go out of tolerance.

2.2 Weight Case Care

Keep the interior of the weight case clean and free of contaminants. Ensure the case is secure with working latches.

3.0 Weight Cleaning Procedure



The following guidance is based on information published in ASTM E617 and/or OIML R111 documentary standards. These instructions are provided for informational purposes only.

It is essential to clean weights before any measurements are made because the cleaning process may change the mass of the weight. Cleaning should not remove any significant amounts of weight material. Weights should be handled and stored in a such a way that they stay contamination-free. Before calibration, dust and any foreign particles shall be removed by brushing with a clean soft-bristle brush or gentle wiping with a non-abrasive lint-free wipe. Care must be taken to not change surface properties of the weight (ie: by scratching the weight).

If the weight contains significant amounts of contamination that cannot be removed by brushing with a clean soft-bristle brush or gentle wiping with a non-abrasive lint-free wipe, the weight or some part of it can be washed with clean alcohol, distilled water or other solvents. Weights with internal cavities should normally not be immersed in the solvent to avoid the possibility that the fluid will penetrate the opening. If there is a need to monitor the stability of a weight in use, the mass of the weight should, if possible, be determined before cleaning.

After weights are cleaned with solvents, they shall be stabilized for the times per ASTM E617 for classes 000-7 and OIML R111 for classes E₁, E₂, E₃ and F2-M3 shown in [Table 3-1](#).

Weight Class	000, 00, 0 and E ₁	1 and E ₂	2 and F1	3-7 and F2-M3
After cleaning with alcohol	7-10 days	3-6 days	1-2 days	1 hour
After cleaning with distilled water	4-6 days	2-3 days	1 day	1 hour

Table 3-1. Stabilization Timeline

3.1 Categories of Weights

Weights are divided into four categories for cleaning purposes.

- One piece weights (except lacquered, sheet metal or small wire weights). See Section 3.1.1.
- Screw knob weights which includes all weights with adjusting cavities (except lacquered weights). See [Section 3.1.2 on page 3](#).
- Lacquered weights. See [Section 3.1.3 on page 4](#).
- Sheet metal weights and wire weights. See [Section 3.1.4 on page 4](#).

3.1.1 One Piece Weights

Wipe one-piece weights clean with a soft, non-abrasive material, such as high-grade cheesecloth, which is free from oils or other substances that may leave a residue on the surface.

Occasionally, a weight may have foreign material adhered to it which requires the use of a solvent for removal. First, attempt to remove the foreign materials using ethyl alcohol. If this does not work, try another solvent. Once the foreign materials are removed, use ethyl alcohol to remove film or residue left by other solvents.



Do not touch the weight with bare hands.

3.1.2 Screw-Knob Weights

Wipe screw-knob weights clean with a soft, non-abrasive material, such as high-grade cheesecloth, which is free from oils or other substances that may leave a residue on the surface.

Occasionally, a weight may have foreign material adhered to it which requires the use of a solvent for removal. First, attempt to remove the foreign materials using ethyl alcohol. If this does not work, try another solvent. Once the foreign materials are removed, use ethyl alcohol to remove film or residue left by other solvents.



Do not touch the weight with bare hands.

3.1.3 Lacquered Weights

The cleaning of lacquered weights requires special care because their protective lacquer coating is soluble in most solvents.

Wipe the weight clean using a soft, non-abrasive material, such as high-grade cheesecloth, which is free from oils or other substances that may leave a residue on the surface. Brushing the weight with a soft brush, such as camel hair, can also be used to clean the weight.

A rubber bulb type syringe may be used to blow off lint or other small particles. Take care not to touch the weights with the nozzle or any other part of the rubber bulb.

An electrostatic charge may be placed on the surfaces of the weights during the cleaning process or while handling them. This can especially be troublesome in a very dry atmosphere. If reliable mass values are to be obtained, the charge must be bled off the weights before calibration.



Note *Do not touch the weight with bare hands.*

3.1.4 Sheet Metal and Small Wire Weights

Wipe sheet metal and small wire weights clean with a soft, non-abrasive material, such as high-grade cheesecloth, which is free from oils or other substances that may leave a residue on the surface.

Occasionally, a weight may have foreign material adhered to it which requires the use of a solvent for removal. First, attempt to remove the foreign materials using ethyl alcohol. If this does not work, try another solvent. Once the foreign materials are removed, use ethyl alcohol to remove film or residue left by other solvents.



Note *Do not touch the weight with bare hands.*

Cleaning Interval

Weights should be maintained in a manner that the weight is kept free from dirt and contaminants which could affect the integrity of the weights.

Weights do not need to be cleaned every time they are used. The interval between cleanings may be several months if the weights are handled carefully and kept in a clean atmosphere under a dust-tight cover when not in use. Under less favorable conditions, the interval between cleanings may be only a few weeks.

Temperature Equilibrium

Allow newly cleaned weights to come to room temperature prior to calibration. This may take several hours for large weights that have been cleaned. Generally, laboratory weights will come to temperature equilibrium overnight.

Storage

Weights are not typically placed on a balance immediately after cleaning, but rather are placed in storage. Store weights under a dust-tight cover to keep them clean. Weights weighing one gram or more may be stored on a tray lined with filter paper and covered with an inverted glass dish. Smaller weights may be stored in a small glass dish covered with a watch glass. In both cases, the container should be labeled with the weight identification. Carry the tray or dish in a level position so the weights do not slide around.

Prior to using a weight on a balance, be sure to brush off any particles that may be on it. A small bulb-type rubber syringe is useful for removing lint and other small particles. Use the bulb at a short distance from the weight to blow off particles. Ensure that neither the nozzle, nor any part of the syringe, comes in contact with the weight.

Brushes

All equipment used in cleaning and handling weights should, of course, be clean. Brushes, however, require special attention because they are easily contaminated and are often the last cleaning device used before the weights are calibrated. Use only soft brushes, such as camel hair, on the weights.

Clean the brushes using soap and water, rinse in ethyl alcohol and allow to air dry. Place the brushes in a manner that they do not touch anything else while air drying. Prior to using new brushes, they must be cleaned to remove oil or other substances that could contaminate the weights. Clean used brushes as often as necessary to ensure the brushes themselves do not contaminate the weights. Store cleaned brushes in containers that will keep them clean until needed. When handling the brushes, do not touch the bristles, as oil from the skin will contaminate them. If the brushes need to be set down, place them so the bristles do not touch anything.

4.0 Recommended Shipping Procedure for Weights

Use the following recommendations for shipping weights.

- Ship weights in cases and material designed to protect them from bumps and abrasions during shipping.
- Do not use packing peanuts as they tend to cling to the weights, creating static electricity which can compromise the lab environment.
- The following packing materials are recommended: Styrofoam (not peanuts or smaller pieces), paper (not shredded as this also conducts static electricity) or bubble wrap.
- Ensure loose, small weights are packed soundly with crumpled paper (not shredded) between each of them and the box.
- Clean room cases should be used only for weight storage and are not recommended for use in shipping weights.
- Do not ship heavy weights (10 lb or greater) in cardboard boxes.
- Larger weights should be individually wrapped and protected, supported with stiff packing material and double boxed for structural durability.
- Small weight kits should be held shut with secure latches, rubber bands or tape, and placed inside boxes or bags.



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