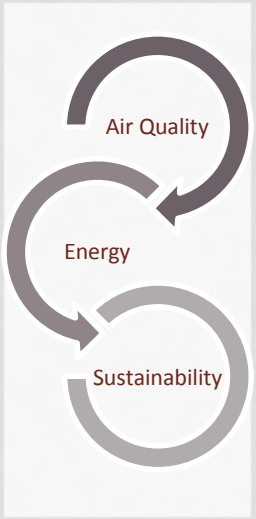
DIVISION OF AIR QUALITY

AIR QUALITY, ENERGY, AND SUSTAINABILITY

VOC TESTING IN ENGINES

KEN RATZMAN & LARRY SI



RE: Formaldehyde Emissions for Internal Combustion Engines
Program Interest #:
Permit Activity #:
NJID #:

Dear Permittee,

After consulting with our Federal Environmental Protection Agency counterparts, the Department determined that volatile organic compounds(VOC) and formaldehyde emissions emitted from internal combustion(IC) engines that combust gaseous fuels to include biogas, landfill gas, and natural gas have been underreported. Formaldehyde is a component of VOC emissions and must be property quantified for inclusion in the VOC emission limit established in approved air permits for these sources and any source test to determine compliance with established limits.

This letter serves as a notification that if your current approved air permit does not include formaldehyde in the VOC allowable, you must submit an administratively complete permit modification with the appropriate allowable limit expressed in mass emissions (lb/hr) as soon as possible, but no later than ninety (90 days) prior to the expiration date of your current permit. Please note that pursuant to New Jersey Administrative Codes 7:27-8 and 7:27-22 et. seq., emissions for all contaminants that are above reporting threshold must be included in any permit application.

The test methods typically used to quantify VOC emissions from IC engines do not measure or include formaldehyde. It is for this reason that effective immediately, upon submitting a test protocol in accordance with the terms of the air permit for IC engines that combust gaseous fuels, formaldehyde testing will be required to ensure that all VOC emissions are properly quantified pursuant to New Jersey Administrative Code 7:27-16.22 et. seq.

If you have any questions regarding this matter, please feel free to contact Kenneth Ratzman of the Bureau of Stationary Sources for questions regarding air permitting at 609-292-0834 or Michael Klein of the Emission Measurement Section for questions regarding source testing at 609-984-3443.

Sincerely,

Richelle B. Wormley, Director
Division of Air Enforcement

Francis Steitz, Director
Division of Air Quality

APPLICABILITY

- Letter Addressed Engines
- What Limits in Permit?
  - Pound/Hour
  - Ton/Year
  - Performance Standard
- Other Source Types? Probably

STACK TESTING

- **NMHC/NMNEHC** – EPA Methods 25A and 18, or one or more of the Alternative Methods for these sources (ALT-066, ALT-078, ALT-096, ALT-097 and/or ALT-106).

- **Formaldehyde** – EPA Method 323 or Method 320. Note that EPA Method 316 is **not** acceptable, as it is specific to the Mineral Wool and Wool Fiberglass Industries.

- VOC (lb/hr) = NMHC/NMNEHC + HCHO

TIMING

- Must change permit BEFORE stack testing to avoid violation
- Permits take some time to process
  - Minor Facilities – 90 days
  - Major Facilities – 365 days
  - GPs – ONE Day

RULES TO CONSIDER – EMISSION INCREASE?

- PSD – EPA Verbal Concurrence – paper increase
- NNSR – EPA Verbal Concurrence – paper increase
- NSPS – performance standard excludes HCHO
- SOTA – Case by Case

EMERGENCY GENERATORS

- PCP or GP/GOP
  - Many permits already converted to GPs
  - No pound per hour limitation
- Certified Engine?
  - Pound per Hour limit but no stack test in permit?
  - Stack testing possible in the future – modify permit!

RISK ASSESSMENT

- When do we look at risk?
  - During Modification – Yes
  - During Renewal – Major (Yes)
  - After stack test – Definitely
- Good Combustion is the preferable way to reduce HCHO
- Catalytic Oxidizer
- Flare vs. Engine