Digital can't beat hard copy
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DIGITAL media can't compete with archival-quality paper when it comes to long-term storage of images. That's the common finding of many researchers across the globe, despite the promise from many manufacturers that media such as CD and DVD will last up to 100 years.

Anyone who reaches for their grandmother's photo album will notice some deterioration in the quality of the black-and-white prints inside, but faces in photos printed on ordinary developer's paper in 1942 are still easily recognisable.

Unfortunately, the same cannot be said of pictures on a CDR purchased in 2002.

Dutch researchers at PC-Active magazine tested a wide range of CDRs from different manufacturers and found many discs became unreadable in less than two years.

The research blamed the manufacturing process and a deterioration of the layer of the disc designed to stop the read surface corroding.

A similar problem affects DVDs, although recent advances in manufacturing processes mean the problem is less severe.

CD and DVD enthusiasts at www.cdfreaks.com have conducted tests on their own discs, and some have found that their older DVD-Rs and DVD-RWs are becoming prone to error.

Theories on the problem include damage caused by exposure to UV light and to the acid on human skin.

Flash memory, used as the equivalent of film in digital cameras, is not suitable for archiving, according to major memory manufacturer Samsung. The technology relies on an electric charge to preserve data, and the charge will dissipate over time.

Samsung says two major flash formats — multi-level cell and single-level cell — have a limited number of re-uses for each cell of memory. MLC flash is not guaranteed to last more than 10,000 read/write operations, and SLC flash lasts 100,000.

In practical terms, this means any device that depends on flash memory, such as a mobile phone or MP3 player, is unlikely to work for much longer than 10 years.

Hard drives are among the least reliable of digital formats because they are prone to failure due to their complex mechanics.

According to research by the Carnegie Mellon University in the US, the average computer hard drive has a life expectancy of just 600,000 hours, or 3.1 years, and that's not counting loss of data because of viruses, Windows updates and user error.

The only truly reliable way to store pictures is printed on archival-quality paper. Paper from major manufacturers such as Epson and Kodak is guaranteed to last 100 years, and is specially formulated to prevent fading and deterioration if stored properly.

Even paper is vulnerable to fire, water, and pests such as termites and silverfish, however.

Photo.net contributor Alejandro Bolivar says there's only one sure-fire way to preserve your images for all time,

"Take them on 35mm slide film, order two copies of each, wash them carefully to remove residual acids, scan them at the highest possible resolution in TIFF format and then take one set of slides and the CD and bury them in a vacuum-sealed box in your garden," he says.

Bolivar's colleague, Tom Benedict, says an alternative is to copy your images from their current digital archive to the newest digital technology at least once every five years.