



ITRC (Interstate Technology & Regulatory Council). 2023. Ethylene Oxide Emissions Guidance EtO-1. Washington, D.C.: Interstate Technology & Regulatory Council, EtO Team. <https://eto-1.itrcweb.org/>.

Acronyms

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygienists
ACS	American Chemical Society
ADEM	Alabama Department of Environmental Management
AQS	Air Quality System
ASOS	Automated Surface Observing Stations
atm	standard atmospheric pressure
ATSDR	Agency for Toxic Substances and Disease Registry
BEI	Biological Exposure Indices
CAA	Clean Air Act
California EPA	California Environmental Protection Agency
CAS	Chemical Abstracts Service
CDC	United States Centers for Disease Control and Prevention
CEMS	Continuous Emissions Monitoring Systems
CFR	Code of Federal Regulations
CO₂	carbon dioxide
CRDS	Cavity Ring Down Spectroscopy or Cavity Ring-Down Spectroscopy
ECH	ethylene chlorohydrin
EJ	environmental justice
ERG	Eastern Research Group
EtO	ethylene oxide
FDA	United States Food and Drug Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FTIR	Fourier-transfer infrared spectrometry
GSH	glutathione
HAP	hazardous air pollutant
HEMA	short-term urinary mercapturic acid metabolite of EtO
HEV	hemoglobin EtO adducts, specifically 2-hydroxyethylvaline
HHS	United States Department of Health and Human Services
HON	hazardous organic NESHAP
IARC	International Agency for Research on Cancer
inHg	inches of mercury [1 inHg = 0.0334 atmospheres]
IRIS	Integrated Risk Information System

ITRC	Interstate Technology and Regulatory Council
LJ	identification of analyte is acceptable; reported value is an estimate
LK	analyte identified; reported value may be biased high
MACT	maximum achievable control technology
MEG	(mono)ethylene glycol, also known as EG or ethylene glycol
MI EGLE	Michigan Department of Environment, Great Lakes, and Energy
µg/m³	microgram per cubic meter
MON	miscellaneous organic chemical
NAICS	North American Industry Classification System
NATA	National Air Toxics Assessment
NATTS	National Air Toxics Trends Stations
NEI	National Emissions Inventory
NEJAC	National Environmental Justice Advisory Council
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHANES	National Health and Nutrition Examination Survey
NIOSH	National Institute for Occupational Safety and Health
NWE	New World Encyclopedia
OEL	occupational exposure limits
OSHA	Occupational Safety and Health Administration
PHMSA	United States Pipeline and Hazardous Materials Safety Administration
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
ppmv	parts per million by volume
ppt	parts per trillion
psig	pounds per square inch of pressure
RTR	risk and technology review
SCDHEC	South Carolina Department of Health and Environmental Control
TAD	Technical Assistance Document
TCEQ	Texas Environmental Commission on Environmental Quality
TO	Toxic Organics
TRI	Toxics Release Inventory
UDHHS	Utah Department of Health and Human Services
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

Glossary

Accuracy

[glossary_exclude]Accuracy[/glossary_exclude] of an analytical measurement is how closely the result corresponds to the true value. This normally requires the use of standards to carefully calibrate the analytical methods (ITRC 2017a).

Adduct

In this case, chemical reaction product of EtO with a biological molecule such as a DNA base or protein (Bolt, Peter, and Fost 1988).

Ambient

That portion of the atmosphere, external to buildings, to which the general public has access (40 CFR 50.1(e) 1971).

Analytical Background

Interference or instrument signal or noise that could impede accurate analytical measurement.

Anthropogenic

Activity resulting from human activities (ITRC 2017a).

Background

Natural or baseline air quality at a site that can be characterized by upwind, historical, or sometimes crosswind air quality (modified from ITRC 2017a).

Biogenic Emissions

Biogenic emission sources are emissions that come from natural sources and need to be accounted for in photochemical grid models because most types are widespread and ubiquitous contributors to background air chemistry (USEPA 2022c).

Fugitive Emissions

Emissions that could not reasonably pass through a stack, chimney, vent, or functionally equivalent opening (40 CFR 70.2 1992).

Inhalation Unit Risk (Estimate)

The upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of $1 \mu\text{g}/\text{m}^3$ in air. The interpretation of inhalation unit risk would be as follows: If unit risk = 2×10^{-6} per $\mu\text{g}/\text{m}^3$, two excess cancer cases (upper-bound estimate) are expected to develop per 1,000,000 people if exposed daily for a lifetime to $1 \mu\text{g}$ of the chemical per m^3 of air (USEPA 2023l, o).

Method Detection Limit

The minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results (USEPA 2016c).

Method TO-15 and TO-15A

USEPA Methods TO-15 and TO-15A define performance criteria for sampling, measurements, and analysis of volatile compounds in air contained in canisters and are primarily used to monitor airborne pollutants in urban and industrial environments (Whitaker et al. 2019).

Moisture

Liquid diffused or condensed in relatively small quantity (Merriam-Webster 2023).

Nondetect

Nondetects are reported as the sample quantitation limit, defined as three times the standard deviation of seven replicate spiked samples handled as environmental samples, corrected for sample dilution and other sample-specific adjustments (USEPA 2022k).

Precision

[glossary_exclude]Precision[/glossary_exclude] is the reproducibility of multiple measurements, usually described by a standard deviation, standard error, or confidence interval (ITRC 2017a).

Renewable Feedstocks

[glossary_exclude]Renewable feedstocks[/glossary_exclude] entail the elimination of nonrenewable carbon resources such as coal, oil, and natural gas as feedstocks for organic chemistry, otherwise known as defossilization (Stahl 2023).

Repeatability

The degree of agreement between independent test results produced by the same analyst using the same test method and equipment on random aliquots of the same sample within a short time period (USEPA 2002).

Robustness

The ability of a sampling or measurement event to be repeated in varied conditions over a period of time.

Selectivity

The extent to which the method can be used to determine particular analytes in mixtures or matrices without interferences from other components of similar behavior (IUPAC 2001).

Sensitivity

[glossary_exclude]Sensitivity[/glossary_exclude] is the smallest amount of a substance in a sample that can be measured accurately (ITRC 2017a)