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Beware the Fading Dye: Writeable CDs, DVDs Vary a Lot in Quality

Writeable CDs and DVDs, now being used millions of times a day to store everything from corporate tax returns to Little League pictures, may seem like one of the little wonders of the digital age. This little wonder, though, has a big problem: No one really knows how long the discs will last.

Fortunately, a mild-mannered civil servant at a small federal agency is stepping forward to meet the challenge. His name is Fred Byers, and while his official title is technical staff member at the National Institute of Standards and Technology, he could well be called Dr. Disc.

Mr. Byers is the federal government's go-to person on the care and handling of CDs and DVDs. Last year he wrote a comprehensive guide to the topic, an issue that is of no small importance to any number of federal agencies, starting with the Library of Congress and the IRS. Do a Web search on "Byers CD care guide," and it comes up right away.

Mr. Byers's current project, for which computer owners everywhere should shower him with thanks, involves creating a kind of Good Housekeeping seal of approval for discs.

It's a pretty simple idea. Mr. Byers's agency would help develop a suite of tests to determine a disc's longevity. Then companies whose products pass the test would be able to put a sticker on their label saying, for instance, "Tested to last 50 years." Mr. Byers was in San Francisco last week, pitching the proposal to an industry gathering, and the reaction was largely favorable.

The effort is necessary because, while many writeable CDs and DVDs, if properly cared for, probably will last for many decades, there is no way of being sure of that when you buy them.

The effort by Mr. Byers is evidence that the world is realizing there can be ephemera in a digital age, too. Coffee shops in 18th century Europe were strewn with pamphlets and newspapers; too bad no one made a concerted effort to keep a few at the end of the day as they swept up. Just because something is everywhere one year doesn't mean it will be anywhere a few years hence.

Most recordable media are made in Taiwan and then rebranded for sale in the U.S. But the Acme Brand disc you buy one month may be different from the one you buy a few weeks later. Acme might have switched disc suppliers in the interim, or the supplier might have made a change in its production methods. Unfortunately, quality is all over the map.

Writeable CDs and DVDs are different than the prerecorded types you get with music and movies. The latter have physical indentions -- little pits -- that represent digital bits of information. While there were some well-publicized quality-control problems in the early days of CDs, these days, the prerecorded discs tend to be stable and reasonably permanent.

The CDs and DVDs you record on at home, though, work on an altogether different system, one that is much more susceptible to age-related decay. These discs are coated with a layer of dye, and a laser burns the requisite pattern of bits into it. That dye can fade with time, especially if the disc is kept in bright sunlight.

The best way to test a disc is to carefully store it on a shelf and then check back in a century. Mr. Byers's group has come up with a way to simulate the process in the course of a few weeks. The disc is put in a refrigerator-size torture chamber, where it is subjected to unusually high temperature and humidity. How well the disc survives the rigors of the testing chamber is a good indication of how well it will respond to the ravages of time.

The companies with a special interest in the testing process are high-end disc makers that sell into corporate or archival markets and are eager to differentiate themselves from low-cost suppliers popular with, say, teenagers mixing music for a weekend party.

Joe Weisenbach is enthusiastic about Mr. Byers's tests. His company's CDs are the gold standard, literally, employing a thin layer of 24-karat gold to reflect laser light rather than the silver that is used in lower-end discs. It isn't an affectation, either. Gold, Mr. Weisenbach explains, doesn't react with air or water.

It will take a year or so for disc testing to get under way. Until then, alas, it's hard to get a straight answer out of the experts about which brand to buy. Mr. Byers, as impartial federal employee, can't go near the topic; Jerry Hartke, whose Media Sciences Inc. is a leading disctesting operation, says things change too fast to make any recommendation meaningful.

Mr. Hartke does say that if it's possible to record to a disc properly the first time, it's likely to last for many years if properly stored. (Slower recording speeds help with this, he adds.) For those concerned about the quality of their digital collections, Mr. Hartke's company, whose Web site is www.mscience.com, will test CDs (not DVDs) free of charge. Just include return postage.
