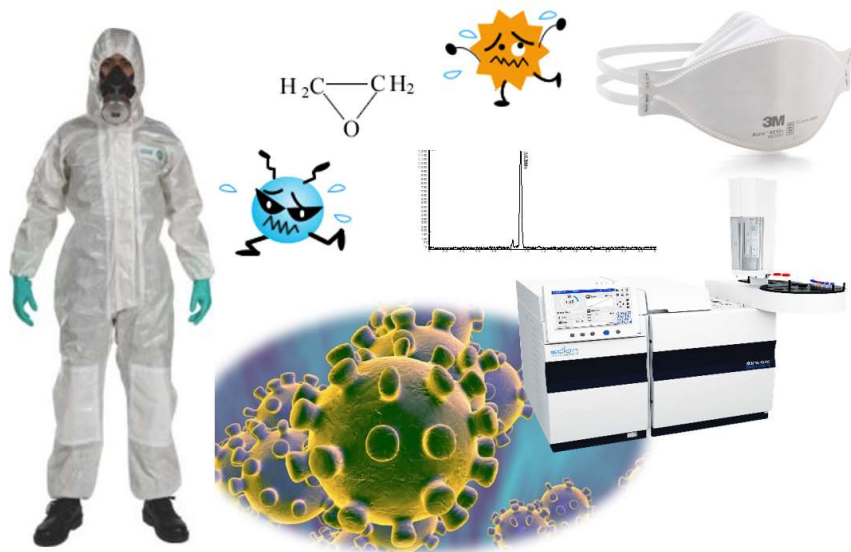


Detection of Ethylene Oxide (EO) residue in medical protective products



The 2019 novel corona virus suddenly became a challenge for the health of human being not only in China, but also all over the world. During fighting with the virus, the demand and production of medical protective products increased dramatically, including the mask, protection suit, etc. As a broad-spectrum antibiotic, ethylene oxide (EO) was mainly used for the sterilization step during the production of those products. Due to its toxicity and oncogenicity, it is quite important to detect the residue of EO after sterilization step, to make sure the safety of those products which closely contact with our body.

Gas Chromatography (GC) is a versatile tool for various purpose in many industries. GC coupled with headspace sampler are ideal for detection of EO as it is volatile. Scion has the solution of EO detection to help with the emergence.



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SCION 456GC condition

Injector temp. :200°C

Column flow: 2.5mL/min (N₂)

Split ratio: splitless

Oven temp. program: 50°C hold
1min, 10°C/min to 150°C, hold
2min

Detector: FID

HT3 headspace sampler condition

Equilibrium temp. : 60°C

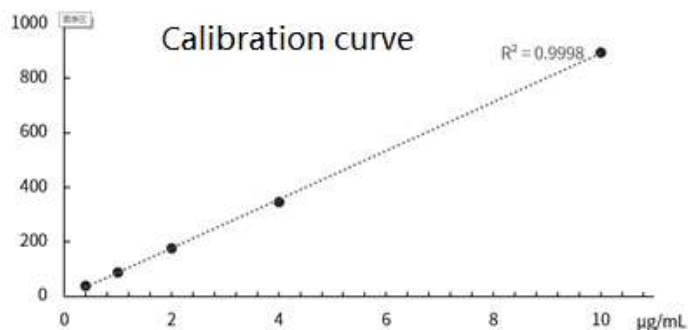
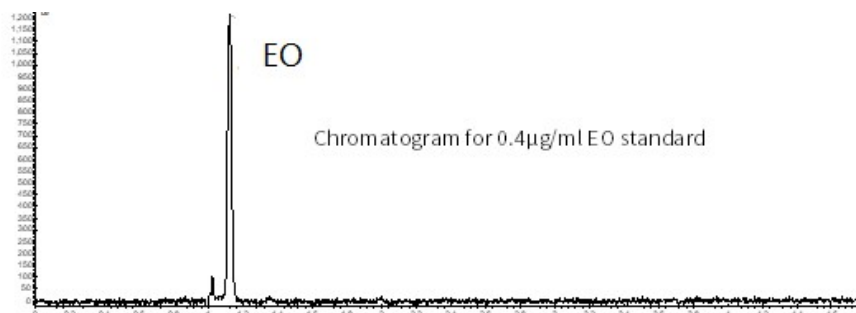
Sample loop temp.: 80°C

Transfer line temp.: 85°C

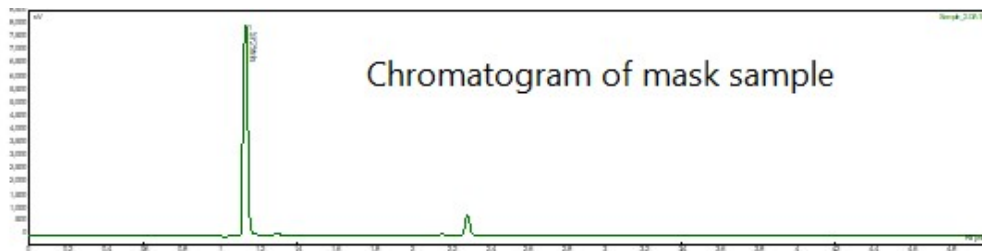
Vibration time. : 5min

Sample loop time: 0.1min

The method is based on a standard method (China GB/T 16886.7-2015) , EO can be successfully separated and detected with a retention time within 2min. The linearity and repeatability of the method were also proved. A 0.9998 R² was obtained at the dynamic range 0.4-10µg/mL. The RSD of EO peak area at different concentration was also within 3%.



Concentration of EO (µg/mL)	RSD of EO peak area(%, n=6)
0.4	2.7
2	2.4
10	1.8



Based on the data obtained from both the standards and real mask sample, this method can be used for the detection of EO residue in medical protective products. We believe all the forces can be united to get the success of fighting with virus.

Further information about Scion Instruments, please visit <http://www.scioninstruments.com/>