

# SALT SPRAY TESTING

## Effect of Salt Spray Testing on Terminals

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### Introduction

This paper describes the effect of salt spray testing on the appearance and performance of terminals. Despite discoloration, which is inevitable for copper tin plated parts following salt spray testing, all parts meet the required electrical performance of UL310 and the TE performance specification following a 96-hour duration salt spray test. The typical duration of salt spray testing is 48 hours for appliance applications.

### Salt Spray Test Procedure

Salt Concentration: 5%

Temperature: 35°C

Duration: 96 hours

Following the 96-hour salt spray exposure, rinse the samples in water and let dry for one hour at room temperature before measuring the low-level termination resistance. Perform temperature rise testing following the low-level termination resistance measurement, if required.

Representative images following salt spray testing are seen in Figure 1, Figure 2, and Figure 3.



Figure 1: Pre-Tin Brass Terminals



Figure 2: Post-Tin Brass Terminals

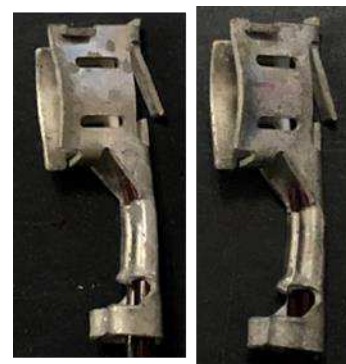


Figure 3: Tin Plated Phosphor-Bronze Terminals

### Test Results

Following salt spray testing, terminals are discolored but their electrical performance continues to meet the requirements of UL310 and the TE performance specification. See Figure 4 and Figure 5.

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	Pre-Tin Brass (Representative PN: 175022-8)	Post-Tin Brass (Representative PN: 41802-4)	Tin Plated Phosphor Bronze (Representative PN: 353937-1)
Maximum	0.68 mΩ	0.42 mΩ	0.38 mΩ
Minimum	0.51 mΩ	0.32 mΩ	0.22 mΩ
Average	0.59 mΩ	0.36 mΩ	0.29 mΩ
Requirement	6 mΩ (maximum)	6 mΩ (maximum)	6 mΩ (maximum)
Conclusion	Meets specification	Meets specification	Meets specification

Figure 4: Low Level Contact Resistance Measurements

	Pre-Tin Brass (Representative PN: 175022-8)	Post-Tin Brass (Representative PN: 41802-4)	Tin Plated Phosphor Bronze (Representative PN: 353937-1)
Maximum	16.6°C	14.2°C	13.3°C
Minimum	13.1°C	11.3°C	10.8°C
Average	15.1°C	13.1°C	11.9°C
Requirement	30°C (maximum)	30°C (maximum)	30°C (maximum)
Conclusion	Meets specification	Meets specification	Meets specification

Figure 5: Temperature Rise Measurements

### Conclusion

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Revision A