

AMPP CIP Level 1 exam-day sheet

The rules and numbers for this exam, on one page you can print.

Film thickness

Dry from wet	$DFT = WFT \times VS \div 100$
Wet from dry	$WFT = DFT \times 100 \div VS$
Wet from dry, with thinner	$WFT = DFT \times (100 + \text{thinner } \%) \div VS$
Theoretical spreading rate	$m^2/L = 10 \times VS \% \div DFT \mu m$
Spreading rate, US units	$ft^2/US \text{ gal} = 1604 \times VS \% \div 100 \div DFT \text{ mils}$
Mixing a:b by volume	$base = total \times a \div (a + b)$
Units	$1 \text{ mil} = 25.4 \mu m \cdot ^\circ F = ^\circ C \times 9 \div 5 + 32$

Conditions

- Steel at least **3 °C above the dew point** during blasting, application and early cure (SSPC-PA 1 gives 5 °F); many specifications also cap relative humidity, often at 85 %.
- Read the steel temperature on the surface you will coat, with a contact thermometer.

Surface preparation

ISO 8501-1	SSPC / NACE
Sa 3	SSPC-SP 5 / NACE No. 1 (white metal)
Sa 2½	SSPC-SP 10 / NACE No. 2 (near-white)
Sa 2	SSPC-SP 6 / NACE No. 3 (commercial)
Sa 1	SSPC-SP 7 / NACE No. 4 (brush-off)

- Close counterparts, not identical definitions. SSPC-SP 1 solvent cleaning comes first; SP 2 and SP 3 remove only loose material; SP 11 gives bare metal with a profile.
- Profile (ASTM D4417): A comparator, B depth micrometer, C replica tape. Subtract the 2 mil (50.8 µm) film from a replica-tape reading.

Dry film thickness

- SSPC-PA 2, Level 3 (the default):** a spot is the average of 3 or more readings in a 4 cm circle; single readings are not restricted. An area is 5 spots in about 10 m². Each spot average at least 80 % of the minimum and at most 120 % of the maximum; each area average within the range.
- Verify gauges with reference standards at least at the start and end of each shift (ASTM D7091).

Tests

- Holiday testing (NACE SP0188): low-voltage wet sponge for films of 500 µm (20 mils) or less, high-voltage DC for thicker films, at the voltage the film thickness calls for. Too high a voltage damages sound film. Mark, repair and re-test every holiday.
- Compressed air (ASTM D4285): a white blotter in the air stream, after the separators, for about a minute. Any oil or water stain stops the work.

Practical exam

Eight instrument stations, up to 10 minutes each: verify the instrument, take the readings, record and judge them against the stated values.

Stop and ask

- Steel less than 3 °C above the dew point, or humidity above the specification's limit.
- Salts, dust or oil above the limits: soluble salts (ISO 8502-6 and -9), dust (ISO 8502-3), compressed air (blotter test, ASTM D4285).
- Mixed paint past its pot life, or a recoat window passed without the preparation the data sheet asks for.
- A hold point not yet released: stop until it is released. Work past an unreleased hold point, or work that does not meet the specification: record a nonconformance.