

# #THANKYOU Thomas Dodge!

Thomas Dodge opened its facility to the Indiana Certified Emission Repair Technician training course to give the technicians an opportunity to put their newly honed skills into practice. At the conclusion of the eight week course, Thomas Dodge invited Clean Air Car Check to bring all of the ICERT students over to their Highland facility to practice diagnosing emissions failures and developing repair strategies.

ICERT Instructor Ken Zanders (second from left) discusses a diagnostic strategy for a Dodge Dakota with ICERT students at Thomas Dodge.



Clean Air Car Check  
Envirotest Systems  
1171 Breuckman Dr.  
Suite B  
Crown Point, IN 46307



# technicallyspeaking.



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## Mark your calendars!

- Upcoming Tech Nights

### Misfire & Fuel Trim Analysis

Presented by Ken Zanders  
Tuesday, August 19, 2008

This one night seminar offers a “no excuses” approach to misfire and fuel system analysis. This course will build its diagnostic methods around the use of equipment such as the vacuum gauge, compression gauge, labscopes and transducers. A detailed explanation of fuel trims is also included with the explanation of how it can be used as a diagnostic tool in tandem with oxygen sensor activity. This is a “must attend” seminar for the serious driveability technician.

### Setting OBDII Monitor Readiness

Presented by Al Santini  
Wednesday, October 22, 2008

Learn everything you always wanted to know about setting monitors but were afraid to ask during this four hour seminar that will analyze why monitors may not run and the diagnostic procedure involved to get them to run. You will learn to utilize the drive cycle plus scanner data to determine why the monitor will not run. We will also briefly look at the use of mode 5 & 6. There will be many case studies involving readiness and monitor setting. A handout will be provided for the computer-based seminar.

Both Tech Nights will be held at the Envirotest Systems Training Center at 1171 Breuckman Dr., Suite B, Crown Point. Call 1-888-240-1684 to RSVP for one or both sessions.

# Understanding the Air Quality Index

(AQI)



The AQI is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects you may experience within a few hours or days after breathing polluted air. The AQI is based on the United States Environmental Protection Agency air quality standards designed to protect public health.

The AQI is presented as a chart that includes the index value, or amount of pollution in the air, the level of health concern associated with that value and a cautionary statement that applies to each level of health concern.

The local television stations and newspapers often report when we expect to experience an Ozone Action Day. To see what the AQI is for our area, you can also check [www.smogwatch.in.gov](http://www.smogwatch.in.gov).

## Understanding the Air Quality Index

### Air Quality Index (AQI): Particle Pollution

| Index Values | Levels of Health Concern       | Cautionary Statements                                                                                                                                                        |
|--------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 - 50       | Good                           | None                                                                                                                                                                         |
| 51 - 100*    | Moderate                       | Unusually sensitive people should consider reducing prolonged or heavy exertion.                                                                                             |
| 101 - 150    | Unhealthy for Sensitive Groups | People with heart or lung disease, older adults, and children should reduce prolonged or heavy exertion.                                                                     |
| 151 - 200    | Unhealthy                      | People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.             |
| 201 - 300    | Very Unhealthy                 | People with heart or lung disease, older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.           |
| 301 - 500    | Hazardous                      | People with heart or lung disease, older adults, and children should remain indoors and keep activity levels low. Everyone else should avoid all physical activity outdoors. |

\*An AQI of 100 for particles up to 2.5 micrometers in diameter corresponds to a level of 40 micrograms per cubic meter (averaged over 24 hours). An AQI of 100 for particles up to 10 micrometers in diameter corresponds to a level of 150 micrograms per cubic meter (averaged over 24 hours).

### Help Knock Out Ozone this Summer!

You can help keep Indiana's air clean during 2008 Ozone Knockout! Your actions this summer can have a big impact on air quality.

Many of your daily activities have an impact on ozone levels. Where you go, what you do and even how cool you keep your house can help or harm air quality.

#### Top 10 ways your can reduce ozone

1. Carpool, use public transportation, walk or ride your bike as much as possible.
2. Reduce how much you drive, especially during rush hour or on hot days.
3. Limit engine idling time to 30 seconds. Park your car and skip the drive-thru.
4. Fill your vehicle's gas tank during the cooler evening hours to reduce evaporation.
5. Mow your lawn and use trimmers after 7 p.m.
6. Avoid using boats, motorcycles and other small engine vehicles on hot, sunny days.
7. Keep your vehicle's tires inflated and engine well-maintained.
8. Turn off your appliances and lights when you are not using them.
9. Keep household paints, solvents and pesticides in air-tight containers
10. Plant deciduous trees around your house to keep your house cool in the summer and to allow light in during the winter.

Visit [www.idem.IN.gov](http://www.idem.IN.gov) for more ways to keep Indiana's air clear!

# How much difference can fuel really make?

By John Yelkich, Diagnostic Technician, Clean Air Car Check

During conversations with a number of catalytic converter manufacturers in preparation for Clean Air Car Check's Catalytic Converter Night on June 25, it became apparent that the quality of fuel used in today's internal combustion engines is having a significant impact on the number of DTC P0420 and P0430 codes that are being seen by area repair facilities. In the mid 1990's, BMW, General Motors, Honda and Toyota began an initiative to increase the level of detergent additives in gasoline. Even though the Federal Environmental Protection Agency had set forth standards for the percentage of those additives for gasoline sold in the United States, the above four manufacturers saw potential problems with build-ups and contaminants as a result of insufficient additive package percentages. As a result, Top Tier fuel is now available in the U.S. and is recommended for use in not only BMW, GM, Honda, Toyota, Volkswagen and Audi, but all vehicles.

So, how can the use of Top Tier fuel cause a decrease in the number of P0420 and P0430 codes your shop may see? As carbon builds-up in the combustion chamber it also begins to migrate through the exhaust system. With the oxygen sensor being part of the exhaust system, it is also exposed to the migrating carbon. In time, carbon may build up on the O2 sensor causing a degradation of the sensor's ability to correctly detect oxygen in the exhaust stream. With a typical P0420 and P0430 code enable criteria consisting of a comparison of pre-cat O2 sensor switching frequency to the post-cat O2 sensor switching frequency, it becomes apparent that if the front O2 sensor switching frequency slows, it can lead the PCM to set a catalyst efficiency code even though the catalytic converter is functioning according to design and intent. Far too many times we have seen a catalytic converter replaced only to have the catalyst code reappear after the catalyst monitor has run. The vehicle

then gets an O2 sensor and the code goes away and stays away.

This begs the question, if the O2 sensor is bad, why didn't an O2 sensor code set? The enable criteria to set the O2 code may be more forgiving than the criteria for the catalyst code. In short, the switching frequency discrepancy necessary to set the catalyst efficiency code may be a smaller value than the O2 switching degradation needed for the PCM to condemn the O2 sensor. I suspect this is true due in part to some information I received that shows a number of P0420 and P0430 codes are being addressed at the dealership level with a re-flash of the PCM.

**I am also not insinuating that non-Top Tier fuel is "bad gas". Non-Top Tier fuel may not cause any drivability concerns or issues for your customers in the short term. In the long term however, it may be to their benefit to use a Top Tier fuel.**

I have worked with technicians in the past that have blamed everything from performance issues to squeaks and wind leaks on "bad gas". My intentions are not to provide a convenient excuse to clear the catalyst code, tell your customer to fill-up with "good gas", and send them down the road with the instructions to, "Just drive 'er and that code will go away." It won't. I am also not

insinuating that non-Top Tier fuel is "bad gas". Non-Top Tier fuel may not cause any drivability concerns or issues for your customers in the short term. In the long term however, it may be to their benefit to use a Top Tier fuel. Not only may it help to eliminate deposits in the combustion chamber, it may also assist in keeping the O2 sensor and the converter free of build-ups and, subsequently, allow them to function at a higher level for a longer period of time.

To learn more about Top Tier fuel, including where it is available, you can visit [www.toptiergas.com](http://www.toptiergas.com).