



JASCO CD Notes

Instrument

HT voltage is the gain on the detector. (photomultiplier tube) An HT of <700 V is good. Higher than that means there's too much noise for the data to be reliable.

As the lamp ages, it will take it longer to stabilize. It may go as high as 40 minutes.

There are several videos on the Jasco website (https://jascoinc.com/knowledgebase/?_sft_kb-technique-category=circular-dichroism) describing various utilities.

To change the wavelength manually, click on the **nm** icon with blue arrows in the toolbar.

The temperature range for our system is -40° to 150° C.

To change temperature manually, go to Control in the top toolbar and choose MPTC-511. Enter your temp and click Apply. Stirrer control is here, too and 100 rpm is normal.

The CD won't take a baseline or a blank at a non-RT temperature. If you want to do that, call your blank a sample and just document that in your notes.

Cuvettes

Wavelength range for a 1 mm cuvette is 180-1600 nm. With a 1 cm cuvette, you can't go below 200 nm.

Lowest wavelength: 1mm cell, water 180 nm; 1mm cell 0.1 M sodium phosphate 190 nm; 1mm cell Tris 200 nm; 0.1 mm cell any buffer 175 nm.

If your sample volume is covering the hole in the spacer, that's enough sample. 250 ul is good for the 1 mm pathlength cuvettes. The 2 mm ones need twice that.

Running scans

On the nitrogen purging window, click the Skip button to light the lamp if enough purging has already happened. If you don't want to light the lamp and just work on the software, click the Cancel button.

You can save your Baseline and use it again by going to File, Open Baseline. Jasco recommends using a baseline for about a month or running a new one any time you make a fresh batch of buffer.

A longer D.I.T. will result in a better signal/noise ratio. (the square root of the DIT is proportional to signal/noise) Scan speed x DIT should be < 200 or you will get an error message.

You can use different cell sizes in the same run for temp. work, just make a note of it in your Information window.

If you want to read absorbance for our third data channel, choose Abs, not UV Single Abs.

Software

If File Converter hangs after converting your files, choose to have them converted to .txt to get the Exit button to activate.

You can analyze data already collected while a new measurement is happening.

Data analysis software can be taken to your computer. You may need to borrow a disc for this.

You can ask for up to 999 scans to be averaged on the Accumulation tab.

All the info you put in the parameters tabs will show up in your data file header.

Raw data files are .jws. You can convert them to .txt or .csv using the File Converter.

If the L panel disappears in Spectra Analysis, choose View and Work Space.

CD/DC means signal divided by Dark Current and it's irrelevant. (see an email from the field rep)

The unit dOD is difference in optical density.

Not being able to name multiple cells for single scans at a single temp. may change in the future.

You can open an old method to add temperature control if you want to. Choose Open Parameters and makes changes there. Re-save if you want them updated.

If you're scanning multiple samples at once for just CD signal and you click on B for baseline, the software will ask if you want the baseline subtracted from all the cells. Say you do.

The acquisition software can't open the parameters from another software type, so you'll need to have the correct software open to see parameters for that software type.

To overlay scans in Spectra Analysis, go to File in the top toolbar and pull down to Overlay. Choose the ones you want to overlay in the window which pops up. (or maybe from the top left box)

Troubleshooting

If the lamp lights and the shutter is open but there are no mdeg or V displayed, be sure the instrument door is completely latched. If that doesn't help, reboot the whole system, software and instrument.

If you hear a beep when the temp. gets out of range (even if the chiller is not on), turn the chiller on and hit **S** to make the beeping stop.

If you can't see the CD signal but can see HT and Abs, try autoscaling or rebooting.

If the lamp won't stabilize because the last user scanned up at 900 nm, load your parameters to get the wavelength range you need further into the software. (Just changing the wavelength manually won't work.)

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