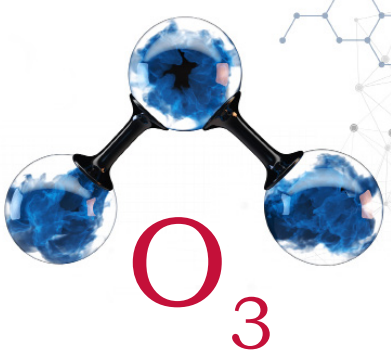
enviro technology services

Air pollution factsheet

Ozone

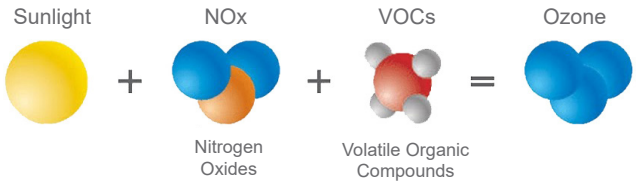


What is ozone?

Tropospheric ozone (O_3) is a highly reactive secondary air pollutant and greenhouse gas.

It is formed by a series of photochemical pre-cursor reactions in the lower atmosphere between methane (CH_4), volatile organic compounds (VOCs), oxides of nitrogen (NOx), carbon monoxide (CO), sunlight and warm temperatures. A classic trans-boundary pollutant, ozone typically forms from pre-cursor emissions in other regions, or even countries, and is often transported over long distances in the atmosphere.

The major sources of ozone pre-cursors include biogenic VOC emissions from forests and anthropogenic VOC emissions from oil refineries and chemical plants. NOx and CO emissions come from fossil fuel combustion primarily transportation and vehicle emissions as well as power generation.



Why measure it?

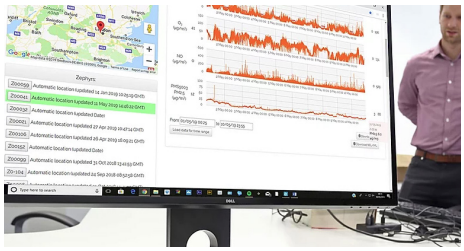
Ozone concentrations impact on human health where it can exacerbate chronic respiratory diseases such as asthma, bronchitis and COPD leading to increases in hospital admissions and morbidity in vulnerable groups. Ozone is also damaging to fragile ecosystems and is injurious to plants, leading to reductions in photosynthesis, visible foliar damage and reductions in plant growth and yields.

ET's solutions for monitoring ozone

Indicative Monitors

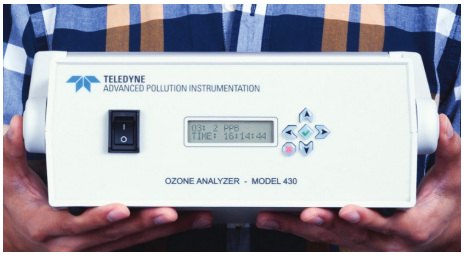
The Zephyr is a compact and portable air pollution sensor that measures ozone, other gases and particulate matter formed from harmful emissions. It was designed and built by an experienced development team, and is based on years of academic research.

Zephyr Air Quality Sensor



Near Reference Method Monitors

The **model 430** is a compact analyser that uses the proven UV absorption principle producing accurate and stable ozone measurements.



Model 430 Compact Ozone Monitor

Reference Method Monitors

Our top of the range instruments include the **Teledyne-API T400 UV Absorption Ozone Analyser** which is **MCERTS approved** and designated as 'reference method'. As such, the T400 is widely used in national air quality monitoring networks and for atmospheric chemistry research applications.

Teledyne-API T400 UV Absorption Ozone Analyser

Our useful comparison table will enable to you see which option best suits your requirements.

	Zephyr	TAPI 430	T400
MCERTS Approved	NO	NO	YES
US-EPA Certified	NO	YES	YES
Classification	Indicative	Near reference method	Reference method
Lowest Detection Limit (LDL)	Approx. 4 ppb	<2 ppb	<0.4 ppb
Ranges	0-10,000 ppb	0-100 ppb to 0-20,000 ppb	0-100 ppb to 0-10,000 ppb
Dimensions / mm (H x W x D)	235 x 160 x 114	107 x 180 x 259	178 x 432 x 597
Weight	1.8 kg	2.4 kg	12.7 to 13.8 kg
12V DC / Mains / Solar	YES (All)	12V DC and Mains	Mains
Can measure other gases / particulate matter?	YES	NO	NO
Internal zero span for automatic calibration and calibration checking?	NO	NO	YES (Option)
Internal data logging	YES	YES	YES
Web / Wi-Fi enabled	YES	NO	NO

Ozone conversion factors (@ 20°C and 1013mb) 1 ppb = 2.00 µg/m^3

Limit values (UK) 100 µg/m^3 not to be exceeded more than 10 times a year (measured as 8-hour mean).

Other solutions for monitoring ozone

The **Opsis open-path monitoring system** performs fast, non-contact, direct measurements of ozone and other multiple gases over an open-path using the DOAS (Differential Optical Absorption Spectroscopy) technique. The Opsis open-path system is **MCERTS approved** for the following gases: **NO_2, SO_2, O_3 and benzene.**

Opsis open-path monitor

Contact us for more information on how we can help you monitor ozone.

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