SHIMADZU
Excellence in Science

Headspace Gas Chromatography (HS-GC)

How Safe is Your Mask?

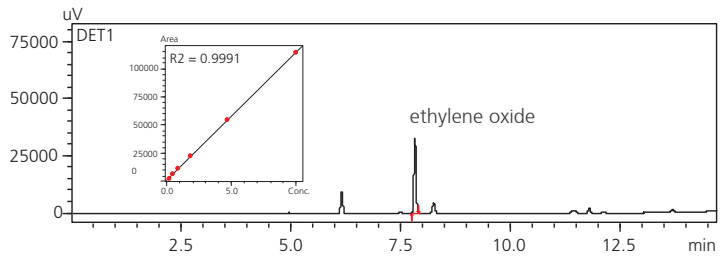
Ethylene Oxide

Surgical masks are typically sterilized with ethylene oxide at room temperature. However, ethylene oxide is a carcinogen. There are strict requirements on the ethylene oxide residue in single-use sterile medical device products. Both ISO 10993.7-2008 (Biological evaluation of medical devices) and China's National standard "Biological Evaluation of Medical Devices Part VII: Ethylene Oxide Sterilization Residues" (GB / T16886.7-2015) specify the maximum allowable residual amount of ethylene oxide. Shimadzu HS-GC is most suited for measurement of ethylene oxide in safety masks

Easy to use | Minimal sample preparation | High performance | Rugged

Headspace Gas-Chromatography (HS-GC)

Methodology involves simple sample preparation of transferring 1 g of sample into headspace bottle followed by sealing for testing. Excellent linearity was achieved for calibration curve ranging from 0.2-10 ug standard, along with reproducibility of 2.64% for 6 injections of 0.4 ug ethylene oxide.



Chromatogram showing ethylene oxide measurement in standard sample, with calibration curve of 0.2 – 10 ug in the insert.

GC Condition	
Column	SH-Rxi™-624Sil MS 60 m, 0.32 mm ID, df=1.8 µm (P/N: 221-75963-60)
Oven temp. program	40°C (3 min) @ 5 °C/min to 85°C @ 30 °C/min to 200°C (2 min)
Injector	Split @ 220 °C ; Ratio 10:1
Detector	TCD @ 250 °C

HS Condition	
Equilb. temp.	70 °C
Sample line temp.	100 °C
Transfer line temp.	110 °C
Equilb. time	30 min
Load time	0.5 min

HS-10 with GC-2014
for versatile configuration

※For liquid injection, please remove HS-10 transfer line and set the AOC-20i

Switch between headspace and liquid injections with HS-Switcher for high accuracy and precision in various applications.

HS-20 with Nexis GC-2030
for highest throughput

With the shortest inert transfer line in the industry (30 cm), we ensure minimal carryover between different analyses.

The headspace autosampler also recognizes 10 mL and 20 mL automatically. It hence allows you to prepare various samples without the need for adapters.

Versatility with varied samples	Great for	High-throughput routine labs
20 vials	Headspace Vials	90 vials
6 vials	Simultaneous Heating	12 vials
225 °C	Oven Temperature	300 °C
225 °C	Loop Temperature	300 °C
225 °C	Transfer Line Temperature	350 °C
Yes	Vial Shaker	Yes
No	Leak Check	Yes
No	Barcode Reader	Yes

Shimadzu GC column (SH-Rxi™-624Sil MS)

ID	df	Temp. Range	20m	30m	60m	75m	105m
0.18 mm	1.00 µm	-20 to 300/320 °C	227-36075-01	–	–	–	–
0.25 mm	1.40 µm	-20 to 300/320 °C	–	221-75962-30	227-36076-01	–	–
0.32 mm	1.80 µm	-20 to 300/320 °C	–	227-36077-01	221-75963-60	–	–
0.53 mm	3.00 µm	-20 to 280/300 °C	–	227-36078-01	227-36078-02	227-36078-03	227-36078-04

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