

Accelerated UV Exposure



WE KNOW POLYMERS - WE KNOW TESTING

We can assist companies with ageing, degradation and lifetime prediction studies of polymer material or products helping to reduce the risk of premature failure in service over the course of its intended use. The residual lifetime prediction service also helps asset managers in planning for replacement of components of critical infrastructure such as containment liners or pipework.

There are a number of factors which influence the life span of a polymer product, component or material, which is why many companies choose to outsource this to ExcelPlas. Over the years, ExcelPlas has developed a reliable testing portfolio to enable us to make accurate life predictions for a range of industrial plastic and rubber materials.

Accelerated Ageing of Rubbers and Plastics

Accelerated ageing can be a highly effective method of predicting lifetime performance, however due to the complicated nature of polymer and elastomer behaviour it requires expert guidance in order to achieve reliable data and not subject the samples to unrealistic acceleration that may change the degradation mechanism.

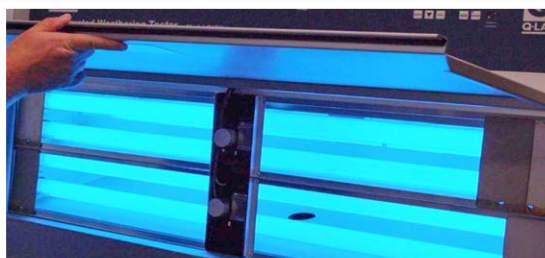
If accelerated ageing is feasible for your product, component or material then our experts can advise on the appropriate accelerated testing strategy required. Our in-house testing facilities are equipped for heat, UV light, ozone and fatigue accelerated testing. We have Accelerated Weathering chambers that simulate UV exposure and condensation (rain) cycles.

Accelerated Weathering Testing

Accelerated weathering is a laboratory technique for short-term reproduction of the damage that sunlight and moisture cause to outdoor exposed materials in the longer term (months or years).

Types of damage include:

- Color change
- Gloss loss
- Chalking
- Cracking
- Crazeing
- Blistering
- Embrittlement
- Oxidation



To simulate outdoor weathering, an accelerated weathering tester exposes materials to alternating cycles of UV light and moisture at controlled, elevated temperatures. It simulates the effects of sunlight using special fluorescent UV lamps and the effects of dew with condensing humidity.

ExcelPlas are equipped with QUV Accelerated Weathering Testers. These units use UVA-340 lamps, which simulate sunlight in the critical short wavelength region from 365 nm down to the solar cut-off of 295 nm. The QUV/se test chamber's condensation system simulates rain & dew and accelerates its effect using elevated temperature. The QUV weathering units comply with a wide range of international, national, and industry specifications, ensuring the reliability and reproducibility of accelerated testing programs.

Typical applications of the QUV/se Accelerated Weathering Tester are the evaluation of the weather resistance of the following materials and products:

- Geosynthetics (liners & geotextiles)
- Protective coating systems for offshore and related structures
- Paints for buildings
- Roofing materials
- Decking materials
- Automotive materials
- Adhesives and sealants
- Mastics



We also offer a comprehensive range of physical and chemical testing studies to support any medical or pharmaceutical plastics evaluation:

- Chemical analysis; FTIR-ATR spectroscopy, surface analysis, MFR, MW (SV), TMA, DSC, TGA
- Material testing; hardness, impact strength, tensile strength and modulus, tear strength, elongation
- Packaging integrity tests such as irradiation sterilization testing

Accelerated Testing Methods

Environmental exposure, including weathering, chemical exposure and accelerated ageing testing for polymers and composites.

Accelerated Weathering by QUV - ASTM D4329, ASTM D 4587, ASTM D7238, ISO 4892

Elevated temperature testing on properties of plastics by deterioration - ASTM D-5721

Chemical resistance testing for polymers and plastics ASTM D543

Effects of Liquids on Elastomers ASTM D471

Environmental Stress Cracking Resistance ESCR test - ASTM D5397

contact: www.excelplas.com

<http://www.uvtesting.com.au/>



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