

Measurement Applications.

Standard features of the COULOSCOPE® instruments:

- 73 stored standard measurement applications for most metal coatings
- 14 stored standard measurement applications for coating thickness measurements on wires
- 2 stored standard measurement applications for STEP-Test measurements (only for instrument model CMS STEP).

If a standard measurement application is not available for your particular material combination, a special measurement application can be defined that is specifically adapted to your particular situation.

Calibration

During calibration, a correction factor (calibration factor) is determined. This correction factor may be required due to production tolerances in the cell gasket diameter, and to variations in coating material

density or alloy composition of the coating material. For STEP-Test measurements a factor can be entered.

Applications

Applications are areas of memories where measurement application specific parameters (such as standard or special measurement application, calibration factor, unit of measurement, etc.) and the measurement data are stored. Applications can be copied, edited and deleted.

Standard measurement applications and electrolytes

A total of 89 standard measurement applications are available for various applications. The following table lists a selection of possible measurement applications. For multi-coating systems, the respective coating underneath the coating to be measured is considered the substrate material.

| Coating materials | Substrate materials | Smallest measurable coating thickness in μm (μ'') | | | | | | | | | Largest measurable coating thickness μm [mils] |
|---|--------------------------------|--|---------------|---------------|-------------|-------------|-------------|-------------|------------|------------|---|
| | | 0.015 (0.6) | 0.03 (1.2) | 0.07 (2.8) | 0.15 (6) | 0.3 (12) | 0.7 (28) | 1.5 (60) | 3 (120) | 7 (280) | |
| | | Deplating rate [$\mu\text{m}/\text{min}$] | | | | | | | | | |
| | | 0.10 | 0.20 | 0.50 | 1.00 | 2.00 | 5.00 | 10.0 | 20.0 | 50.0 | |
| Ag | Fe, Ni, Al, non-metals | | | | | F4 | F4 | F4 | F4 | F4 | 50 (2) |
| | Cu | | | | F8 | F8 | F8 | | | | |
| | Cu, Ms | | | | F17 | F17 | | | F18 | F18 | |
| Cr | Fe, Ni, Al, non-metals | F1 | F1 | F1 | F1 | F1 | F1 | F1 | F1 | F1 | 50 (2) |
| | Cu, Ms | F9 | F9 | F9 | F9 | F9 | F9 | F9 | F9 | F9 | |
| Cu | Fe, Ni, Al, non-metals | | | | F4 | F4 | F4 | F4 | F4 | | 50 (2) |
| | Ms, Zn, Zn die casting | | | | | F5 | F5 | | | | 10 (0.4) |
| Ms | Fe | | F4 | F4 | F4 | F4 | F4 | F4 | F4 | | 50 (2) |
| Ni | Fe, Al, Cu, Ms, non-metals | | | | | F6 | F6 | F6 | F6 | | 50 (2) |
| Ni-Fe | Fe, Cu, Ms, Zn, Sn | | | | | | F6 | F6 | F6 | | |
| Ni electroless | Fe, Al | | | | | F7 | F7 | F7 | | | |
| Pb | Fe, Cu | | | | | | | | F4 | | 50 (2) |
| Sn | Al | | | | F1 | F1 | F1 | F1 | F1 | | 50 (2) |
| | Fe, Ni, Cu, Ms, non-metals | | | | F9 | F9 | F9 | | | | |
| Sn ₆₀ Pb ₄₀ | Fe, Ni, Al, Cu, Ms, non-metals | | | | | F12 | F12 | F12 | | | |
| Zn | Fe, Ni, Al, Cu, Ms, non-metals | | | | F4 | F4 | F4 | F4 | F4 | | 50 (2) |
| | Cu, Ms | | | | | F10 | F10 | F10 | F10 | | |
| | Fe, Ni, Al | | | | | F11 | F11 | F11 | F11 | | |
| Wire measurement overview table | | | | | | | | | | | |
| Ag | Cu wire | | | | | F8 | | | | | 4 (0.16) |
| Cu | Fe, Ni wire | | F4 | F4 | F4 | | | | | | 2 (0.08) |
| Ms | Fe wire | | | | F4 | | | | | | 2 (0.08) |
| Ni | Fe wire | | | | | F6 | F6 | | | | 10 (0.4) |
| Sn | Cu wire | | | | | F12 | F12 | | | | 10 (0.4) |
| Sn ₆₀ Pb ₄₀ | Cu wire | | | | F4 | F4 | F4 | F4 | | | 20 (0.8) |
| Zn | Fe wire | | | | | | F11 | | | | 10 (0.4) |
| STEP-Test measurement overview table | | | | | | | | | | | |
| Multiple nickel coating system as shown in the figure on page 5 | | | | | | | F22 | | F22 | | 40 (1.6) coating |

F... : Electrolyte type suitable for deplating the coating