

Long Term Corrosion Test

Two nominally identical assemblies were made up to carry out a long term corrosion test. Each test cell consisted of a strip of H22 1.6mm thick aluminium and a second strip of 1mm C101 copper. The strip sizes were approximately 25mm by 100mm (1" by 4"). Two M6 clearance holes were drilled and then the two strips were held together with two bolts sets. One hole secured the two plates and used a brass bolt with a brass nut with a zinc plated steel washers under the bolt head and the nut. The other side with a stainless steel bolt with a zinc plated steel nut with zinc plated steel washer under the nut on the aluminium side. This combination of metals is far from ideal and was chosen to be so.

One subassembly was placed in a 50% tap water and 50% Halfords Advanced 5 year Anti-Freeze Batch Code NOV32309. The other was placed in a 100% Tap water. The quantity of liquid in each case was about 300mL and the test cells were full submerged and the containers were sealed to prevent dust ingress though they could breath. They were left in a "normal" (SE England UK) garage environment where the temperature ranged for 0°C up to around 30°C. the test was started in 22nd February 2010 and ended on 26th July 2013. This gave a total of virtually 30000 hours.

The test cells and their contents were tipped out into 500mL Pyrex beakers and the photos below show the results.



First impressions –not good! Tip out the parts and have a look.

