

DETERMINATION OF MOISTURE WITH A MOISTURE BALANCE

Application

This procedure is used to determine moisture in materials such as sand, resins, water emulsion type paints and other similar materials. Both liquids and finely pulverized solids may be tested for moisture by this method providing the materials undergo no chemical change on drying.

Apparatus Required

Moisture Balance (Drawing Attached)

The moisture balance* consists of an enclosed unit containing a torsion balance and infrared lamp for drying the sample.

Powerstat Transformer

The proper heat output must be determined for each different material and, since heat output of the lamp is controlled by varying the voltage, a transformer is required. A Powerstat* transformer which operates from 115 V, A.C., with an output continuously variable from 0 - 135 V, A.C., is required.

*Source: Central Scientific Co.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Raise the lamp housing and release the sample pan support.
2. Rotate the knurled wheel E until the 100 % line on the graduated scale is lined up with the line on the index G.

Date	Action	Revisions
2001 04 30	Revised	Editorial – no technical change A. Cockman
1992 08 13		

Printed copies are uncontrolled

Page 1 of 3

Copyright © 2001, Ford Global Technologies, Inc.

3. Move the zero adjusting knob K up or down until the pointer H is directly in line with the line on the index. If the zero adjusting knob is moved downward to its lowest position and the pointer remains above the line on the index, it will be necessary to loosen the knob by turning it one revolution counterclockwise. In this loosened position, raise the knob as high as possible, tighten, and by lowering, bring the pointer in line with the index line. Repeat procedure if necessary.

Likewise, if with the adjusting knob in its uppermost position, the pointer remains below the index line, the knob must be turned to loosen and the knob with arm moved downward to its lowest position. Tighten and raise to bring the pointer in line with the index line.

4. Loosen knob K and lower it to the bottom of the slot. This will prevent it being accidentally moved, thereby putting the instrument out of proper adjustment. With the pointer exactly in line with the index line and with the 100 % line on the scale lined up with the index line, the balance is ready for loading with a sample of the material to be tested for moisture content.
5. Rotate the knurled wheel E until the % line is in line with the index line. Now carefully distribute the material on the pans until the pointer is in line with the index line. About 5 grams of sample will be required but its exact weight need not be known.
6. Lower the lamp housing and switch on the lamp. Adjust the transformer so that the heat of the lamp is sufficient to drive off moisture but not great enough to chemically change the material.
7. As the sample begins losing moisture, the pointer will move upward. Bring the pointer back in line with the index by turning the knurled wheel. Continue the procedure until the pointer stops moving and no further change in its position is noted for an additional 1 - 3 minutes. The reading on the scale at this point is the percent of moisture in the sample.

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.