

STANDARD: **ISO 7253:2001**EQUIPMENT: **All Ascott Cyclic Corrosion Chambers****1. Scope**

1.1 This methodology is to be used to perform the ISO 7253 :2001 Salt Spray test standard in an Ascott corrosion chamber.

This should be used in conjunction with the ISO 7253 :2001 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 ISO 7253 :2001 which consists of:

- Continuous salt spray test exposure at 35°C +/-2°C with a salt concentration of 50 (+/-5) g/L

1.3 The chamber will be loaded with test samples as required by the customer (or in accordance ISO 7253 :2001).

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).

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. The first solution pH 4.01 and second solution pH 7.01. Tolerance acceptable is +/- 0.01.

Once completed the electrode is rinsed using Electrode Rinse solution. The buffer solution is certified to NIST Standard Reference material.

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%).

Salinity 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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- **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 and relative humidity may be continuously monitored if required, using an independently calibrated data logger or Ascott's logging software (ACC120).

2.4 Exposure to Salt Solution

Collection rates are monitored manually using collection vessels placed 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 atomisation using compressed air. The air delivered to the spray nozzle must be 'heated and moistened' by passing the air through an air saturator, the temperature of the chamber air saturator is set 'several degrees' above that of the chamber (eg. 45°C).

3. 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 ISO 7253:2001.
- Check that the water conductivity is measured and monitored and is within the requirements of the standard using a conductivity meter.
 - Salt solution concentration is measured & monitored and is within the requirements of the standard using a calibrated Salinity Refractometer.
 - Salt solution pH is measured & monitored and is within the requirements of the standard (pH 6.0 - 7.0) 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 reagent grade Sodium hydroxide (NaOH) to reduce the acidity. Record all results.

4. Sample Preparation

- 4.1** Samples are prepared to customer requirements.
- Latex gloves must be worn at all times when handling samples.
- Photographs should be taken of each sample prior to starting the test.

5. Operation

5.1 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 35°C+/-2°C.
- 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 (pH 6.5 - 7.2). Record all results.
- If required, adjust the pH of the salt solution within the solution reservoir 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 or as agreed with the customer.
- Set the chamber air saturator temperature to be 'several degrees' above that of the chamber (eg 45°C).
- Ensure that no samples 'shadow' other samples and that droplets from one sample cannot fall onto other samples.
- Start the test cycle and record test parameters at start.
- Insert clean and empty salt spray collection vessels around the samples within the chamber, preferably at sample height, and never underneath samples or anything else that may drip into them from above.
- Spray continuously with atomised salt solution at a constant chamber temperature of 35°C+/-2°C.

- Exceptions to continuous testing are permitted to record fallout collection rates and PH of collected solution, to allow samples to be inspected, re-arranged, removed or for checking of the atomiser(s). This should be for no more than 30 minutes per 24 hours. Typically, this would be at the same time daily and omitted at weekends.
- Photographs to be taken prior to starting the test and at customer specified times.

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 50 (+/-5) g/L 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 used.
- 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 handling of the tested specimens varies depending upon their material. Refer to the test standard and agree the correct procedure with the 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 further 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 pH	Reservoir Salinity %	Pump Speed	Atomiser Air Pressure PSI	Initials	Photos Taken
			1	2						