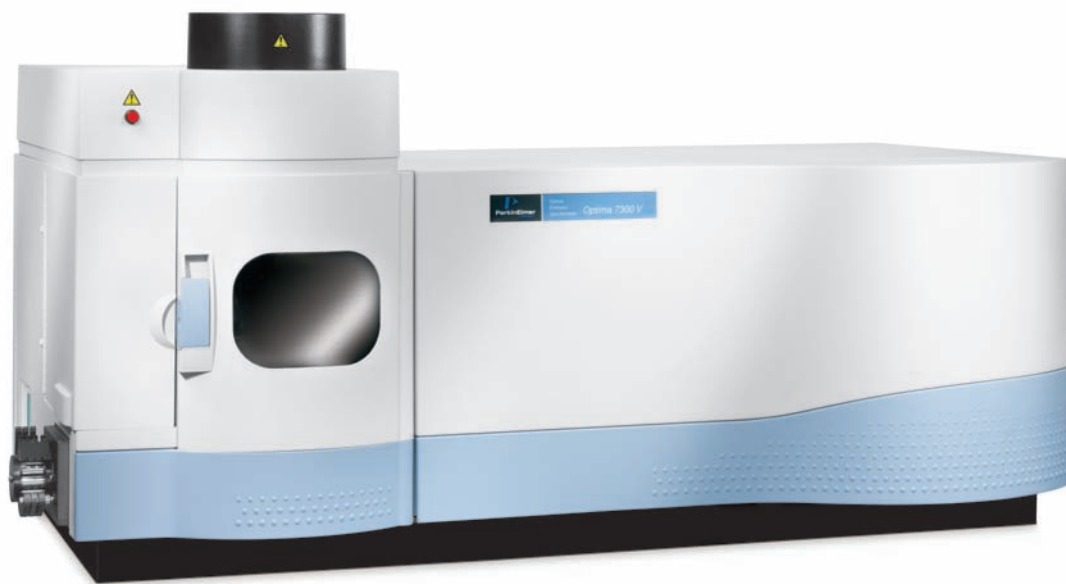


# Optima 7300V ICP-OES Oils Version



## Introduction

The Optima™ 7300V system offers a classic vertical-torch, radial-view configuration of the proven dual-view Optima 7300 DV ICP-OES system. This application-focused Optima system is designed specifically to meet the needs of oil-analysis programs, such as the Caterpillar® S·O·S<sup>SM</sup> program and ASTM Methods D4951 and D5185, where the sensitivity and flexibility of the dual-view Optima 7300 DV ICP-OES is not needed. The robust sample introduction system, with its efficient sample transport, makes analyzing oil samples fast and easy. With the ability to test for all wear metals

and additive metals in just 35 seconds, the Optima 7300V system can meet the most demanding throughput challenges. The classic vertical-torch design of the Optima 7300V eliminates carbon build-up, minimizing maintenance worries. The patented solid-state detectors, solid-state RF power supply and purged optical system provide superior performance and enhanced reliability, reducing operating costs and ensuring maximum productivity. For labs that want a classic vertical-torch, radial-view configuration, but also need an instrument with high sample throughput and performance, the Optima 7300V ICP-OES is the perfect choice.

## Key Features

- ▶ Classic vertical-torch, radial-view configuration
- ▶ Fast, easy wear-metals analysis
- ▶ Trouble-free sample introduction system
- ▶ Proven high-performance optical system
- ▶ Robust second-generation, solid-state generator

## Improved productivity

The Optima 7300V ICP-OES offers the performance required to maximize productivity. The optical system offers simultaneous measurement and full wavelength (UV and Visible) range coverage. Since an extended wavelength range does not have to be squeezed onto a single detector, UV resolution and performance are optimized. While other simultaneous ICPs claim speed, only the Optima 7300V system has the optimized design required to ensure accuracy, improve method development and consistently deliver the correct answer. The Optima ICP-OES can measure over 73 elements in seconds and run more samples per hour at a lower cost per analysis than any other system. This approach makes the system ideal for all oil-analysis programs, including the Caterpillar S•O•S program, because all elements are read simultaneously to enhance productivity. Sample throughput is maximized in all areas of the instrument from the sample introduction system to the unique automated sample introduction modes.

WinLab32™ for ICP software also offers specific productivity tools such as SmartRinse™, which customizes rinse times based on element concentrations in each sample. The Optima 7300V ICP-OES is ideal for oils laboratories with moderate to heavy loads of samples. Typical analysis time for all standards, blanks, quality control (QC) and samples, including two replicates, is 35 seconds per sample.

## SCD means high performance

The exclusive, patented high-performance, segmented-array charge-coupled device (SCD) detectors provide the unparalleled performance required for difficult matrices, including ultratrace and multielement

samples. The Optima's solid-state detectors have the wavelength flexibility to successfully complete thousands of applications. Calibration of multiple wavelengths for all elements comes standard with this spectrometer, eliminating the need for time-consuming learning or mapping of new wavelengths before they can be used. This approach ensures that the Optima 7300V system will be able to determine all of the elements currently included in wear-metals analysis programs, such as the Caterpillar S•O•S program, as well as any new elements to be added in the future.

## Reliable, stable, robust plasma

The revolutionary, patented Optima 7300 solid-state RF power supply provides exceptional ruggedness and reliability. Since there is no power-amplifier tube to replace, maintenance costs are greatly reduced. In addition, the solid-state design allows an exceptionally compact instrument design, preserving valuable bench space. Free-running 40 MHz operation allows automatic optimization with all sample matrices and solvents.

## Easy access and maintenance

The large, easily accessible sample compartment provides a stable environment to ensure fast equilibration, maximum sampling-system stability and superior performance. The torch includes a true no-tools-required, quick-change mount. Anyone can perform routine torch maintenance, change sample introduction systems and be back analyzing samples in minutes. The special torch design virtually eliminates carbon formation during used oil analysis, drastically reducing the need for routine maintenance.

The Optima 7300V system shatters the myth that state-of-the-art instruments require dedicated climate-controlled laboratories and a lot of pampering. The optical system is enclosed in a temperature-controlled housing, ensuring excellent performance in a normal laboratory environment. The system has no moving parts and requires minimal maintenance. Plus, the unique optical compartment ensures exceptional long- and short-term wavelength stability for greater accuracy, more repeatable results and improved productivity with less time spent on routine system calibration.



Optima 7300V interior torch view. Note the simple argon quick-disconnect and easy access to the spray chamber and nebulizer.

## Confidence in your analysis

Built-in diagnostics check each system component to verify proper operation. The Windows® operating system provides an exceptionally secure operating environment, and the proven WinLab32 software offers even more security features, including password-controlled access to software functions.

## Seamless data transfer into LIMS

WinLab32 software can automatically reformat results for seamless data transfer to different programs or computers. Simply select the data and samples and specify the file format. WinLab32 can automatically generate a file configured for exporting directly into most LIMS, including all of Caterpillar®'s M&I programs and PerkinElmer LABWORKS™ ES LIMS systems, as well as common spreadsheet, database and word-processing programs. You can choose to save the file to a local disk or send it to any networked storage device.

## Flexible autosamplers

WinLab32 software allows the use of a variety of different autosamplers including:

- PerkinElmer S10 Autosampler
- CETAC ASX-260 HS High Speed Autosampler
- CETAC ASX-520 HS High Speed Autosampler
- CETAC ASX-1400 Autosampler with mixing capability

For laboratories needing automated dilutions there are two available for use with the Optima 7300V:

- CETAC APS 1650
- JANUS® Oil Workstation



S10 autosampler for fully automated analysis.

## Proven Optima performance and productivity in a vertical-torch configuration

Of course, PerkinElmer maintained all the exceptional features of the original Optima in the Optima 7300V ICP-OES, including...

- Very high sample throughput for all the elements determined in wear-metals analysis, including the Caterpillar S•O•S Program and the ASTM D4951 and D5185 methods. Simultaneous speed with the flexibility of a sequential system. No need to pay for additional channels to be added when element-list requirements change.
- Simultaneous measurement of spectral background with each and every analyte measurement, increasing analytical accuracy, improving detection limits and maximizing sample throughput.

- Full system control based on the powerful yet easy-to-use Windows operating system. The WinLab32 software automates all instrument functions, stores all pertinent information and provides post-analysis reformatting and transfer of data to your LIMS system. Specialized features for Caterpillar®'s M&I programs include complete method setup using “workspaces” and conditional rinse time based on the results of the previous sample.

In fact, the Optima 7300V system offers so many advantages for wear-metals analysis that it's impossible to summarize them in only a few pages. To get a more complete picture of the benefits of the world's first family of ICP-OES spectrometers, please ask your PerkinElmer representative for a copy of our Optima 7x00 series brochure.

Table 1. Routine Caterpillar S•O•S Oil Analysis

Element	Element Type	Wavelength (nm)
Al	wear metal	308.213
Ca	additive	315.889
Co*	internal standard	228.616
Cr	wear metal	205.562
Cu	wear metal	324.756
Fe	wear metal	259.942
K	contaminant	766.490
Mg	additive	279.081
Mo	wear metal	203.848
Na	contaminant	589.021
Ni	wear metal	231.601
P	additive	214.916
Pb	wear metal	220.355
Si	contaminant	288.157
Sn	wear metal	189.929
Zn	additive	213.861

\* Cobalt is used as an internal standard only for the additive metals to compensate for matrix differences between samples.

## WinLab32 now offers even more with a range of customer-driven enhancements:

### New methods of addition

Users can now perform standard additions calculations by simply selecting the equation they wish to use. Both method of additions calibration as well as the classic standard additions calibrations are possible.

### “Universal Data Acquisition” mode

Enables users to – optionally, on demand – collect all the spectral data for every sample regardless of the elements being determined. This then allows analysts to retroactively determine the concentrations of elements not in the original method or at alternate wavelengths, saving precious time and resources.

### Programmable “Over Calibration” message

Users can set an “over calibration limit” and specify whether or not “over calibration” messages are displayed when samples are run.

### “Reprint Original Data” function

Allows users to create a verbatim

copy of their original printout – ideal for regulatory environments (or other audit situations) when data needs to be presented exactly the same.

### Flexibility during autosampler runs

By simply clicking on the “Append Method” button, users can dynamically add to autosampler run lists even after an analysis has started.

### Detailed version of calibration summary

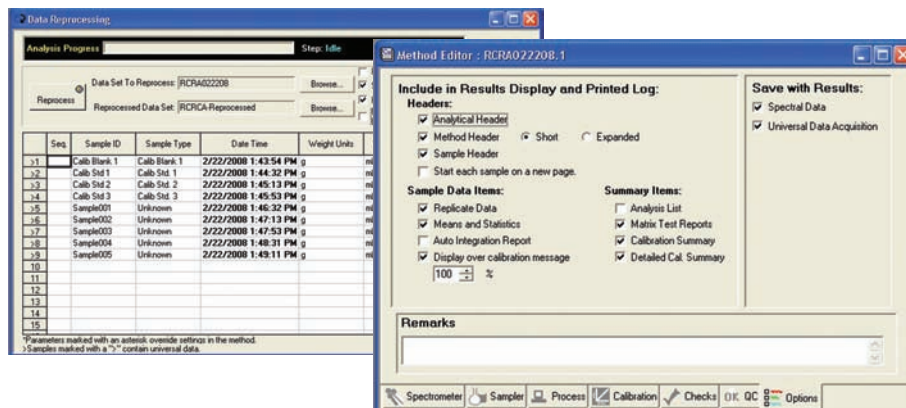
Provides specifics about a calibration – including “expected concentrations” vs. “measured concentrations” – enabling users to ensure the accuracy of their calibration and the quality/validity of their results.

### Customizable “Set Limits” for individual elements

A new “Sample Limits” tab allows users to quickly and easily set up sample limit checks. When a sample result falls above or below a specified range, a message is displayed in the “Results” window. Users can specify whether or not they want the range included in the message.

### Worldwide support

The Optima 7300V system is backed by the largest worldwide technical support network in the industry – just what you would expect from the leader in analytical instrumentation for more than 40 years.



When running in Universal Data Acquisition (UDA) mode, Optima will record all of the emission spectra for every sample regardless of the elements being determined. This UDA capability allows users to retroactively use data that was not in the original method to determine additional elements or measure at alternative wavelengths.

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