From Preservation Guide

Main: Preservation Guide - Compendium of Technical Information

(much to do here)

Compendium of Technical Information
- CD and DVD   - Equipment   - Terminology   - Tips and Tools

Data Rates and Quality Levels for Digital Video

Compression Type	Datarate, Mb/s	Quality	Comment
No compression	270	Master	Rec 601, standard def TV
Lossless JPEG2000	Approx 90	Master	Rec 601, standard def TV
MPEG-1	1.2 typ	VHS	Wide internet use
MPEG-2	5 typ	DVD	Used on DVD and digital TV broadcasting (DVB)
MPEG-4	0.5 typ	VHS	Will replace earlier MPEGs
MPEG-4 AVC	8 typ	HDTV	Will be used on HD DVDs, and possibly on HD TV
DVX	0.5 typ	Near VHS	Wide internet use
Digibeta	80	Near Master	Nearly full quality
DV, DVCAM	25	"Pro-sumer"	Pictures near digibeta quality, quality suffers on repeated decode-encode
DVC-PRO	50	Near Master	Pictures near digibeta quality, quality suffers on repeated decode-encode

Mb/s = megabits per second; typical broadband internet connections are 1 Mb/s (mid 2006) but increasing rapidly.
Typ: these coding methods cover a range of datarates; the values given are typical.

CDs and DVDs: How to use them, and why not to use them
- basics
- properties
- archive format
- suppliers
- do's and dont's

Use of writeable CDs and DVDs (for archive purposes) is NOT recommended by IASA (TC-04: **http://www.iasa-web.org/tc04/audio-preservation**), though they are cost-effective and useful for access copies. CDs and DVDs can be written in a secure fashion, but it is difficult: the media have to be high quality (how do you check that? The BBC has a £2000 checker, and buys in large batches to a set specification). The media have to match the CD / DVD writer, and the writing parameters have to be optimised for the media. Then each newly-burned CD must be immediately checked for readback. Finally for any large collection there should be sample testing every six months, to spot degradation.

There are more problems: CDs and DVDs are easily damaged (scratched), and many types can easily be damaged by pollution and especially by ultraviolet light. So any master material on CD or DVD has to be

protected, just like master film or tape materials.

But if you are going to use these optical media, then CDs and DVDs with a gold reflective layer are best, especially those with the very stable phthalocyanine dye (which seems only to be available on CDs).

Companies that produce gold reflective layer, phthalocyanine CDs include:
MAM-A http://www.mam-a.com/products/gold/index.html
Delkin Archival Gold http://www.delkin.com/products/archivalgold
HHB CDR74Gold http://www.hhb.co.uk/hhb/uk/hhbproducts/media/detail.asp?ID=1464 (the description does not specifically say the reflective layer is gold)
Memorex Pro Gold http://www.memorex.com/products/product_details.php?PID=1051

and gold DVDs are available from:
MAM-A http://www.mam-a.com/products/dvd/Gold%20DVD/DVDR%20Gold.htm
Delkin Archival Gold http://www.delkin.com/products/archivalgold
Verbatim Gold DVD http://www.verbatim-europe.co.uk/en_1/product_dvd-r-archival-grade_41.html

Useful information is here:
http://en.wikipedia.org/wiki/CD-R
http://www.tasi.ac.uk/advice/delivering/cdr-dvdr.html
http://www.nla.gov.au/padi/topics/53.html
http://www.cdmediaworld.com/hardware/cdrom/cd_dye.shtml
http://www.cdmediaworld.com

Articles:
- Risks associated with the Use of Recordable Cds and Dvds as Reliable storage Media in Archival Collections - Strategies and Alternatives - By Kevin Bradley, National Library of Australia, Canberra http://unesdoc.unesco.org/images/0014/001477/147782E.pdf
- Care and Handling CDs and DVDs : a Guide for Librarians and Archivists; Byers, Fred R. (Date Created: May 2003) http://www.itl.nist.gov/div895/carefordisc/index.html
- Longevity of CD Media Chandru; J. Shahani, Basil Manns and Michele Youket; Library of Congress, Washington DC, USA http://www.loc.gov/preserv/studyofCDlongevity.pdf

Standard for a test method for determining the estimated lifetime of optical media:
Information technology — Digitally recorded media for information interchange and storage — Test method for the estimation of the archival lifetime of optical media

an ISO/IEC Standard 10995 which was published on 4/15/2008 http://www.iso.org/iso/catalogue_detail?csnumber=46554

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Equipment

July 2013: Film Scanners (from AMIA posting 17 July 2013 by David Pfluger)

Some of the most important models in no particuar order:
- Oxberry Cinescan (www.oxberry.com)
- Kinetta Scanner (www.kinetta.com)
- Arri Scan (www.arri.com/digital_intermediate_systems/arriscan.html)
- Cintel (www.cintel.co.uk)
- DFT Scanity (www.dft-film.com/scanners/scanity.php)
- Filmlight Northlight (http://www.filmlight.ltd.uk/products/northlight/overview_nl.php)
- Digital Vision Golden Eye (www.digitalvision.tv/products/golden-eye-film-scanner/)
- MWA Nova (www.mwa-nova.com)

- Sondor Altra (www.sondor.ch/altra.html)
- Lasergraphics Director (www.lasergraphics.com/director-features.html)
- P+S Technik Steadyframe (www.pstechnik.de/en/scanner_steadyframe.php)
- Imagica Imager (www.rtico.com/news/imagica2.html)
- Spirit Datacine (www.dft-film.com/scanners/spirit_4k.php)
- Debrie Perenity (www.debrie.fr/index.php?option=com_content&task=view&id=167&Itemid=290)
- CIR D-Archiver (http://www.cir-srl.com/inspection_tables.htm)

and general information:
- www.visinst.com/Scanner.html
- www.walde.com
- www.advancedfilmcapture.com/film-scanning/

December 2007: Preservation Systems:

There is a range of PrestoSpace technology that should become commercially available in 2008, but there is already one international provider of a fully-automated **preservation factory**, the SAMMA system: here's more information: http://www.sammasystems.com

December 2006: video capture cards

The following information is not a recommendation for any particular product, and anyone with information on other equipment that should be included is welcome to add that information -- or contact richard.wright@bbc.co.uk

- Aja http://aja.com/html/products_windows_xena.html
  "The Aja Kona LH card still has analog inputs, both video and audio. The Kona 3 does not. But the K3 has a lot of functionality for HD work that would probably not be needed when archiving standard-def material. The Aja IO is also a good choice (using firewire, not a PCI card)." Eric Wenocur, **Lab Tech Systems** [eric AT lab-tech-systems.com]

- Black Magic http://www.blackmagic-design.com/products/sd/
- bluefish444 http://www.bluefish444.com/
- Digital Rapids eg http://www.digital-rapids.com/Products/IndividualProducts/DRC-Stream%20500.aspx
- DVS http://www.dvs.de/
- DVS OEM Station http://www.dvs.de/english/products/oem/sdstationoem_II_specs.html
- Grass Valley video cards see:
  http://www.thomsongrassvalley.com/products_vcn/encoders/family_enc/
- Matrox http://www.matrox.com/video/home.cfm
- Vitec http://www.vitecmm.com/

- Basics
- Setup
- Operation
- Transfers

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Terminology
Very useful preservation glossary from MIC: http://mic.imtc.gatech.edu/presglos_1.htm
   More about MIC = Moving Image Collections:

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Tips and Tools

Film

Conversion Factors and Calculators
Frames per second = FPS:
Standard for **sound films**: 24 frames per second
Silent films: no standard, but 16 and 18 frames per second are common

Converting length to time:
Metric 35mm: length in meters x 52.49 / FPS = time in seconds
(3.2808 feet per meter * 16 frames per foot)

16mm: length in meters x 131.2 / FPS = time in seconds
(3.2808 feet per meter * 40 frames per foot)

For recidivists: 35mm: length in feet x 16 / FPS = time in seconds

16mm: length in feet x 40 / FPS = time in seconds

Rules of thumb:
35mm: @24 FPS: feet/90 = time in minutes
    @16 FPS: length in feet equals time in seconds (how nice)

16mm @24 FPS: feet/36 = time in minutes

Online tools are here:
The Kodak website has a handy on-line "Film Calculator" for just about any format and frame rate:
http://www.kodak.com/US/en/motion/filmCalculator.html

Plus lots of other handy tools for the film user:
http://www.kodak.com/US/en/motion/support/index.jhtml
http://www.kodak.com/US/en/motion/support/iaTools.jhtml?id=0.1.4.3&lc=en

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