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PRODUCT OVERVIEW

TASCAM's computer CD-R bundles include everything you need to start recording and mastering CDs on you computer. Both bundles include the software and hardware for Windows™ 95/98 and Macintosh™ platforms, and are based around our highly acclaimed TEAC CD-R mechanisms. The Deluxe version was designed to provide a cost conscious package for the musician on a budget, while still offering a truly powerful and up-to-date suite of software that will not leave the user wanting for more. The Pro bundle was designed to offer the most complete package we could muster with all the bells and whistles, and was created for higher end home users and project studios.

CD-R Deluxe Offers:
- High Performance External TEAC 6x24 CD-R Drive
- Dual Platform Adaptec SCSI Card (2903B)
- Dual Platform Software CDs Work on Mac and PC Computers
- Powerful Audio Recording / Editing Software
- 100% Red Book Spec Audio CDs (Windows)
- 24 bit / 96kHz Capable Recording / Playback
- Real Time Processing for EQ, Compression, and more!
- Industry Standard Adaptec™ Data CD Authoring Software
- MyNetMedia SonicBurn for Burning MP3 Directly to Audio CD

CD-R Pro Adds:
- 100% Red Book Spec Audio CDs (Mac)
- Advanced Mastering Tools (Windows)
- AudioCatalyst MP3 Encoding Suite
- Faster TEAC 8x24 CD-R Mechanism

APPLICATIONS

CD-R drives found in computer stores and catalogs fall way short of what a musician needs. They usually tout audio CD burning capabilities, but what they mean is you can create a "greatest hits" CD by taking various tracks from your existing audio CDs. The problem is that the software in these bundles cannot record audio from the outside world, nor do they offer any processing or editing capabilities.

TASCAM's CD-Recording bundles were designed specifically for the audio market, offering the power of non-linear assembly editing and plug-in processing. While powerful audio capabilities was of prime importance with this bundle, the other key issue was ease of use. For someone to use this, you realistically only need to have a reasonable working knowledge of your computer and a general familiarity with audio. These are TASCAM's third generation bundles, and offer the best of the best on the market.

TASCAM's CD-R bundles are perfect for musicians who produce their music on the computer through digital audio workstations, digital sequencers, or other audio programs. The music can be mixed down directly in their production program, then moved to the software in TASCAM's bundles for mastering processors, edits, fades, final EQ, and assembled into CDs without missing a beat.

The CD-R bundles are also great for simple assembly, even if you're not using computer production systems. The ability to record audio from outside the computer with recording resolution of up to 24 bit / 96kHz (with a high resolution sound card) opens up a whole world of mastering capabilities.

With CD-R Pro's total control over subcodes and index points, fabulous sounding mastering processors, and 100% Red Book compliant masters, the CD-R Pro is an excellent choice for a project studio. The advanced home user will also appreciate the MP3 suite for internet distribution, portable MP3 players, or saving drive space.

SPECIFICATIONS

Specifications:	CD-R Pro	CD-R Deluxe
CD-R Drive Model:	TEAC 8x24* (CD-R58S)	TEAC 6x24* (CD-R56S)
Transfer Rate:	24x Read (3.6MBps)	24x Read (3.6MBps)
	8x Write (1200KBps)	6x Write (900KBps)
Access Time:	150msec (1/3 stroke)	150msec (1/3 stroke)
Buffer Size:	4MB	2MB
Formats:	Track at Once, Disc at Once,	Track at Once, Disc at Once,
	Multisession, Incremental	Multisession, Incremental
Dimensions:	7.5" x 2.5" x 9.5"	7.5" x 2.5" x 9.5"
	191x64x241mm	191x64x241mm
MTBF:	50,000 Power On Hours	50,000 Power On Hours
Macintosh™ OS Software:	TC Works SPARKle 1.0	TC Works SPARKle 1.0
	Adaptec Jam 2.5	Adaptec Toast 3.5.7
	Adaptec Toast 3.5.7	QuickTime 4.02 Player
	QuickTime 4.02 Player	
	Xing AudioCatalyst 2.0	
Windows™ 95/98 Software:	SEK'D Red Roaster 24	SEK'D Red Roaster Lite
	Adaptec EZ CD Creator 3.5b	Adaptec EZ CD Creator 3.5b
	Xing AudioCatalyst 2.0	MyNetMedia SonicBurn 1.0
	MyNetMedia SonicBurn 1.0	QuickTime 4.02 Player
	QuickTime 4.02 Player	

Macintosh System Requirements:
Mac OS™ 8.1 or later
PowerMac 604/166mHz Processor (G3™ Recommended)
SCSI Port or PCI slot for Adaptec SCSI Card
64MB RAM (64MB RAM Recommended)

Windows System Requirements:
133mHz Pentium (266mHz Preferred)
Windows 95/98 Operating System
32MB RAM
SCSI Port or PCI slot for Adaptec PCI SCSI Card

* These TEAC drives have also passed the strict requirements for Digidesign's MasterList CD, and are on the approved list of Digidesign CD-R drives.

## MACINTOSH™ AUDIO SOFTWARE — *Audio Recording and CD Authoring*

TC Works SparkLE

Both bundles offer the same recording, editing, and assembly interface. TC Works' SparkLE is a mastering application based on their popular Spark application. SparkLE supports high resolution, 24 bit / 96kHz audio, and ships with stunning real-time mastering processors. (SparkLE can also use plug-ins designed for the full version of Spark, as well as VST plug-ins.) The audio CD playlist can be authored in SparkLE, with direct export capability into Adaptec Toast or Jam for burning the CD.

One of the real advantages of SparkLE is the intuitive layout and operation. There are few menus needed to get the job done, allowing you to work directly with the audio and processors. For users who are used to working with offline "previews" of audio that work a few seconds at a stretch, the real time, non-destructive operation of the effect processing in SparkLE is a dream come true.

Obviously, the high resolution 24 bit / 96kHz support means that you can record audio through high resolution audio cards. Not so obvious is that even on a machine with 16 bit A/D and D/A, you can import higher resolution files created on other systems, manipulate them, and save them without degrading the file in the process. In this situation, the audio that you hear is down sampled for your built in audio support, but the full resolution of the recording is utilized for processing and re-writing to disk. Also, the higher resolution support allows high quality, offline sample rate conversions to be processed when needed.

SparkLE interprets audio through QuickTime, which means it is suitable for multimedia production, not just audio mastering. Any audio file format that QuickTime recognizes can be imported into SparkLE for editing, processing or conversion. (For your convenience, QuickTime 4 translators are included on the CD-ROM, so you'll have support for the very latest set of popular audio formats including MP3 and RealAudio.)

Ex 1- TC Works SparkLE audio editing/processing. (Both bundles)
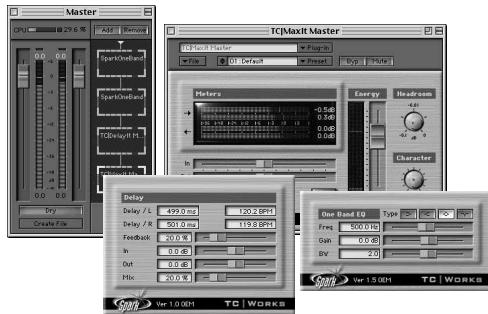
Ex 2 - Real time, powerful audio processing in SparkLE.

The mastering processors are truly the key to SparkLE. The master plug-in matrix allows up to 4 real time stereo processors to be inserted in any order. Plug-ins are included for parametric EQ (SparkOneBand), a look-ahead maximizer (TC|MaxIt), and delay effects (TC|DelayIt). Each processor can be inserted into one of the four slots, and may be used more than once. For instance, you could run TC|MaxIt in one slot, and run three SparkOneBand EQs in the other three slots. Each plug-in has it's own control panel, and bypass controls are available for each of the processors on an individual basis, or on the processing chain as a whole.

Additional offline destructive processors are available for adding fades, changing gain or normalizing, reversing the file, inverting the phase, and high quality resampling.
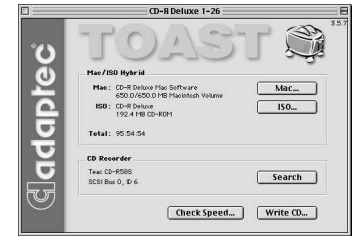
Adaptec Toast

Adaptec Toast offers a wonderful array of audio CD burning capabilities. Toast can burn audio CDs suitable for playing in standard audio CD players, with basic control over the CD layout including track order and pause between tracks.

Toast can also set up a CD to play like a normal CD in the CD player, but show a data CD volume when placed in the computer. This is a great method of distributing your demos, offering a standard CD for people to listen to, and having the band press kit on the CD for easy access. Audio/data combinations are also a cost effective way to back up your music as an audio CD that can be played in any CD player, with all the raw audio and sequencer files that created it stored on the same CD ready for restoral any time.
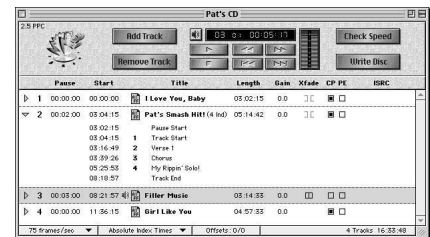

Ex 3 - Adaptec Toast summary screen

Adaptec Jam! (CD-R Pro)

Adaptec Jam offers extremely powerful CD authoring capabilities. CDs written by Jam are 100% Red Book compliant CD masters, which means the CDs generated by this package can be used as masters for mass duplication. For users who wish to also write PQ codes like index points, EAN codes, or control the SCMS setting on the CD, Jam allow provides user-friendly controls to quickly set up the CD exactly as you want.

To ensure smooth transitions between tracks, Jam has complete CD player-like controls to listen to your CD. Non-destructive track level controls allow you to bump the gain on each track so they sound at about the same level. Gain adjustments will be processed on the fly while the CD is writing. Pause between tracks can be set to a wide range of times, including negative time for overlapping tracks. Linear, logarithmic, and burst crossfade curves are available to make the transitions sound just as you wish.

Ex 4 - Adaptec Jam assembly screen (CD-R Pro)

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WINDOWS™ 95/98 AUDIO SOFTWARE

Audio Recording and CD Authoring

SEK'D Red Roaster

Both bundles offer the same recording, editing, and assembly interface. Real time processing is available in the intuitive mixer section for EQ, compression, de-hissing, and stereo enhancement. DirectX plug-ins are also supported. When the CD is burned, the master will be 100% compliant with the Red Book audio specification, which means your final product is perfectly suitable for a mass production master.

The editing interface is well designed and intuitive, with most trimming, fade and volume parameters being adjustable with five handles displayed right on the audio block itself. (No menus, no "right mouse click", no hot key combinations to remember.) This direct visual interface not only allows the users to edit faster than on any other competing program, but also gives immediate visual reference when reviewing the material later on.

Red Roaster actually supports 2 stereo tracks simultaneously, allowing you to separate each part in the crossfade, or for use in layering sounds together. For instance, if you have a live recording, you may want to feather in some audience applause to smooth the transition between edited tunes, or it could be used to add some sound effects to introduce the song.

High resolution recording capabilities (up to 24 bit/96kHz) are standard in both bundles. This allows you to take advantage of higher resolution sound cards, or allows you to process and edit audio other people have recorded without degrading the end product. Even more advanced algorithms are used with the floating point processor, extending your effective dynamic range to 32 bits.

Assembling the tracks into a CD is quite simple. If you have final mixes already processed as separate tracks, you can automatically drop IDs at the start of each audio region. Or, if you've done a lot of editing, you can manually place IDs, totally irrespective of the audio region beginning and endings. Additional menus are available for setting EAN codes.

SEK'D Red Roaster 24 (CD-R Pro)

The full version of Red Roaster 24 is available in the CD-R Pro bundle. This full featured version adds an off-line effect processing menu that goes far deeper than any other program on the market today. The processors include advanced mastering tools like multi-band dynamics and parametric EQs, allowing you to tweak your
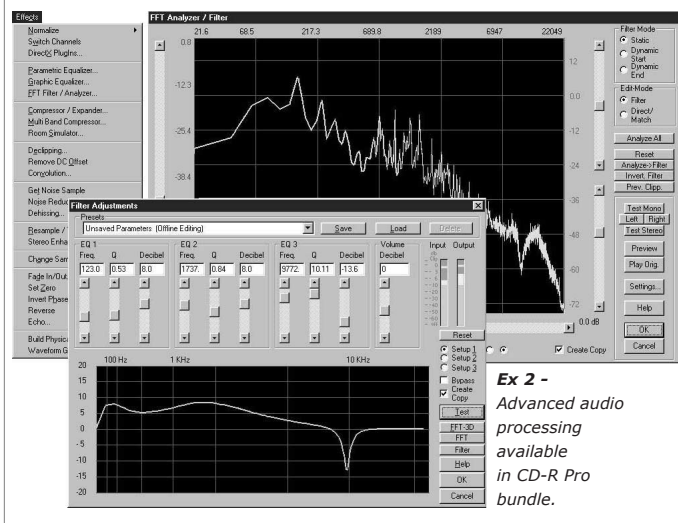
Ex 1- Audio editing/processing in both bundles versions.
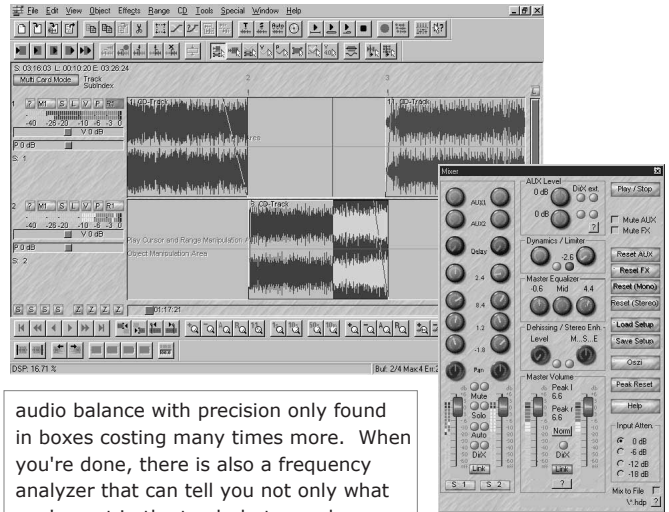
audio balance with precision only found in boxes costing many times more. When you're done, there is also a frequency analyzer that can tell you not only what you've got in the track, but can also act as a filter by redrawing the curve the way you want it.

Forensic and reconstructive processors are also available for recovering deteriorated recordings, or simply removing unwanted noise from the track. Basic functions like high quality resampling, normalizing and phase reversal can come in handy when those you collaborate with weren't careful with their recordings. Intelligent noise reduction is also available, offering the ability to sample noise from one part in a track, then instructing the noise reducer to remove that noise character from the entire audio region.

MyNetMedia SonicBurn

SonicBurn is included in both bundles, offering the ability to burn MP3 files directly to an audio CD.

Most programs like this actually have to expand the MP3 file to a full sized audio file before the CD is burned. Some may also only burn track-at-once in a "space saving" mode.

The advantage to SonicBurn is that all audio conversion out of MP3 format is entirely processed in RAM on the fly. No hard drive space is tied up in the process.

SonicBurn is easy to operate. The playlist at the left is the

Ex 3 - MyNetMedia SonicBurn is included in both bundles for direct burning of MP3 files to audio CDs.

track order that you are listening to. The track order on the right is the order that the tracks are going to be burned to CD in. Tracks can be moved back and forth easily, so the order can be experimented with before it is burned to CD.

SonicBurn also functions as a powerful and attractive player for CDs as well as a number of audio file formats. There is a convenient graphic EQ processor built in, allowing the audio to be manipulated for better sound out of the typical multimedia speakers.

Ex 2 - Advanced audio processing available in CD-R Pro bundle.

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DATA CD AUTHORING
Macintosh & Windows

While the focus of these bundles is creating Audio CDs, the TASCAM bundles also include all the software for data CD burning commonly found in the computer outlet CD-R bundles.

Adaptec has long been the benchmark in data CD authoring, delivering full featured, reliable software. The interface is straightforward... you probably won't even have to look at the manual to figure it out.

Adaptec EZ CD Creator - (Windows Application)

EZ CD Creator makes the CD authoring process simple by following the directions as the CD Creation Wizard. This is very handy for users who are new to CD assembly. For more advanced users, the Wizard can be bypassed so you can directly assemble to the CD manually.

The top half of the main window is set-up to allow you to browse the drives connected to your computer for data, and the bottom half displays how the data will appear on the CD-ROM.
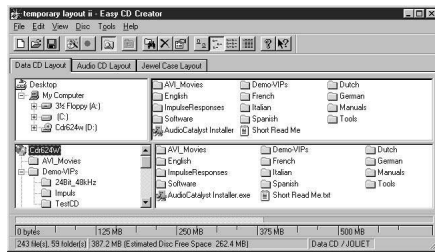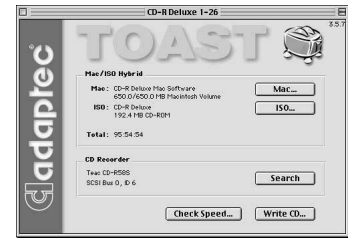

Ex 1 - *EZ CD Creator main CD assembly screen.*

EZ CD Creator also comes with CD Copier, allowing you to make back-ups of your important CD-ROMs. This is great for storing the original away, and working from back-up for normal use or when traveling.

Adaptec Toast - (Macintosh Application)

Adaptec Toast is the data CD authoring program on the Macintosh platform. You can add files to Toast by simply dragging and dropping the icon of the files and folders into the Toast window.

One of the most powerful features Toast has is an incredible list of CD formats supported by Toast.

Ex 2 - *Toast disc summary window*

A complete selection of Macintosh formats, Windows formats, and hybrid formats are available. In fact, the software CD-ROM that ships with the bundles was assembled in Toast. It is a Mac/ISO Hybrid in which a Macintosh computer shows the Mac software only, and a Windows machines shows the Windows software only.

Ex 3 - *Toast CD-R formats*

Toast also has the ability to create a SCSI Copy, so you can back-up your important CD-ROMs. This is great for storing the original away, and working from back-up for normal use or when traveling.

MP3 ENCODING
Xing AudioCatalyst

Xing AudioCatalyst (CD-R Pro)

AudioCatalyst is a high quality MP3 encoding suite developed by Xing Technologies. It is key to remember that not all MP3 encoders are equal. The MP3 standard is based on the initial research done at the Fraunhofer Institute in Germany. Here's what Niels Rump had to say in a candid interview with Recording Magazine:
(December '99 issue)

```
MP3 is a standard, but when you closely look at what
is really standardized, it's the bit stream syntax and
the way in which the bitstream is decoded, but NOT how
to encode.  And that is pretty much an art form – you
can encode MP3 in a multitude of ways.

The ISO MPEG Committee posted an example of an MP3
encoder source code and made it publicly available.
That example was specifically not designed to produce
high quality audio, but many people are taking that
source, compiling it, and saying, "Hey! I wrote an MP3
encoder!

There are some people who really did write their own
high quality encoders.  For example, Xing wrote their
own for AudioCatalyst.
```

Xing Technologies has been a leader in many compressed audio areas. In fact, many of the popular MP3 encoders that have received favorable reviews have been based on the Xing MP3 engine. You'll notice them by the little Xing logo that seems to pop up somewhere in the program.
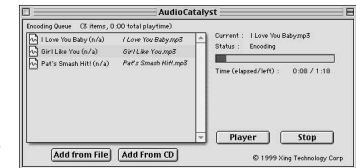
The earlier MP3 specification called for CBR encoding, which stands for constant bit rate. This meant that the amount of data used to store the audio was exactly the same no matter how complex the waveform got. Later on, the concept came up of dynamically allocating data so that simple waveforms were represented with less data so the more complex wave form could get more data to better capture the audio. This variable bit rate (VBR) encoding scheme generally results in a smoother, more consistent sound.

Ex 4 - *AudioCatalyst Encode Screen (Mac)*

AudioCatalyst can produce CBR MP3 files for the ultimate in backwards compatibility, or it can produce VBR MP3 files for the best sound quality possible.
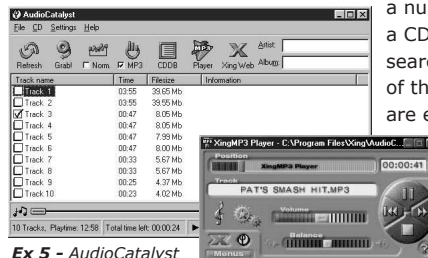
AudioCatalyst also supports a wide range of bit rates. (The higher the bit rate, the better the sound.) Most MP3s found on the web are designed to run at 128KBps. Audio Catalyst can support a wide range from 32KBps all the way up to 320KBps.

As an additional bonus, AudioCatalyst has access to an online CDDB (Compact Disc DataBase). If you are encoding a number a number of tracks from a CD, AudioCatalyst can search the serial number of the CD and tracks you are encoding, and auto- matically enter the names of each track for you. Pretty darned cool.

Ex 5 - *AudioCatalyst Encode Screen and player (Windows)*

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QUICKTIME 4 PLAYER

For more advanced multimedia compatability, we have included the QuickTime 4.02 player from Apple. (The players are included for both Macintosh and Windows machines.) QuickTime can integrate directly with your web browser, offering direct support for audio formats like MP3 as well as the most advanced video streaming available on the web. In fact, QuickTime often has exclusive premiers available on their web site, and provides an easy streaming channel memory for recalling popular "channels".

HARDWARE

The CD-Recorder and SCSI controller both come from leaders in the industry, ensuring quality and reliability in your system.

TEAC® The CD-Recorders come from TASCAM's parent comapny, TEAC. TEAC's Data Storage division is the largest manufacturer of floppy drives, and a leader in CD-ROM and CD-R technology. (Chances are good that the floppy or CD-ROM drives in your computer are TEAC products.) The TEAC line of CD-Recorders consistently rises to the top of the class in reviews in computer trade magazines, because of their attention to detail. (Low noise fans, compact case designs, fast and accurate laser assemblies and mechanisms, etc.)

adaptec® The SCSI card in the CD-Recorders are dual platform cards developed by Adaptec. These cards will work equally well in PC computers as well as "Blue Macs" that shipped without SCSI ports. Adaptec cards have a strong reputation for the ultimate compatability since their drivers are built-in to most Windows machines; this means true plug-n-play compatability.

FEATURE SUMMARY

These charts will spell out exactly what each bundle's key features are, and are specified per platform. (Macintosh and Windows.)

Macintosh Users	Deluxe	Pro
Burn Audio CD Formats	•	•
Burn Data CD Formats	•	•
24 bit, 96kHz	•	•
Red Book Compliant Masters		•
Real Time Track Gain/Fades*		•
Real Time Dynamics/EQ	•	•
VST Plug-in Support	•	•
MP3 Playback	•	•
MP3 to AIFF Conversion	•	•
MP3 Encoding from CD or Audio File		•
SCSI Card for Mac/PC	•	•
CD-R Drive Speed	6x24	8x24

* Adaptec Jam processes gain adjustments and crossfades as the CD is being recorded (CD-R Pro version only).

Windows Users	Deluxe	Pro
Burn Audio CD Formats	•	•
Burn Data CD Formats	•	•
24 bit, 96kHz	•	•
Red Book Compliant Masters	•	•
Real Time Track Gain/Fades	•	•
Real Time Dynamics/EQ	•	•
Advanced Mastering Processors*		•
DirectX Plug-in Support	•	•
MP3 Playback	•	•
MP3 to Audio CD Recording	•	•
MP3 Encoding from CD or Audio File		•
SCSI Card for Mac/PC	•	•
CD-R Drive Speed	6x24	8x24

* Mastering processors in the CD-R Pro bundle include multiband dynamics, parametric EQs, frequency analyzers, intelligent denoiser, and more.

APPROVED MEDIA LIST

Quality and recording characteristics of media from different manufacturers will vary from brand to brand. This has to do with different manufacturing processes of both the CD-R media and the CD-R mechanism. (Some media that does not work well with one CD-R mechanism may work reasonably with another.)

In order to take the guesswork out of selecting the media, we are posting an approved list of media for use. Media from each of these manufacturers was written to and verified. The media listed as OK is preferred. The media listed as NR typically worked but had a higher error rate, so it is not recommended. Mitsui media is used as the target media reference, so you're always safe with those.

Brand	Manufacturer	Pigment	Disc Color	Use
TEAC	Mitsui Chemical	Phthalo Cyanine	Yellow Gold	OK
	Mitsui & CMC	Cyanine	Blue Silver	OK
Apogee	Mitsui Chemical	Phthalo Cyanine	Yellow Gold	OK
HHB	Mitsui Chemical	Cyanine	Blue Silver	OK

Brand	Manufacturer	Pigment	Disc Color	Use
Mitsui	Mitsui Chemical	Phthalo Cyanine	Yellow Gold	OK
Quantegy	Mitsui Chemical	Phthalo Cyanine	Yellow Gold	OK
SONY	Taiyo Yuden	Cyanine	Green Gold	OK
3M	Taiyo Yuden	Cyanine	Green Gold	OK
Imation	Taiyo Yuden	Cyanine	Green Gold	OK
TDK	TDK	Cyanine	Green Gold	OK
		Cyanine	Blue Silver	OK
Ricoh	Ricoh	Phthalo Cyanine	Yellow Silver	OK
		PC & Cyanine	Green Gold	NR
Verbatim	Mitsubishi Chemical	AZO	Blue Silver	OK
KODAK	KODAK	Phthalo Cyanine	Yellow Gold	OK
Pioneer	Pioneer Video	Cyanine	Green Gold	OK
DOT	Pioneer Video	Cyanine	Green Gold	OK
Maxell	Maxell	Cyanine	Green Gold	NR
		Cyanine	Blue Silver	NR
Fuji Film	Fuji Film	Cyanine	Green Gold	NR
		Cyanine	Green Silver	NR

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