
COMMENT ON ETHANOL OZONE MODEL RESULTS

PREPARED FOR: REGIONAL AIR QUALITY COUNCIL
AIR QUALITY CONTROL COMMISSION
AIR POLLUTION CONTROL DIVISION
OZONE STAKEHOLDERS

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TOPIC: MICHIGAN DEQ CAMX MODEL RUN ON E10 WITH
PERMEATION SHOWS E10 OZONE-NEUTRAL

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The paper by Gary Herwick, former director of Environment and Energy for General Motors, "Elimination of the 1 psi Ethanol Blending Waiver as a VOC and Ozone Control Strategy" (attached to my Comments on Mobile Sources and Fuels Ozone Reduction Strategies, Nov. 2007) contains the following reference to fuels studies done for the southeast Michigan marginal ozone nonattainment area in 2005:

In 2004 and 2005, southeast Michigan considered various ozone attainment demonstration strategies with similar circumstances; marginal ozone non-attainment, 7.8 RVP conventional gasoline, a substantial amount of 10 percent ethanol blended gasoline with the 1 psi ethanol waiver. They elected to reduce RVP to 7.0 psi and maintain the use of conventional gasoline with the 1 psi blending waiver in part due to the benefits of ethanol in reducing greenhouse gas emissions and increasing fuel supply. Several gasoline control options were considered including federal and California reformulated gasoline and 10 ppm sulfur gasoline.

An inventory modeling analysis of the gasoline control options done by Air Improvement Resource (AIR) for the Southeast Michigan Council of Governments (SEMCOG) provides a good relative comparison of the benefits of the fuel strategies.¹ The Michigan Department of Environmental Quality (MDEQ) ran the CAMx ozone model using the SEMCOG emission estimates with results showing that 100% market share E10 would not significantly change ozone levels in the region even with preliminary permeation data taken into account.²

¹ "Emission Reductions from Changes to Gasoline and Diesel Specifications and Diesel Engine Retrofits in the Southeast Michigan Area", Air Improvement Resource Inc., February 23, 2005.

² Hulsey and Coleman, "Clearing the Air with Ethanol," p. 5, March 2006.

The Michigan DEQ has provided a copy of the CAMx modeling results (attached). The MDEQ results show E10 either has no effect on ozone levels or results in a small decrease in ozone. These results are consistent with ENVIRON's model results for the Denver area in 2005. (Note that the Michigan DEQ studies included additional permeation emissions not included in the Denver area modeling.)

Please contact me at 303-331-6553 or Rick Griffith at 303-725-0446 if you have any questions regarding these comments.

PRELIMINARY SENSITIVITY RUN

Monitor	2000 - 2004 Design Value	Valid Test Days	2006 Base		2006 Base (VOC/CO) plus 10% Ethanol		Net Difference (ppb)
			w/OTB Controls		RRF	New DV	
			RRF	New DV			

SE-MICHIGAN

New Haven	92.3	21	0.959	88.52	0.957	88.33	-0.18
Warren	90.0	18	0.958	86.22	0.956	86.04	-0.18
Oak Park	87.7	18	0.951	83.40	0.951	83.40	0.00
Ypsilanti	87.3	14	0.926	80.84	0.926	80.84	0.00
Port Huron	88.0	17	0.939	82.63	0.939	82.63	0.00
Otisville	86.3	15	0.928	80.09	0.926	79.91	-0.17
East 7-Mile	86.0	14	0.959	82.47	0.956	82.22	-0.26
Tecumseh	85.0	20	0.942	80.07	0.942	80.07	0.00
Flint	84.7	15	0.925	78.35	0.924	78.26	-0.08
Linwood	84.0	15	0.940	78.96	0.938	78.79	-0.17
Harbor Beach	83.0	13	0.927	76.94	0.927	76.94	0.00
Allen Park	80.3	13	0.946	75.96	0.945	75.88	-0.08

Emissions

2002 modified Base I