



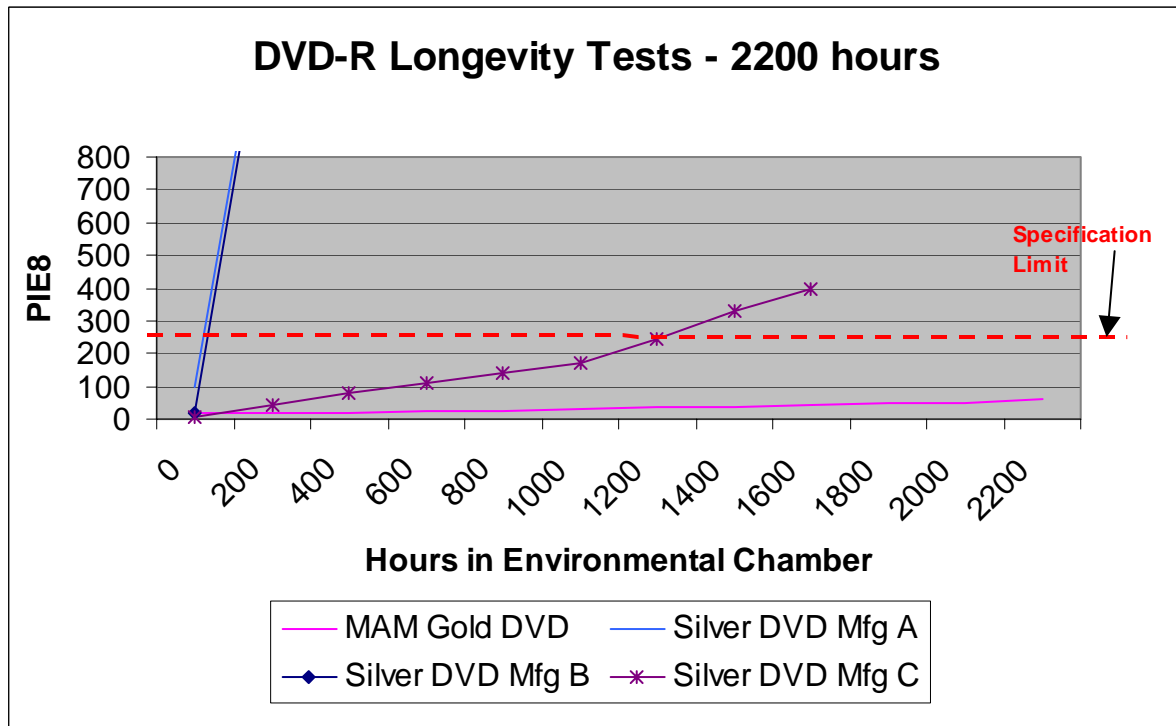
MAM Archive Grade Gold DVD Longevity

January 2006 Update

The MAM Gold Archive Grade™ DVD is designed for applications requiring long-term storage of sensitive data, video or music files. The product uses 24 karat gold as the reflective layer, offering maximum resistance to chemical breakdown -- one of the major causes of disc failure. Preliminary tests show that the MAM Gold Archive Grade™ DVD lasts significantly longer than ordinary silver recordable DVD discs. **The chart below shows 2 silver DVDs that have failed in less than 500 hours and another silver DVD that did much better, but the MAM gold DVD still has error rates well below the upper limit of 280. At this pace, we are expecting a lifetime of over 100 years.**

The MAM Archive Grade™ Gold DVD is offered as the long awaited companion to the MAM Archive Grade™ Gold CD-R which has an expected lifetime of 300 years and has earned a reputation as the highest quality storage media available today.

January, 2006





The Difference is Innovation

Longevity Test Procedures

MAM longevity tests are conducted according to ISO 18927-2002 guidelines titled:

"Imaging materials -- Recordable compact disc systems-- Method for estimating the life expectancy based on effects of temperature and relative humidity"

In general, the test consists of placing samples in an environmental chamber at specified temperature and humidity levels for 5 different "stress conditions".

A stress condition is defined by, for example, 2000 hours (in 500 hour segments) at 85% relative humidity and 80 centigrade. Temperature and humidity "Incubation" periods are reached gradually with the use of ramp times. (This is done to avoid a shock condition where bubbles can form in the media due to rapid transition).

The 5 stress conditions are defined as follows:

Test Cell number	Test Stress	Number of samples	Incubation period (hours)	Minimum Total Time (hours)	Min Equilibration duration (hours)
1	80C, 85% RH	10	500	2000	6
2	80C, 70% RH	10	500	2000	5
3	80C, 55% RH	10	500	2000	4
4	70C, 85% RH	15	750	3000	8
5	60C, 85% RH	30	1000	4000	11

(Equilibration is the time spent at ambient humidity before removal from chamber)

Before beginning the test and after each incubation period the discs are tested for error rates. Max BLER for CD-R and Max PIE8 for DVD-R. Failure is defined by error rates that exceed Orange Book standards (defined by Sony/Philips) or DVD-R specifications (defined by the DVD Forum).

Due to the length of the test, results from only Test Cell number 1 are sometimes used: 80C / 85% RH.

Life expectancy is estimated according to ISO guidelines based on the use of the Eyring model which is a mathematical equation derived from thermodynamic laws.