



Recommended Handling and Storage Conditions For CD-R and DVD-R media

To maintain the integrity of the disc and the data stored on the disc, please use the following handling and storage guidelines.

Precautions Before Recording

- Handle the disc only by the outer edge to prevent fingerprints and smears on the surface.
- Never touch the recording surface (unlabeled side) or set it down on a hard surface.
- Store the disc in its protective case. Proper storage helps protect the data from damage due to scratches on the disc surface.
- If dirty, clean the surface with canned air. Cleaning by wiping the surface is not recommended

General Handling Precautions After Writing

- Never use a ballpoint pen or any other sharp object to label your discs. Using a felt tip pen is the easiest and fastest way to label a CD-R. Note, however, a few caution items. Some chemical properties of the ink can actually permeate the disc surface and cause damage to either the reflective layer or dye layer below the surface. Never use a solvent-based permanent marking pen on the top surface in the data area. The absolute safest area to label your CD-R is in the clear center near the center hole (any marker can be used here). A water based, permanent marker is recommended when labeling the top surface.
- Do not attempt to erase anything that has been written on the surface of the disc.
- If you will be using any adhesive labels or stickers, some precautions should be taken: Labels must be perfectly adhered to the disc surface. Any bubbling or creasing can imbalance the disc, which can cause tracking errors or noisy spin-ups. Never attempt to remove an adhered label. This can damage the protective layer or the reflective layer causing permanent damage to the disc. In addition, as with writing pens, insure that your labels' adhesive does not contain any chemical solvents that can become absorbed into the top layer. The adhesive on some labels have been known to damage discs. Labels can also become loose with age. Adhesive labels are not recommended for discs being used for archival purposes. (see list below)
- If you need to remove dirt or fingerprints from the read side of the disc, please follow these guidelines:
Use a CD-cleaner cloth if available and wipe the disc from the inside to the outside, perpendicular to the tracks. (Lens cleaning cloths work well, or a clean cotton cloth. The cloth should be a “non-wood product” i.e. not a facial tissue or paper towel). Do not wipe in a circular motion around the disc, as this may scratch the disc **ALONG** the track if dirt is on the cloth. (Scratches **ACROSS** the disc are easier to correct than ones that follow the track) Commercially available CD cleaning liquid, ethyl or isopropyl alcohol, clear or soapy water can also be used. Do not use gasoline, kerosene, benzene, acetone, lacquer thinner, anti-static agents, or LP record cleaners as they may damage the recording surface.



Environmental Conditions

Recommended Storage conditions are as follows :

Temperature Range: 5C to 30C
Absolute Humidity: 1 to 20 grams/cubic meter
Relative Humidity: 8% to 50% *dew should be avoided

For archiving: Discs should be stored vertically in a protective case. (A standard jewel case is adequate. In jewel cases, the disc is suspended by the center hole and isolates the written area [read side] from contacting any surface, It also offers some protection against rapid temperature changes).
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Tests to confirm the ability to survive these requirements are defined in the Orange Book, in attachment B4, and are the responsibility of the manufacturer.

For storage and transport of discs before and after recording, the following climatic tests are used to simulate conditions:

Dry Heat Test according to IEC 68-2-2 Ba:	Temperature: 55C
Relative Humidity: Max 50% at 35C	Storage Time: 96 Hrs.

Cyclic Damp Heat Test according to IEC 68-2-30 Db:	Temperature: 40C Max
Temperature: 25C Min	Cycles: 6
Relative Humidity: 95%	Cycle Time: 12 + 12 Hrs.

Quick list for Archiving:

- Use gold CD-R or DVD-R media for the best longevity
- Never touch the recording side
- Do not use adhesive labels
- Store vertically in a protective case
- Protective cases should be rigid and contact the disc at the center hub only
- Store in room temperature at moderate humidity (below 50%)
- For labeling, use a water based permanent, felt tipped marker for writing on the top (write area) of the disc, or mark in clear center hub with any marker or ideally, write only on protective case
- Do not subject CDs to rapid changes in temperature or humidity
- Protect from light
- Never flex a recordable disc
- Store 1 copy offsite if possible.

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