

Aluminum Can Recycling Machines Inspection

Last Revision: January 26, 2012

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Background:

NIST Handbook 44 does not specifically address aluminum can recycling machines, but the General Code (G-A.3.) does allow the following:

-  [NIST Handbook 44 G-A.3. Special and Unclassified Equipment](#)
-  [W69th National Conference S&T committee report, item 301-9](#)

“G-A.3. Insofar as they are clearly appropriate, the requirements and provisions of the General Code and of specific codes apply to equipment failing, by reason of special design or otherwise, to fall clearly within one of the particular equipment classes for which separate codes have been established. With respect to such equipment, code requirements and provisions shall be applied with due regard to the design, intended purpose, and conditions of use of the equipment.”

Procedure:

MARKING REQUIREMENTS:

All Marking requirements must be clearly posted and visible to the customer.

- 1) Marking requirements, general - Machines must meet the minimum manufacturers marking requirements including Manufacturer, Model, and Serial Number.
- 2) Responsible Party - Information shall include the name, address, and phone number of the local responsible party for the device.
- 3) Operating Instructions - Instructions on how to properly use the machine including type and condition of cans accepted.
- 4) Indication of quantity paid for is not required on recycling machines, but if one is present, it shall meet the following requirements:
 - a. On a weighing machine: digital weight indication with minimum scale division not to exceed .01 lb.
 - b. On counting machine: digital can count tally of at least 3 digits.
- 5) Price (payout) Declaration –
 - a. On a weighing machine: price per whole pound must be declared.
 - b. On a counting machine: price paid out per can must be declared; this must also be converted and posted to a price per pound (based on a specified number of 12 oz. cans per pound). This is to comply with Wisconsin Statutes sec. 98.06.
 - c. Price signage must be clearly and conspicuously posted on the same side of the machine as the loading chute.

6) In operation indication - Machine must be equipped with a means to indicate the completion of the transaction. This may be accomplished by either an in service indicator light (with explanatory signage) or signage indicating final payment is made within a specified time period after insertion of last can.

OTHER SPECIFICATIONS:

Return chute for items not paid for: Due to the nature of the sorting mechanism of these types of machines, occasional aluminum cans are inadvertently rejected and not paid for. The customer deserves the right to receive back those items rejected. A return or exit chute facilitates this concept.

PREPARATION FOR TEST:

- 1) Obtain sample cans that are as clean and dry as possible. Cans should not be flattened or squashed.
- 2) A minimum of three test samples shall be assembled. The number of cans and the weight of each sample must be recorded. The number of cans available determines the size of the individual samples, but the samples should be of varying quantities, e.g. 1 lb., 3 lb. & 5 lb.

TEST:

- 1) For each test sample: Feed cans into intake opening as per directions on machine and record money amount received.
- 2) For counting machines:
 - a) Calculate value of each pre-counted sample and compare money received to pre-counted value.
 - b) Compare tally count on machine to pre-counted sample.
- 3) For weighing machines:
 - a) Calculate value of each pre-weighed sample and compare money received to pre-weighed value.
 - b) Compare weight indication on machine to pre-weighed sample weight.

PERFORMANCE:

Handbook 44 Scales code T.N.3.9 specifies:

“T.N.3.9. Materials Test on Customer-Operated Bulk Weighing Systems for Recycled Materials. - The maintenance and acceptance tolerance shall be $\pm 5\%$ of the applied materials test load except that the average error on 10 or more test materials test loads shall not exceed $\pm 2.5\%$.” (Added 1986)

Due to the absence of a specific tolerance for counting machines, the percentage of error tolerance for weighing machines would be applied.

Effective Date: January 31, 2008