Accelerated
CORROSION

CORROSION • DURABILITY • RELIABILITY • REPEATABILITY

- Accelerated Corrosion 1 year in 2 weeks
- Controlled repeatable testing
- Elevated temperature & variable humidity chamber
- Varying special surfaces, gradients & facilities

Millbrook Proving Ground accelerated corrosion testing simulates the effects of corrosion that are experienced by a vehicle during its 'in-service' life, including the very corrosive environments of the North East and South East areas of North America.

Correlation between test and 'in-service' life has been achieved by monitoring deterioration and corrosion exposure of vehicles in normal service, and tailoring the procedures to reproduce these parameters with a much reduced elapsed time, providing an acceleration ratio for cosmetic corrosion of 26:1.

Corrosion exposure is monitored by fitting steel coupons to the vehicles, which are removed and processed after a predetermined time interval. In-test control is achieved by varying the number of times the vehicle is subjected to elevated temperatures and humidity conditions.

Testing consists of driving periods when the vehicle encounters gravel, salt, mud and rough surfaces, exposure to elevated temperature and humidity, and drying time. The humidity chamber is maintained at 49ºC and 100% relative humidity during use.

Cosmetic, functional and perforation corrosion performance of each component and area on the vehicle is assessed, and paint system performance is also monitored. However, the perforation corrosion mechanism cannot be accelerated to the same degree as the cosmetic corrosion. Therefore knowledge of the test, experience, and the end of test condition at vehicle tear-down, enable potential perforation areas to be predicted.

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Technical SPECIFICATIONS

Combined Corrosion and Durability Testing

Because of the control given to the test by the corrosion coupons, it is possible to combine the corrosion test with durability to create a composite test. This increases the length of the durability test, normally extending it by approximately 3 weeks, and the number of years the composite test can simulate is dictated by the original length of the durability test.

Corrosion Test Facilities

- High temperature, high humidity chamber 12m x 3.5m high (39' x 23' x 11'6") will maintain 49ºC and 100% RH.
- Cold Garage parking facility.
- Salt spray and splash trough with controlled brine concentration.
- Grit and Mud troughs to provide poultice accumulation.
- Gravel Road to provide stone damage.
- Corrosion acceleration process monitored by coupon evaluation.
- Highly trained inspection and reporting team with full photographic support.
- Digital photographs and reports available if required.
- Salt spray corrosion chamber (1000 litre capacity): Laboratory Test

Millbrook OVERVIEW

Millbrook is one of Europe's leading locations for the development and demonstration of every type of land vehicle, from motorcycles and passenger cars to heavy commercial, military and off-road vehicles. Located at the geographical centre of the UK automotive and fuels industry and situated centrally in the strategic Oxford to Cambridge Arc just 65 kilometres to the north of London, our custom-built facility provides virtually every test, validation and homologation service necessary for today's demanding programmes, complemented by a worldwide reputation for confidentiality, service and competitiveness.

Although significant work has been done commercially on behalf of many research organisations, Millbrook has always focused on real world applications and understand the constraints, limitations and budgetary controls that affect our customers. Our staff have experience and expertise from backgrounds in test work within vehicle manufacturers' engineering departments, so they know what their customers expect from a test. Putting working relationships first, and seeing things from the customer's point of view, means Millbrook's support will survive the test of time.

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