



# Public Employees for Environmental Responsibility

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## **BEFORE THE U.S. NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION**

### **RULEMAKING PETITION TO PREVENT INJURY AND DEATH CAUSED BY CARBON MONOXIDE FROM MOTOR VEHICLE EXHAUST**

#### **NOTICE OF PETITION**

March 29, 2016

Mark R. Rosekind, Ph.D., Administrator  
National Highway Traffic Safety Administration  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE  
West Building  
Washington, DC 20590

**Re: Petition to the U.S. National Highway Traffic Safety Administration to Require the Installation of Carbon Monoxide Detectors in all New Motor Vehicles and Require the Installation of Built-In Engine Cut-Off Device to Prevent Significant Numbers of Injuries and Fatalities Caused by Carbon Monoxide from Motor Vehicle Exhaust**

Dear Administrator Rosekind:

Pursuant to the Administrative Procedure Act § 553(e) (5 U.S.C. § 553(e)), the Motor Vehicle Safety Act §§ 322, 30162 (49 U.S.C. §§ 322, 30162), and the delegation of authority from the Secretary of the Department of Transportation to the National Highway Traffic Safety Administrator, 49 C.F.R. § 1.50, Public Employees for Environmental Responsibility (PEER) hereby petitions the National Highway Traffic Safety Administration (NHTSA) to issue regulations for the prevention of injuries and deaths caused by carbon monoxide (CO) from motor vehicle exhaust. Specifically, we seek NHTSA to:

- 1) Issue annual consumer advisories warning about the dangers of vehicular CO (vCO) and recommending the use of digital CO monitors inside vehicles with gasoline engines;

- (2) Track and report all vCO-related fatalities (suicides and unintentional) in both stationary and moving vehicles;
- (3) Require manufactures to include information in new vehicle owners' manuals about the health dangers of vCO, the benefits of CO detectors, and tips for reducing vCO exposure;
- (4) Require manufacturers of vehicles with gasoline engines to install CO detectors in the passenger compartment of all new motor vehicles; and
- (5) Require manufacturers of vehicles with gasoline engines to connect the built-in CO detector to an engine cut-off switch designed to instantly shut off the ignition and engine when the interior CO level exceeds 200 parts per million (ppm), so long as the vehicle is not already moving. If the vehicle is moving, the detector should warn the occupants to immediately open multiple windows in the vehicle.

## I. Harmful Effects of Vehicular Carbon Monoxide on Public Health

**Background:** Carbon monoxide is an odorless, colorless gas, produced by the incomplete burning of certain fuels.<sup>1</sup> Once inhaled, CO disrupts the body's ability to distribute oxygen. Hemoglobin (a protein in red blood cells) binds with oxygen in the lungs and then distributes oxygen throughout the body. However, when CO enters the bloodstream it binds with hemoglobin, displacing oxygen. Thus, CO-laden hemoglobin is no longer able to transport oxygen, resulting in suffocation.<sup>2</sup>

CO poisoning is a leading cause of unintentional poisoning deaths in the United States.<sup>3</sup> According to the Centers for Disease Control (CDC), there are generally more than 430 carbon monoxide deaths each year in the United States, with more than 15,000 people requiring emergency room treatment following exposure to the gas annually. More than 60 percent of these accidental non-fire CO poisoning deaths arise from motor vehicle exhaust.<sup>4</sup>

Because CO is undetectable by human senses, victims are often unaware that they are being exposed.<sup>5</sup> Symptoms range from flu-like, such as nausea, headaches, and fatigue, to more severe, such as confusion, vomiting, loss of consciousness, and death.<sup>6</sup> Many people who survive exposure are left with permanent brain damage from carbon monoxide gas.

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<sup>1</sup> <http://www.mayoclinic.org/diseases-conditions/carbon-monoxide/basics/definition/con-20025444>

<sup>2</sup> <http://scienceline.ucsb.edu/getkey.php?key=1856>

<sup>3</sup> [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5733a2.htm?s\\_cid=mm5732a2\\_e](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5733a2.htm?s_cid=mm5732a2_e)

<sup>4</sup> <https://www.cpsc.gov/PageFiles/81314/3512c1f.pdf>

<sup>5</sup> <http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Carbon-Monoxide-Information-Center/Carbon-Monoxide-Questions-and-Answers/>

<sup>6</sup> <http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Carbon-Monoxide-Information-Center/Carbon-Monoxide-Questions-and-Answers/>

The most common source of injurious CO exposure is motor vehicle exhaust.<sup>7</sup>

While vehicular deaths from carbon monoxide were sharply reduced after the introduction of the catalytic converter in 1975,<sup>8</sup> carbon monoxide poisoning in motor vehicles remains a significant cause of deaths each year. When intentional deaths and deaths from stationary vehicles are included, more than 1,500 each year dies from CO poisoning related to motor vehicles.

In vehicles traveling on the highway, poorly designed or clogged vehicle exhaust systems are known to put drivers and passengers at risk of carbon monoxide poisoning. When a vehicle's exhaust enters the vehicle cabin, it can lead to carbon monoxide poisoning and can even cause unconsciousness, brain damage, and death. Even mild symptoms can be catastrophic, as they may interfere with the ability to operate the vehicle, potentially causing an auto accident.

Despite these obvious impacts, NHTSA has taken no system-wide action to reduce the prospects of CO-related vehicular death or injury.

### **A. Unintentional Vehicle Deaths and Injuries**

Precisely because CO is odorless and colorless, drivers and passengers are vulnerable to exposure, even in lethal amounts, due to a variety of factors. NHTSA's own complaint database shows 212 CO-related complaints filed from 2010-2015. The complaints can largely be divided into two categories.<sup>9</sup> Most common are complaints of CO entering the passenger cabin of the motor vehicle while driving, particularly when accelerating. Second most common are complaints of keyless start function failure, where a vehicle's remote start feature malfunctions, causing the vehicle's engine to turn on and run until the vehicle is out of gas. Many of the keyless start malfunctions took place in an enclosed area, typically an attached garage.

As detailed below, these complaints are often associated with fatalities and injuries. Increasingly, these CO exposures are also becoming the subject of litigation.

#### ***1. Poor Ventilation Design***

The NHTSA is aware of a class action lawsuit filed in 2015 which claims that design defects in recent models of the Ford Explorer allow exhaust fumes containing deadly carbon monoxide gas to enter the passenger cabin. The complaint was filed against Ford Motor Company in U.S.

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<sup>7</sup>[http://www.mountsinai.org/static\\_files/MSMC/Files/Patient%20Care/Children/Childrens%20Environmental%20Health%20Center/Carbon%20Monoxide.pdf](http://www.mountsinai.org/static_files/MSMC/Files/Patient%20Care/Children/Childrens%20Environmental%20Health%20Center/Carbon%20Monoxide.pdf)

<sup>8</sup> [http://neilhampson.com/uploads/3/4/0/6/3406995/2015mv-suicide\\_co.pdf](http://neilhampson.com/uploads/3/4/0/6/3406995/2015mv-suicide_co.pdf)

<sup>9</sup> See <http://www-odi.nhtsa.dot.gov/owners/SearchResults.jsessionid=RqS5WxcJpb32sTM1BLyv3ZqZTt1rMgPOY1sqs0shX2CTJ17yvHp!356377737>.

District Court for the Southern District of Florida, seeking class action status to represent anyone in Florida who owned or leased a model year 2011, 2012 or 2013 Ford Explorer.<sup>10</sup>

According to the lawsuit, the lead plaintiffs still suffer side effects from carbon monoxide exposure caused while riding in their 2013 Ford Explorer. In December 2012, Ford issued a technical service bulletin (TSB 12-12-4) advising dealers about how to address exhaust problems with the vehicles. However, the lawsuit claims that the company never informed customers about the Ford Explorer carbon monoxide risks and still has not addressed the problems. Nor is it established that the service bulletin's instructions prevent the toxic fumes from entering the cabin.

The NHTSA has also received several complaints of exhaust fumes coming into the vehicles as alleged in the class action suit. Some of the complaints maintain that dealerships were unable or unwilling to fix the problem. Other owners report being told that there was no carbon monoxide flowing into the vehicles.<sup>11</sup>

Two aspects of this development are of particular note:

- Passengers in the rear of the vehicles, often children, are exposed to the higher levels of unventilated CO; and
- The magnitude of this dangerous defect may extend to as many as 750,000 vehicles.

NHTSA has yet to act on these complaints. Significantly, however, the measures propounded by this petition would address significant public safety and health concerns inherent in this development.

## ***2. Keyless Ignition Systems***

The NHTSA is also aware of the increased dangers of keyless ignition systems due to vehicle owners accidentally leaving their vehicles running. Deaths and injuries associated with keyless ignition vehicles have been reported in states such as Florida, New York, and North Carolina.

A class action lawsuit filed in 2015 charges that 13 deaths are due to what is alleged to be defective keyless ignition systems which allow cars to continue to run even after the keyless fob is no longer located in the car. The plaintiffs estimates that more than five million cars on U.S. roads are equipped with keyless ignitions with this defect.<sup>12</sup>

Again, the measures urged by this petition would minimize these safety risks.

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<sup>10</sup> <http://www.aboutlawsuits.com/ford-explorer-carbon-monoxide-poisonings-66829/> ; [http://articles.sun-sentinel.com/2014-03-10/news/fl-viewpoint-carbon-moxide-20140310\\_1\\_carbon-monoxide-colorless-and-odorless-gas-vehicle-owners](http://articles.sun-sentinel.com/2014-03-10/news/fl-viewpoint-carbon-moxide-20140310_1_carbon-monoxide-colorless-and-odorless-gas-vehicle-owners)

<sup>11</sup> <http://www.aboutlawsuits.com/ford-explorer-carbon-monoxide-poisonings-66829/#sthash.hg157PFm.dpuf>

<sup>12</sup> <http://www.carcomplaints.com/news/2015/keyless-ignition-carbon-monoxide-deaths-lawsuit.shtml>

### ***3. Weather-Related Vehicular CO Deaths***

Cold weather, and especially heavy snow storms, create circumstances leading to CO poisoning deaths or injuries. One late January 2016 storm blanketing the East Coast produced a number of CO vehicular deaths, including –

- A New Jersey family, trapped over the weekend in the massive East Coast snowstorm, was trying to dig its way out when the chill became too much to handle. The mother and her children – ages 1 and 3 –huddled in the car with the engine running to keep warm as their father tried to clear the snow outside. Within minutes, the mother and children died from carbon monoxide poisoning, as no one seemed to realize that the tailpipe was clogged with snow.<sup>13</sup>
- A Brooklyn man died of carbon monoxide poisoning while sitting in his snowbound car charging his cellphone in the aftermath of the blizzard. He became trapped in his vehicle by a mound of snow from a snowplow and succumbed as he desperately tried to escape.<sup>14</sup>
- An Allentown (PA) man died of carbon monoxide poisoning, two days after being overcome by exhaust fumes while sitting in his snowbound car. He had been shoveling snow and apparently got into his car to rest and turned on the engine to activate the heater. He did not realize that the car's exhaust pipe was blocked with snow.<sup>15</sup>

These deaths took place within hours of each other in different states from the same storm. The overall CO toll from cold and snow-related vehicular incidents is not precisely known but it can be inferred that it is a much larger toll.

At the same time, CO emissions from vehicle exhaust increase in cold weather.<sup>16</sup> As the U.S. experiences more extreme weather events, one could reasonably expect these weather related vCO events to also increase. These dangers could be dramatically reduced by the measures proposed in this petition.

### ***4. CO and Driver Drowsiness***

Drowsy driving is the second leading cause of traffic accidents, behind impaired driving.<sup>17</sup> According to NHTSA's National Motor Vehicle Crash Causation Study, drowsy drivers involved

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<sup>13</sup> <https://www.washingtonpost.com/news/morning-mix/wp/2016/01/25/everybody-cry-mom-1-year-old-killed-by-carbon-monoxide-as-dad-clears-snow/>

<sup>14</sup> <http://nypost.com/2016/01/25/man-dies-of-carbon-monoxide-poisoning-while-charging-phone-in-car/>

<sup>15</sup> <http://www.mcall.com/news/breaking/mc-c-allentown-co-death-in-snow-20160127-story.html>

<sup>16</sup> <http://www3.epa.gov/otaq/consumer/03-co.pdf>

<sup>17</sup> <http://www.automotive-fleet.com/news/story/2015/03/fleet-safety-video-tip-preventing-drowsy-driving.aspx>

in a crash are twice as likely to make performance errors as compared to drivers who are not fatigued. In extreme cases, a drowsy driver may fall asleep at the wheel.<sup>18</sup>

According to NHTSA's FARS database, there were 846 fatalities (2.6% of all fatalities) recorded in that were drowsy-driving-related during 2014. These reported fatalities (and drowsy-driving crashes overall) have remained largely consistent across the past decade. Between 2005 and 2009 there was an estimated average of 83,000 crashes each year related to drowsy driving, including 886 fatal crashes (2.5% of all fatal crashes), an estimated 37,000 injury crashes, and an estimated 45,000 property damage only crashes.<sup>19</sup>

The observed detrimental effects on driving performance included visual field constriction, decreases in reaction time, lessened driver precision accompanied by increases in driving speed and failure to slow properly while cornering.<sup>20</sup>

To the extent that driver drowsiness is induced by exposure to CO, the actions urged in this petition would reduce this danger.

## **B. Intentional Injuries and Fatalities**

The overwhelming majority of CO-related suicides arise from motor vehicle exhaust. CO poisoning accounts for approximately 1,750 intentional deaths annually in the U.S. Of the 61,129 individuals committing suicide by CO poisoning from 1968-1998, an estimated 99% were motor vehicle-related.<sup>21</sup> In a study of 433 patients treated at one U.S. hyperbaric oxygen therapy facility for intentional but obviously non-fatal CO poisoning from 1980 to 2005, 94% used motor vehicle exhaust as the CO source.<sup>22</sup>

A CO detector/alarm in these vehicles could prevent many of these deaths. It is well known that those who attempt suicide are at far greater risk of eventual suicide than the general population.<sup>23</sup> While that risk is higher, it is estimated that only about 10-15% of attempters eventually die by suicide.<sup>24</sup> Thus, the majority of those who escape suicidal death through the measures urged in this petition could be expected to lead full lives thereafter.

As a result, CO safety measures as urged in this petition which would prevent suicides could be reasonably expected to produce a significant saving of lives.

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<sup>18</sup> <http://www.nhtsa.gov/Driving+Safety/Drowsy+Driving>

<sup>19</sup> <http://www-nrd.nhtsa.dot.gov/Pubs/811449.pdf>

<sup>20</sup> <https://www.carthrottle.com/post/carbon-monoxide-poisoning-nearly-killed-this-driver-this-is-his-story/>

<sup>21</sup> [http://neilhampson.com/uploads/3/4/0/6/3406995/2015mvsuicide\\_co.pdf](http://neilhampson.com/uploads/3/4/0/6/3406995/2015mvsuicide_co.pdf)

<sup>22</sup> Hampson NB, Bodwin D. Toxic co-ingestions in intentional carbon monoxide poisoning. J Emerg Med 2013; 44(3):626-630. Epub 2012, Nov 5.

<sup>23</sup> Owens D, Horrocks J, House A: Fatal and non-fatal repetition of self-harm: systematic review. Br J Psychiatry 2002; 181:193-199

<sup>24</sup> Suominen et al. (2004). Completed Suicide After a Suicide Attempt: A 37-Year Follow-Up Study. Am J Psychiatry, 161, 563-564

## **II. Regulation of Motor Vehicle Safety: The Legal Basis**

The Motor Vehicle Safety Act imposes a legal mandate to create motor vehicle safety standards and to carry out safety research and development in order to reduce traffic accidents and deaths and injuries.<sup>25</sup> The safety standards and research proposed in this petition would serve the central purpose of the Motor Vehicle Safety Act in the following ways:

1. CO detectors, cut-of switches and ventilation warnings in vehicles with gasoline engines would dramatically reduce the deaths and injuries caused by –
  - a. Unintentional CO exposure in vehicles from faulty ventilation;
  - b. Build-up of CO in passenger compartments from blocked exhaust pipes;
  - c. Vehicles mistakenly left running in enclosed places; and
  - d. Attempted suicides using vehicle exhaust
2. Driver and passenger awareness of CO dangers and thus their ability to prevent vehicle-related death and injury would be strengthened by –
  - a. Annual NHTSA consumer advisories warning about the dangers of vehicular CO and recommending the use of digital CO monitors inside vehicles; and
  - b. Requiring manufactures of to include information in new vehicle owners’ manuals about the health dangers of vCO, the benefits of CO detectors, and tips for reducing vCO exposure.
3. The ability of NHTSA to evaluate the need for safety standards would be enhanced by its reporting, tracking, and analyzing all vCO-related fatalities (suicides and unintentional) in both stationary and moving vehicles. This would allow NHTSA to take a holistic view of a significant threats to public safety rather than a limited view hampered by jurisdictional blinders.

## **III. Rationale for Regulations to Reduce the Risk of Vehicular Carbon Monoxide Poisoning**

The current approach NHTSA employs to reduce CO risks to the motoring public are piecemeal, after-the-fact and not forward looking.

### **A. Recalls Are an After-the-Fact of Exposure Response**

In the past decade, the NHTSA has issued CO-related recalls for 740 recreation vehicles (RVs) in 2012 (involving 3 models) and 97,655 passenger vehicles from 2013-2015 (involving 5 models).

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<sup>25</sup> 49 U.S.C. § 30101



In 2012, three RV models were recalled because they were manufactured without installation of an exterior furnace vent.<sup>26</sup> Without proper exhaust ventilation the furnace would run and release CO into the interior, resulting in asphyxiation or CO poisoning.

In 2013, four passenger vehicle models were recalled because the remote engine starter (RES) fob, if dropped, could malfunction and randomly send an engine start request without pressing the button.<sup>27</sup> If the vehicle was in an enclosed space, CO could build up.

In 2015, one passenger vehicle model (totaling over 50,000 units) was recalled because if the driver exited the vehicle without turning off the electrical system, the battery could drain low enough that the gasoline engine would start itself automatically in order to recharge the electric battery.<sup>28</sup> If in an enclosed space, the process could cause buildup of CO.

These recent multiple recalls underline two significant points: 1) the prevalence of CO exposure to the motoring public remains significant and pervasive; and 2) recalls come only after thousands of drivers and passengers have already been exposed to possibly injurious levels of CO which may have led to an unknown number of accidents.

By contrast, the approach propounded in this petition is preventative and designed to both avoid exposures and educate drivers about warning signs as well as prevention steps.

## **B. Efficacy of CO Detectors, Engine Shut-Offs and Alarms Should Be Acknowledged**

In prior years, NHTSA has twice rejected similar rule making petitions. In 1997, NHTSA rejected a similar petition, stating that it already addresses the issue in annual consumer advisories and that it would continue to do so.<sup>29</sup> In 2005, NHTSA again rejected another petition, citing the same reasons given in the 1997 petition denial.<sup>30</sup>

### **1. NHTSA Must Require Manufacturers to Install Carbon Monoxide Detectors in Passenger Compartments of All New Motor Vehicles – and Offer Equivalent Devices as Optional Upgrades for Older Vehicles – Featuring a Digital Display and a Temporary Silence-able Audiovisual Warning Activated Instantly by Carbon Monoxide Levels Above 9ppm.**

NHTSA essentially gave four reasons for rejecting this request in both 1997 and 2005.

**Location.** First, NHTSA doubted the effectiveness of the proposed location of the detector. NHTSA stated that 70% of vehicle-related CO fatalities occur *outside* the vehicle while the

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<sup>26</sup> 2012: <http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM429428/RCDNN-12V529-8218.pdf> (740) [https://www.automd.com/recall/campaign\\_c91511/](https://www.automd.com/recall/campaign_c91511/)

<sup>27</sup> 2013: <http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM434360/RCAK-13V061-5804.PDF> (over 47,000 units) [http://www-odi.nhtsa.dot.gov/recalls/recallresults.cfm?SearchType=DrillDown&type=VEHICLE&year=2010&make=SUBARU&model=OUTBACK&component\\_id=0%20&SUBMIT=Retrieve+Recalls&PrintVersion=YES](http://www-odi.nhtsa.dot.gov/recalls/recallresults.cfm?SearchType=DrillDown&type=VEHICLE&year=2010&make=SUBARU&model=OUTBACK&component_id=0%20&SUBMIT=Retrieve+Recalls&PrintVersion=YES)

<sup>28</sup> 2015: <http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM475305/RCAK-15V145-9179.pdf> (over 50,000 units)

<sup>29</sup> 62 Fed. Reg. 182 (Sept. 19, 1997).

<sup>30</sup> 70 Fed. Reg. 186 (Sept. 27, 2005).



vehicle is in an enclosed space. NHTSA concluded that *in-vehicle* CO detectors would fail to address 70% of vehicle-related CO fatalities. Furthermore, because most vehicle-related CO fatalities occur in an enclosed space (such as an attached garage) a home detector would be substantially more effective at preventing vehicle-related CO fatalities.

The most obvious refutation of this argument is that while the proportion of fatalities occurring in the vehicle is smaller than the number occurring outside the vehicle, the number of fatalities in vehicles is still quite large. This is not an academic comparison – what is at stake is preventing numerous vCO fatalities and injuries that occur in vehicles. Those that occur elsewhere are not the concern of this petition.

**Longevity.** Second, NHTSA attacked the longevity of CO detectors' effectiveness. NHTSA's 1997 rejection stated that the detectors in question could run for approximately six years before requiring maintenance and replacement of the CO sensor. Thus, NHTSA concluded that by the time vehicles degrade to a point where exhaust may enter the passenger cabin, the CO detectors may already be in need of maintenance. NHTSA also stated a concern that drivers would neglect to maintain their CO detectors.<sup>31</sup>

There are several counters to this contention. First, even if alarms only provide five years of protection, that is still a substantial improvement which would address ventilation and other defects in newer model cars. Second, CO detectors, which are quite inexpensive, could be easily replaced. This replacement function would be substantially enhanced by the petition's recommendation that dealers include CO warnings and information to customers. Keeping CO detection operative throughout the warranty-life of the vehicle should be integrated into the dealer maintenance regime. Third and finally, this concern is outdated and no longer warranted. For example, the \$5 metal oxide CO sensor now commonly used in Heating, Ventilation, Air Conditioning (HVAC) systems today last over 10 years.<sup>32</sup> Thus, unless destroyed in a crash, a CO detector could be expected to remain operational throughout most of the useful life of the vehicle.

**Cost.** Third, NHTSA expressed concern regarding the estimated cost of detectors. In particular, NHTSA emphasized that the projected cost did not include installation and manufacturer or dealer profits, which would have added approximately 50% onto the original cost projection.

This concern is also no longer warranted, as the \$5 cost of metal oxide CO sensors described above encompasses all such costs.<sup>33</sup>

**Empirical Support.** Fourth and finally, NHTSA claimed that the earlier petitioners offered no data to support assertions that CO detectors can actually prevent deaths.

This concern appears to be utterly misplaced. CO sensor controllers are widely used now already in cars and in other applications – such as to control commercial garage fans where they

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<sup>31</sup> 62 Fed. Reg. 182 (Sept. 19, 1997).

<sup>32</sup> <https://www.kidde.com/home-safety/en/us/for-owners/product-alerts/important-notice-replace-your-co-alarms-every-7-years/>

<sup>33</sup> <https://www.frost.com/sublib/display-market-insight.do?id=19294709>

must meet building code standards. In these uses, CO devices designed to shut off the engine when CO is above a particular level for a particular time have shown that they can be relied upon to do so. Similarly, CO in-home detectors have also been shown to prevent deaths.<sup>34</sup>

Moreover, the limited research into in-vehicle CO detectors supports their efficacy.<sup>35</sup>

Thus, there does not appear to be a cogent rationale for believing that CO detectors and controllers could not be expected to function as intended.

**2. NHTSA Must Require Manufacturers of Vehicles with Gasoline Engines to Connect Built-In Carbon Monoxide Detectors to An Engine Cut-Off Switch Designed to Instantly Shut Off the Ignition and Engine as Soon as and as Long as the Carbon Monoxide Levels Inside the Vehicle Exceed 200ppm, Provided that the Vehicle is Not Already Moving – If the Vehicle is Moving When 200ppm Is Exceeded, the Device Should Direct Occupants to Open More than One Window Immediately.**

NHTSA rejected this request stating that it could prove to be a hazard. NHTSA gave the example of a tunnel congested with traffic where the concentration of CO may cause the device to shut off the engine, resulting in further traffic congestion and crashes.

However, data indicates that even in a congested traffic with poor ventilation, the concentration of CO will not reach the proposed engine cut-off threshold.<sup>36</sup> The study also states that in a normal-traffic tunnel scenario (where the vehicle windows are closed) the CO levels inside the vehicle will be three-eighths the level outside the vehicle. In its estimates of high congestion, the study assumed that vehicle windows would remain open and therefore made no reduction to account for the differences in exterior/interior CO levels.<sup>37</sup>

Moreover, this petition recommends that when the vehicle is moving that, rather than an engine shut-off, there would be a warning to immediately open the windows.

Other than the tunnel scenario, NHTSA appears to be tacitly conceding that CO shut-off switches and open-window warnings would unquestionably save lives. Even the tunnel scenario concedes the mortal danger of CO exposure in a closed space – a danger for which NHTSA offers no relief.

Paradoxically in 2005 when it rejected the earlier request for requiring use of CO detectors inside vehicles, NHTSA essentially stated that it doubted claims that CO detectors in vehicles will actually prevent a majority of vehicle-related CO fatalities. Similarly in its 1997 rejection, NHTSA stated that it would consider advising consumers on the availability and value of vehicular CO detectors in its consumer advisories.

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<sup>34</sup> <http://www.ncbi.nlm.nih.gov/pubmed/11239251>

<sup>35</sup> <http://papers.sae.org/2000-01-0084/> (full article at [http://www.co-gas-expert.com/wp-content/uploads/2012/12/galatsis\\_vehicle1.pdf](http://www.co-gas-expert.com/wp-content/uploads/2012/12/galatsis_vehicle1.pdf))

<sup>36</sup> [http://www.nhmrc.gov.au/files\\_nhmrc/publications/attachments/eh42.pdf](http://www.nhmrc.gov.au/files_nhmrc/publications/attachments/eh42.pdf)

<sup>37</sup> Ibid, at p.66

Thus, NHTSA seems to concede that CO detectors are of safety value but, for not very compelling reasons, stops short of considering their inclusion in a safety program.

There are two other parts of this and the prior petitions to which the NHTSA did not appear to respond:

- i. *NHTSA Must Track and Report all Carbon Monoxide-Related Deaths (both unintentional and suicides) in Stationary and Moving Vehicles Annually Using Data Collected by NCHS.*

NHTSA did not specifically reject this request. However, starting in 2009, NHTSA began to publish “Not in Traffic Surveillance” (NiTS) reports, documenting fatalities and injuries that occur in non-traffic crashes and non-crash incidents. This includes data on CO fatalities and injuries. These reports are compiled based on data from multiple sources and record information such as the vehicle type and the cause of the injury/fatality. The data reports are not voluntary; they were implemented upon congressional mandate. Additionally, NHTSA stated in its rejection of this request that the number of vehicle-related CO fatalities is decreasing despite lack of regulation. Yet, vehicle-related CO injuries still remain high (an estimated 2000 a year).

The refusal by NHTSA to track a significant, known vehicle-related killer and the source of thousands of injuries annually appears to be irresponsible and a dereliction of its statutory mission.

- ii. *NHTSA Must Require Manufacturers to Include Detailed Information in New Vehicle Owner’s Manuals about the Health Dangers of Carbon Monoxide, the Benefit of Carbon Monoxide Detectors, and Tips for Reducing Carbon Monoxide Exposure.*

NHTSA gave no direct reason for rejecting this request in 2005. In NHTSA’s 1997 rejection of a similar request, it stated that placing such information in owner’s manuals would not effectively reach all affected parties. As an example, NHTSA explained that an owner’s manual may not be passed along in a change of vehicle ownership.

The NHTSA concern appears to make the perfect the enemy of the good – because the valuable, potentially life-saving safety information would not reach all parties, that therefore no one should receive it.

Yet in promising consumer advisories, NHTSA also acknowledged the benefit of at least providing information about the dangers of CO as well as tips for reducing CO exposure.<sup>38</sup> In short, NHTSA offered specious and fragmentary reasons for declining to require distribution of CO information to vehicle buyers.

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<sup>38</sup> 62 Fed. Reg. 182 (Sept. 19, 1997) (promising to address the issue of CO in annual consumer advisories).

### **C. NHTSA's Rationale Was Disingenuous**

As noted, in its prior rejection of similar petitions, NHTSA stated that it already addresses the issue in annual consumer advisories. This central contention appears to be at odds with reality.

A search on NHTSA's website does not lead to any results for annual consumer advisories showcasing the dangers of CO. Any advisories that do discuss the dangers of CO devote at most only a couple of sentences to the issue.

In other words, the NHTSA promise that it would protect the public through heightened use of advisories did not come to pass

### **D. Advances in Technology Argue for NHTSA to Act**

Advances such as the keyless ignition systems did not exist when NHTSA last examined this issue. Moreover, NHTSA admits that such systems can present serious safety risks.

Instead of proactively addressing these risks, NHTSA is taking a passive approach, deferring to rising waves of litigation, passively letting the courts sort out what should be NHTSA's job.

### **Conclusion: Continued NHTSA Inaction Has Not Protected the Public**

Since NHTSA was first informed of the life-saving potential of CO detectors linked to engine cut-off switches, in excess of 20,000 North Americans have died needlessly from vehicular CO poisoning.

At the same time, these CO detectors are reliable and very inexpensive. They are far less expensive than other measures that NHTSA has approved. In short, requiring these devices may one of the most significant and cost-effective vehicle safety measures since the seat belt.

Therefore for the reasons articulated, PEER petitions the NHTSA to issue the specified regulations for the prevention of injuries and deaths caused by carbon monoxide from motor vehicle exhaust.

Sincerely,

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