STANDARD: **ASTM B117 Testing Method Statement**

EQUIPMENT: All Ascott Corrosion Chambers

1. Scope

1.1 This methodology is to be used to perform the ASTMB117-11 test standard in an Ascott corrosion chamber.

This should be used in conjunction with the ASTM B117 standard document. The test standard takes precedence over this method statement and this method may need to be altered in order to follow/comply with the standard.

1.2 This method is based on ASTM B117 edition 2011 which consists of:

Continuous salt spray test exposure at 35C +/-2C with a salt concentration of 5% Sodium Chloride (NaCL) +/-1%.

1.3 The chamber will be loaded with test samples as required by the customer (or in accordance with ASTMB117).

2. Instrumentation

2.1 All measuring equipment must be calibrated. The recalibration renewal date must not fall within the test duration.

2.1.1 The Ascott corrosion chamber should be calibrated for chamber air temperature as a minimum.

If required, the following 'chamber' items may also be calibrated:

- Chamber air saturator temperature.
- Chamber air pressure gauge (atomiser pressure).

Ascott corrosion chambers may be fitted with a relative humidity sensor. Calibration is not required for as this is not in use during salt spray testing.

- **2.2** Peripheral devices also should be calibrated prior to use and may include the following:
 - Hand Held pH Meter is calibrated using buffer solutions and following manufacturers' instructions.

Hand Held pH Meter (Ascott Accessory No: ACC11)

Digital pH meter, for measuring the pH of salt solution fallout over range 0-14 pH with a resolution of 0.01 pH. Supplied complete with buffers for calibration.

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- Salinity Refractometer is calibrated using Refractometer calibration liquid calibration solution (3.5%).
- Conductivity meter is calibrated using standard solution, used for checking the conductivity of the water used for the salt solution.
- 2.3 The chamber temperature may be continuously monitored if required, using an independently calibrated data logger. For salt spray testing, it may be satisfactory to record the chamber temperature using the Ascott chamber display on a daily basis.

Salinty Refractometer (Ascott Accessory No: ACC100)

A salinity refractometer optimized to give a direct reading of percentage sodium chloride in the range 0 to 28%, with automatic temperature compensation.

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2.4 Exposure to Salt Solution

Collection rates are monitored manually using collection vessels of a suitable cross sectional area and capacity at sample height. The collection rates are to be within the range of range of 1-2ml/hr/80cm².

2.5 The salt solution exposure is by means of atomised salt water solution using compressed air. The air delivered to the spray nozzle must be 'heated and moistened' by passing the air through and air saturator, the temperature of the chamber air saturator is set according to the pressure at the atomiser gauge. (See ASTMB117 table for reference).



Salt Solution Preparation

CorroSalt for Salt Spray Testing (Accessory No: SALA530)

Highest purity salt for fully compliant testing. For all salt spray testing including the stringent ASTM B117. Available in 25Kg (55lb) drums or bags.



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3.1 Salt solution to be prepared in accordance with ASTM B117.

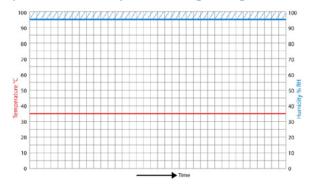
Check that the water conductivity is measured and monitored to the requirements of the standard using a conductivity meter.

Salt solution concentration is measured 8 monitored using a calibrated Salinity Refractometer.

Salt solution pH is measured & monitored using a calibrated pH Meter.

After allowing the solution to stabilise for several hours, the salinity and pH is measured and recorded. Any adjustments to the pH can be made using reagent grade hydrochloric acid (HCL) to increase the acidity, or regent grade Sodium hydroxide (NaOH) to reduce the acidity. Record all results.

Temperature & Humidity Profile during Testing



Sample Preparation

Samples are prepared to customer requirements. 4.1 Photographs should be taken of each sample prior to starting the test.

Operation

Pre-test evaluation.

Run a 24 hour cycle of the test with the chamber empty and collection funnels positioned, record the temperature and ensure it remains in tolerance of 35C+/-2C.

Ensure the salt fog collection rates are within the expected range of 1-2ml/hr/80cm2. Record all results.

Check that the collected solution pH falls within the requirement of the standard. Record all results.

If required, adjust the pH of the salt solution within the solution reservoir in order to offset any change to the pH when collected; so that the collected, the solution is within requirements of the standard.

This may require additional testing to prove results before testing with samples commences.

5.2 Starting the test cycle

5.2.1 Test Exposure Conditions.

- Position samples within the chamber in accordance of the test standard.
- Ensure that no samples 'touch' or 'shadow' other samples and that droplets from one sample cannot fall on to other samples.
- Start the test cycle and record test parameters at start.
- Spray continuously with atomised salt water at a constant chamber temperature of +35C.
- Exceptions to continuous testing are permitted in order to record fallout collection rates and PH of collected solution daily. Typically, this would be at the same time daily and omitted at weekends.
- Insert clean and empty salt spray collection vessels around the samples, preferably at sample height inside the chamber, and never underneath samples or anything else that could drip into them from above.
- Photographs may be taken of the samples at customer specified intervals throughout the test.



5.3 **Quality Control**

- 5.3.1 Daily checks to ensure the standard is being followed with variable parameters within limits -Record all parameters.
 - Check that the chamber temperature is within acceptable limits.
 - Check that air saturator temperature is within acceptable limits.
 - Check that atomiser air pressure is within acceptable limits.
 - Check that collected solution is within acceptable limits for fallout rates.
 - Check the reservoir salt solution is within 5.0% +/-1.0% NaCl.
 - Record the reservoir salt solution pH.
 - Check that collected salt solution pH is within acceptable limits.
 - Record the conductivity of the DI water when
 - Monitor the level of salt solution in the reservoir. and ensure that there is enough for the next 24/48 hours. (Allow extra for weekends).

5.4 After Exposure

5.4.1 The test samples should be rinsed with deionised water and carefully dried. Exact method determined by customer.

Photographs of the samples should be taken.

5.5 Deviation Handling

5.5.1 General deviations such as downtime, out of tolerance recordings should be noted in the test report, including details of any alterations made.

For futher information, please contact us.

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Typical Daily Checks

Hours	Chamber Temp °C	Air Sat Temp °C	Collected ml/hr (2 vessels per atomiser)		Collected Solution	Reservoir Salinity	Pump Speed	Atomiser Air Pressure	Initials	Photos Taken
			1	2	рH	%		PSI		



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