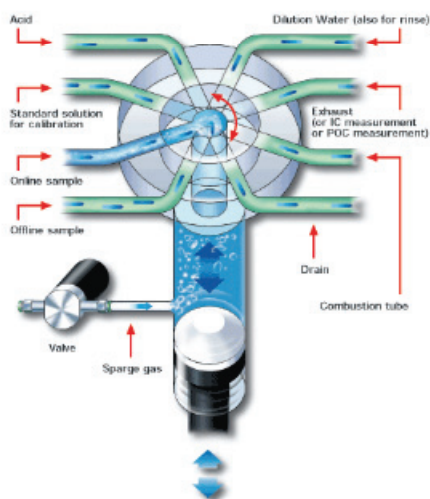


Application Note

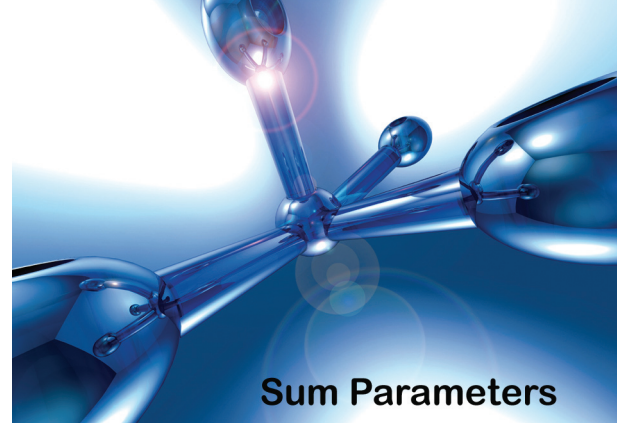
Determination of waste water with TOC-V CPN by using the auto dilution function

Although the COD parameters remain fixed in many Wastewater regulations, the TOC value is being determined more often to enable a statement regarding the organic contamination of the water to be made. The advantage of the TOC determination is obvious - the TOC result is available within a few minutes without using environmentally damaging reagents. As a result of this significant progress, a large number of samples from different origins are appearing in environmental analysis laboratories. A TOC Analyser is required which can cope with unknown samples and a high sample throughput rate. The TOC-V Series from Shimadzu offers multiple functions that enables an environmental laboratory to deal with a wide range of demands.

Integrated Sample Pretreatment system (ISP)

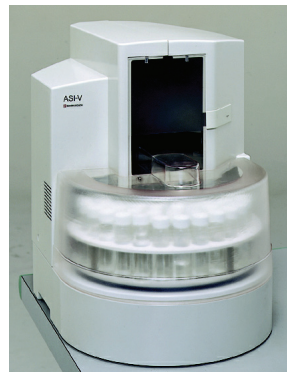


The heart of the TOC-V Series is the ISP-module, which consists of an 8-port valve and a syringe with sparging gas connection.



The ISP-module allows automatic dilution, which is extremely useful for various applications. The measuring range for TOC determination is increased up to 25.000 mg/L. Unknown sample which exceeds the calibration range can be diluted and re-measured automatically. Samples contaminated with high salt or contaminated concentrations can be automatically diluted too. This increase the lifetime of the catalyst and the combustion tube, which consequently decreases maintenance time and running costs for the TOC analyser.

Autosampler – ASI-V

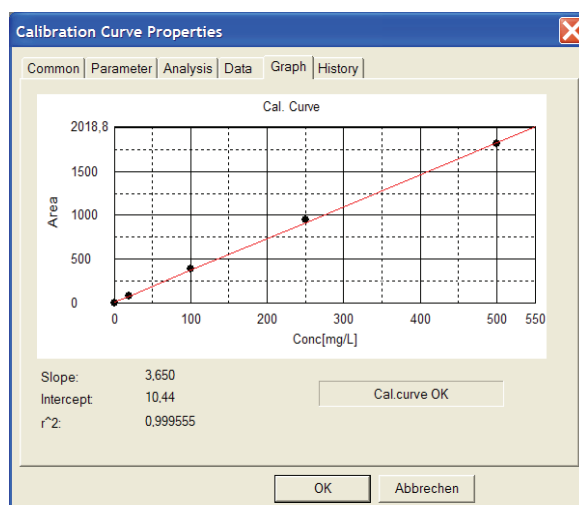


For a large number of samples are automatically acidified and sparged in the sample vials, is recommended. During the first sample measurement, the next sample is already being sparged in order to save valuable time. The high sample capacity of 93 vials (24mL) supports a high throughput

Calibration Curve with auto dilution function

Multiple point calibration can be carried out via dilution of a single standard to the desired concentrations for subsequent measurement. The precision of this fully automated dilution function is shown in the following calibration curve:

Stock solution [mg/L]	Dilution factor	Conc. in [mg/L]	Mean Area
0	1	0	0
1000	50	20	73,97
1000	10	100	385,2
1000	4	250	946,3
1000	2	500	1822

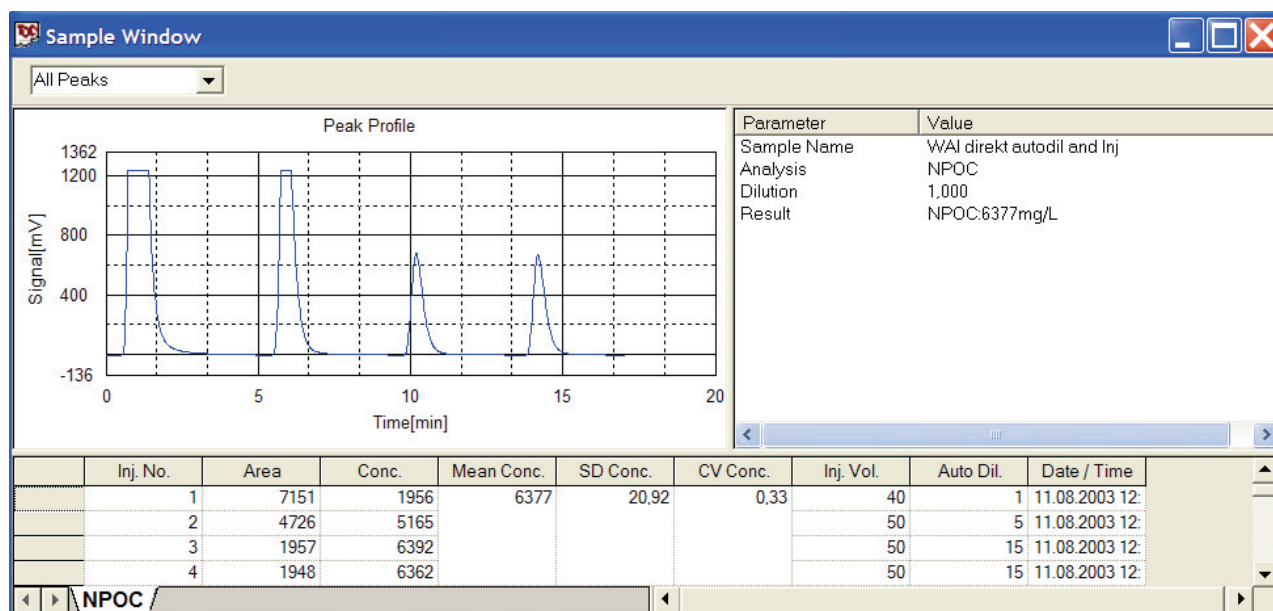


Calibration Curve 500mg/L

Measurement of an unknown sample

In this case a high concentrated sample (over 6000mg/L) is measured against a 500mg/L calibration curve. After the first injection the instrument decreased the injection volume and diluted the sample 5 times, but the peak was still over range.

The instrument changed again the dilution to 15 times and re-measured the sample. The resulted peak fit in the range and the instrument repeated the measurement as defined in the method (here two times).



Sample window of TOC-Control V